Commander
Automated Operator Services

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CORPORATE HEADQUARTERS
Science Dynamics Corporation – SciDyn
2059 Springdale Road, Suite 100
Cherry Hill, NJ 08003 USA
Tel: +1 (856) 424 0068
Fax: +1 (856) 751 7361

Email: sales@scidyn.com
Web: http://www.scidyn.com
OTCBB: SIDY.OB

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Automated Operator Services (AOS)

Overview

Science Dynamics Corporation's (SciDyn) Automated Operator Services (AOS) works within standard Commander operation to completely automate collect call processing. Use of Commander AOS allows you to discontinue the costly use of live operator handling or a centralized automated attendant billing system.

SciDyn's Commander AOS provides the following capabilities:

- 0+ to 1+ conversion on system processed calls
- Extensive call rating subsystem
- Call rate quote forced or optional
- Multi-lingual selectable by calling party (supports up to 10 languages)
- Call branding
- Programmable accept and reject digits
- Programmable offer count to called party
- Store and forward caller's name
- Force completion of offer message
- Automatic activation of rate table updates
- Billed number screening (BNS) with online provider
- Integrates with the SciDyn 3-Way Call Detection software
- Optional live operator handoff

Features

0+ to 1+ Conversion on System Processed Calls

All calls processed by the Commander AOS system are translated from 0+ dialing to the appropriate direct dial method. The system provides several options for program translations. Any called number can be translated based on the geographical destination, such as local or interlata, or extended calling area qualifications. The system also provides rate step or rate band based translations. Finally, any specific NPA-NXX can be translated as an exception to an established general rule.

Extensive Call Rating Subsystem

Each call is rated in real time during the call setup. The rating subsystem provides over 100 rate steps from the originating rate center. Call rating is based on time of day, day of week, and mileage. A total of eight discount periods are also supported. SciDyn can provide rate updates on a quarterly basis or as required due to tariff changes.

Call Rate Quote Forced or Optional

When offering an AOS call to the called party, the system can be enabled to allow the called party to listen to the cost of the call before accepting. The quote states initial cost and period, and overtime cost and period. The system can also provide the rate quote by default in the initial offer message.

Multiple Languages Selectable by Calling Party

The Commander uses an advanced digital announcer system. Each port in the system is equipped with a dedicated voice announcer. The system internally supports up to 99 languages. During call processing, the called party can be given an option to select a language by pressing a DTMF digit on the phone. This allows the called party to easily select from a list of up to 10 available languages. All prompts played during the remainder of the call are provided in the selected language. A system default language can also be specified.

Call Branding

The Commander AOS system can announce the name of the operating company handling the call. The brand is provided to the calling party “Thank you for using….” and the called party “This is … with a collect call from…”. Additionally the branding can be customized to support separate brands for local versus long distance carriers.

Programmable Accept and Reject Digits

System administrators can specify which DTMF digits are used to accept or reject an AOS offer. The Commander AOS system uses positive call acceptance to confirm collect call charge acceptance.

Programmable Offer Count to Called Party

If no response is received from the called party when a collect call is offered, the system can repeat the offer to the called party as many times as appropriate. If the system does not receive a response after the last call offer, it disconnects the call and informs the caller that the charges have been refused.

Store and Forward Caller's Name

The system records the caller's name and stores it for replay to the called party during the collect call offer. The system monitors the recording process to prevent fraud. If the system does not detect the caller's voice during the recording, or a DTMF digit was dialed, the caller is refused service and disconnected.

Force Completion of Offer Message

When required, the system administrator can configure the Commander to force the called party to listen to the entire AOS offer message before allowing the called party to accept or reject the call. This option guarantees that the called party has heard all rules and instructions before accepting.

Automatic Activation of Rate Table Updates

Scheduled rate table updates can be loaded into the Commander system in advance of the tariff in service date. The system automatically activates the new rates at a pre-programmed date and time. Any calls in progress before the activation will continue to use the rates in service at the start of the call.

Billed Number Screening (BNS) with Online Provider

The Commander AOS system provides an online validation of collect call attempts. The system supports a common interface available to most BNS providers. The system can also cache BNS responses for a duration, which can be set from seconds to over a week. The system cache capacity is limited only by available disk capacity. A user limit allows for a maximum cache size.

Operation

This section provides a description of how a call is processed by the Commander AOS system.

