CALL CENTERS

Understanding Call Centers and Using the Samsung Call Center Application

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BACKGROUND

A **Call Center** is defined as a location where telephone calls are received and/or made by a specified department or group within an organization. A Call Center has generally has three elements: 1) people to place or answer the calls, 2) a method for distributing the calls, and 3) some form of information gathering for managing the call center.

There are generally three types of Call Centers:

1) **Incoming** – where calls are made to the location for the purpose of either obtaining information (help desks, service centers, etc.) or passing on information (order entry, surveys, dispatch, etc.)
2) **Outgoing** – where outbound calls are made for the purpose of making sales or gathering information
3) **Combination** – where both incoming and outgoing calls are handled as part of an on going part of the business operation.

Although most people think of Call Centers as being very large, most businesses have some form of a Call Center operation and they are not aware that it exists. The purposes of a Call Center are to generate revenue or gather information for the company, expedite the overall process of information exchange, improve worker efficiency and satisfy customer needs.

Call Centers use specialized services to help automate and efficiently handle the Call Center traffic. In the case of **Outgoing Call Centers**, services such as **Predictive Dialers** are employed. Predictive dialing is an automated method of placing outbound calls, predicting how long the call will ring before it is answered, and then presenting the call to a person (agent) to handle simultaneously with the answer of the call. This service greatly improves productivity of the agent as ring-back time, busy signals, etc create lost worker time. Statistics published by the Call Center Industry show that where manual (non-automated) dialing methods are employed only 25 minutes out of each hour are productive. With Predictive Dialing this is improved to 50 minutes out of each hour. Most people can identify with Predictive Dialers by the annoying evening calls where the telephone rings and after getting up and answering the call there are a series of clicks then the line is dead. This annoyance is caused because at your time of answer there was not an agent available to take the call.

Incoming Call Centers use services such as **Automatic Call Distribution (ACD).** An ACD distributes incoming calls in some pre-established logical pattern to a group of operators (agents). That pattern might be **Uniform** (distributing the calls uniformly) or **Top-Down** (same agents in the same order). There is also specialty routing, where calls are distributed to agents who are most likely specialized and able to help more readily. Where more than one specialized answering point is needed the agents are divided into **Groups.** The ACD attempts to provide an agent to handle each call within a time frame

that is acceptable to caller. Therefore calls are generally answered automatically, the caller given call status information, and then placed into an answering queue awaiting an agent. Distributing calls logically is the function most people associate with an ACD, though it is not the most important.

The management information which the ACD provides is much more valuable. This information is of three sorts: 1) The arrival of incoming calls (when, how many, which lines, from where, etc.) 2) How many callers were put on hold, asked to wait, and didn't. This is called **Abandoned Call** information. 3) Information on the origin of the call. This information is called **ANI** (automatic number identification), **DNIS** (direct number identification service), or **ICLID** (incoming caller line identification number) also known as **Caller ID.**

This management information can be made available **Real-Time** (as it is happening) or **Historically** (wallboards, charts, reports). With the proliferation of PC's and hard drive storage capacity there are many methods available to take ACD data and create graphical reports and even accomplish sophisticated **Forecasting** for agent scheduling and staffing, and call volume predicting.

Most people associate Incoming Call Centers with large answering locations such as airline reservation centers or mail-order houses. These are very large and specialized Call Centers and the equipment needed to help them operate efficiently is sophisticated and expensive. The average large capacity ACD system installed price averages over $5000 per Agent. However, Call Centers can be relatively small and based on the services required and the information necessary to manage the Call Center operation they can obtain most of the same services as those very large Call Centers at a fraction of the cost. In selling a Call Center application it is important to remember it is not how much money the application costs, but how much money the application will save. Time saved is money saved.

The earliest form of Call Center call distribution was known as **"Rotary"** service. The term "rotary" originated from the early rotary switching method used by Telephone PBX's. Calls were distributed in a top-down method to a pilot number, if that number was busy with a call the switch would step (rotor) to the next line. It would continue to rotor until it found a vacant line or ran out of available lines in the rotary group. In most of today's sophisticated telephone systems this method is still employed. It has taken on a new name, **Hunting.** Where the call "hunts" for an available agent to handle the call. There are several types of hunting. The most common is **Circular Hunting**, where extensions are grouped together in a circular pattern and when a call is received into the group it hunts through the circular group for an available extension to ring. Another hunting method is **Linear Hunt** where extensions are grouped in a line and hunt down the line for an available extension to ring. Hunting Groups serve as a simple method to distribute calls, but if all extensions are busy the caller will receive a busy signal and the call must be retried by the caller as there is no way for the caller to be held awaiting one of the extensions to become idle.

To solve the problem of a caller receiving a busy and having to redial the call, a device known as a **Call Sequencer** was developed and deployed. The Call Sequencer would answer the call, give the caller a per-recorded message, and provide indication to the agent the call is waiting. Typically Call Sequencers were placed on Key Systems and the lines would appear on the Keyset where each agent would have both visual and manual access to all lines. The agents would know the longest holding lines by the flash rate of the lights on the Keyset buttons. An agent when free from the previous call could select the longest holding call. Some sophisticated Call Sequencers would gather management information such as the number of abandoned calls; the longest hold time, and the average hold time. However Call Center managers still had to directly oversee their agents and ensure they were handling and answering calls with efficiency and expediency.

The need for Call Center managers to ensure that individuals manning extensions were productive and measured led to the development of **Agents.** The term agent comes from the Airline Industry, which had "gate agents" and "ticket counter agents" and was carried over to the "reservation/ticketing agent" who manned the telephone for call-in service. Over the years this term has come to stand for the position where calls are handled as well as the person handling the calls. Agents are individually identified and can have their individual call handling statistics recorded. The individual agents can be grouped together to gather group information. Also where there are requirements for agents with specific skills they can be grouped together and have calls directed to their group.

ACD services have resulted from this migration. Simple ACD systems route incoming calls to an ACD group, present the call to the next available agent, and track the information involved to help improve productivity and efficiency. Today with the sophisticated telecommunications systems available, Call Centers having between 5 and 40 answering agents can have the ACD services once available only to very large call centers.

SAMSUNG'S CALL CENTER APPLICATION

The Call Center application is made up of a combination of hardware and software features. Based on the application it can be simple or complex, therefore these may include the **AA/UCD board**, **SVMi 8 voice mail, SmartCentre** reporting package, and many inherent system features.

For this paper we will make the assumption that the application for a Call Center is beyond the need for hunt groups. We will discuss the Call Center application in three elements: 1) **Call Distribution**, 2) **Agents/Supervisors**, and 3) **Statistics and Management Reports**. All of these elements are to aid in productivity and efficiency. When Productivity and efficiency are improved a company saves money, when it can be shown that more money is saved than spent on the application there is a sale made.

CALL DISTRIBUTION

Call Distribution is the process of receiving a call and presenting to an agent for handling. The major elements of call distribution are established to keep the person that called-in from hanging up before they are able to be handled, to accomplish it within an acceptable time frame, and with a maximum efficiency within the company. Statistics show that a caller that receives a busy signal will attempt the call again only 40% of the time. A caller that is answered and placed on hold will remain on hold for a reasonable amount of time, based upon the nature of the call. The more important the call the longer the hold time acceptance. It is important to know the nature of the call to be able to accommodate the callers properly. This allows a call distribution sequence to be established. The method we employ for call distribution is called ACD (automated call distribution) and it is done using a UCD (uniform call distribution) arrangement that distributes the calls in a uniform manner as opposed to a top-down method that distributes calls in a sequential order from the top-down. This application requires the AA/UCD board and system programming to logically arrange the call distribution..

Groups

Answering locations with common (mail order applications) or specialized (help desk applications) positions are placed into groups, commonly called ACD or UCD groups. There are a maximum of 20 groups available with the iDCS 500 L, 10 groups available with the iDCS 500 M, and 10 groups available with the iDCS 100. A group can be made up of up to 42 agents (iDCS 500) or 32 agents (iDCS 100). Therefore once the answering responsibilities and expertise requirements are determined groups can be set up and arranged properly.

Trunking

Calls are presented to the UCD groups in various ways. Calls coming from the outside are brought into the telephone system over various trunking methods. A trunk is defined as a communication line between two switching systems. In general terms this signifies the connection between the serving central office (CO) and the customer premise equipment (CPE). There are three categories of trunking methods we will mention within this paper. They are analog, digital, and IP (Internet Protocol), and the type of signaling they employ classifies them.