Standard Call Handling

1. The AOS system absorbs the digits dialed by the caller.
2. For all 0+ calls, the AOS rates the call and determines if the call should be automatically handled based on local or long distance rules.
3. The AOS performs a Billed Number Screening on the called number.
4. If the Language Selection option is enabled, the AOS prompts the caller to select the appropriate language.
5. The caller is prompted to record his or her name in the selected or default language.
6. The AOS instructs the caller to remain on the line while the call is dialed and the collect call is offered to the called party.
7. Call progress information is audible to the caller after it is dialed.
8. When the called party answers, the caller is placed on hold while the called party is offered the service.
9. The called party is informed of the collect call and the system announces the recorded name.
10. If enabled, the called party is offered the option to listen to the rates associated with the call.

11. Upon acceptance by the called party, the two parties are connected.
    - If the caller refuses the call, the caller is informed and the system generates a call detail record (CDR).
    - The system tracks the call duration for all accepted calls.
12. When the call is complete, the system records call detail information, including the cost of the call.

Alternate Call Handling

Under certain conditions, the system must process a call outside of the standard call flow for a collect call. These cases are described below.

Not a Collect Call or not Handed Call

If a direct dialed call is place by the caller, the AOS system will forward the call to the network as dialed. A call detail record is generated and stored for this call. The system also checks 0+ calls against the AOS enable options. The system administrator can independently enable or disable AOS on local, intralata, interlata, and international calls.

Name not Recorded

If the caller does not speak when prompted to record their name, or if the system detects an attempt to record a DTMF digit, the caller is refused the service. A message informs the caller that their name was not recorded. The system prompts the caller to try the call again, and the phone generates a fast busy tone until the caller hangs up.

Called Party did not Respond

If the called party does not respond to the offer of service within the allowed time, the system replays the offering. It continues to retry the offer until it reaches the programmed limit. After all offers are completed, the system disconnects and informs the caller that the charges have been refused.

Live Operator Selection

If enabled, the Commander AOS offers the calling party an option to select a live operator rather than the automated system operator. Once the caller selects the live operator option, the system transfers the call to a network Collect Call service. If the call is local or intralata, the Commander dials the call 0- to the network. If the call is interlata, the system dials the call out 0+.

System Components

Telephony Call Processing

The call processing component of the AOS system resides in the call processing engine BubbleLINK module. The call processing engine handles the interface between the AOS system, the Station, and the Network. The call processing engine provides the Call Progress, Tone Detection and Generation, and Voice Record and Playback capabilities.

Real Time Call Rating

The Real Time Call Rating component uses internal call rating tables to provide real-time rating of a call. The Commander AOS typically provides greater than 100 rate bands from any rate center. The Commander systems times calls to within one second, and uses the internal rate tables to provide costing information based on mileage, time of day, day of week and holiday. The system supports up to eight discount periods. If required, the call rating subsystem can also rate international calls. Rate table updates can be remotely installed using dial-in access. Once a new call-rating table is installed, the system automatically activates the new rates on a pre-programmed day and time. The system maintains both the current rate table as well as the previous table that was superceded by the new table. Calls in progress at the time of a rate table activation will use the rates in effect when the call originated.

Line Information Database (LIDB) Verification

The Billed Number Screening (BNS) subsystem provides real-time billed number screening using a dedicated link to a LIDB database provider. The LIDB system provides local caching of the results returned from the LIDB network. The size of the LIDB cache is programmable up to thousands of numbers. The lifetime of a cache entry is programmable from 0 seconds to over one week. Each cache entry is individually aged from the system. The LIDB process allows any LIDB network response code to be mapped to a system pass or fail result.

Call Detail Record (CDR) Collection

The Commander system uses an advanced CDR collection subsystem. CDR records are collected within the system in real time. To avoid loss of data, CDRS are immediately appended to both the master CDR database and a backup CDR database, which is located on a different disk drive. For data reliability reasons, only one of the CDR databases is open at a time. If the active database fails, the CDR collector automatically switches to an alternate CDR database. Use any drive within a Commander network to store any of all of the CDR databases. All CDR databases are validated on system start up. If a database is determined to be corrupt and cannot be automatically repaired by the system, the CDR process switches to one of the alternate databases to allow the system to go into service until the failed database can be corrected by a service technician.

The system extracts specific data from the CDR record to generate billing data, which can be polled by an AMA collector or can be delivered to a host system as necessary. All CDR data within the system is maintained within two mirrored storage elements and can be recollected as many times as necessary. Internally the system tracks the number of times a data file has been collected. The system will retain data as long as the customer deems appropriate; the system is typically set to hold data for 90 to 120 days. During this retention period, data from any day can be recreated and retransmitted. The system can be programmed to provide billing data in any record format necessary. This includes EMI, BAF, or custom formats required by a customer’s host system.