Analog trunks refer to the traditional signaling over telephone lines. The word analog comes from the word “analogous” which means “similar to”. In telephone transmission the signal being transmitted is “analogous” to the original signal. In correct English the word analog is meaningless by itself, and was derived to distinguish a signaling method that was not digital. Analog trunks have various specific functions and are known by their function. The lines connecting the serving central office (CO) and the CPE are called CO trunks. These are considered both-way, allowing incoming and outgoing calls to be made over the trunk. There are two variations of CO trunks, loop start and ground start. You

start (seize) a phone line by the use of a supervisory signal. With loop start you seize the trunk by closing the loop with a resistance between the Tip and Ring (cable pair) back to the CO. A ground start trunk is seized with a hand-sharing routine where a ground signal is sent to the CO alerting it that the trunk is being seized. This process is used to prohibit "glare" or the collision between a caller making an outgoing call and an incoming caller. Older electro-mechanical central offices took time to seize a trunk, and ground start signaling compensated for this time period. With today's electronic CO's there is little setup time required and ground-start trunks have become less important.

Where there is need to connect (TIE) one or more CPE switching systems together, TIE trunks are used. These are dedicated circuits that connect between systems and are normally used in such a manner that TIE trunk users have access to the remote system and appear as users of that system. A user from a remote system will receive dial tome from the remote system and can dial extensions within that system or other trunks and exit that system. There are various restrictions that can be programmed that can allow or deny access to system features. These analog TIE trunks employ a method of signaling called E&M (ear and mouth). There are many types of E&M signaling. With our Samsung systems we have 2-wire E&M trunks (two wires plus E&M equals four physical wires).

Where incoming traffic is heavy and there is limited need for an attendant (operator) to answer the calls first, DID (direct inward dialing) trunks fit the need. With DID trunks a caller can dial directly to an extension within the CPE system. The extension number could be matched with the last four digits of the telephone number dialed. Generally DID trunks are for incoming calls only, thus the name DID; however there are areas where both-way DID trunks (an oxymoron) are available. These trunks allow outgoing calls over the DID trunks and are sometimes referred to as E&M in this arrangement.

Digital Trunks also refer to the method of signaling used. Digital trunking was originally deployed as a multiplexed carrier system to greatly increase the amount of calls that could occupy a physical circuit. This was called "T carrier" and was developed using a TDM (time division multiplexing) and binary coding. The analog signal is received into a CODEC (coder/decoder), coded into a binary (0/1) code, transmitted over the carrier, received into a CODEC at the other end, decoded back to analog. This carrier method was eventually deployed between the CO and CPE using the T-1 version of the "T Carrier". With T1 there are 24 channels (trunks) available using a single cable pair and a T1 board and the proper CSU/DSU (channel service unit/data service unit). The deployment of ISDN (integrated services digital network) saw the migration of T1 to support the ISDN PRI (primary rate interface) trunking to CPE systems. An ISDN PRI will support 23 trunks with one channel (23B+D) used for signaling. Because of the bandwidth capability of T1/PRI circuits they can handle both voice and data traffic. In many instances there are economies in deploying fractional T1, where some number of channels are dedicated for trunks and the remainder are used for data or some other use. These fractional T1 systems require a DSU that separates the voice and the data channels before they get to the T1 board in the Samsung system. The various T1/PRI applications are available with the TEPRI board that is used on the iDCS 500 and iDCS 100 systems.

Using T1 trunking the type of trunk (CO loop or ground start, DID, E&M) is flexibly assigned per channel.

With the convergence that is combining the Telephony and Data world there has emerged what is called IP (Internet Protocol) Telephony. This is a signaling method that uses a packet switching method commonly used to transport data. This method is still in its infancy and has not been widely deployed, however there is much talk of this being the future of telephony. The Samsung iDCS 500 and iDCS 100 systems are capable of handling IP Telephony trunks with our ITM3 or ITMC board.

It is important to understand the method of trunking best suited for presenting calls to the Call Center. If there is not sufficient switching or transmission capacity through the network or not enough trunks available to get to from the CO to the call center, then the efficiency of the Call Center is hampered from the start. Callers that do not have these facilities available to them are "blocked" which is a fancy way of saying "received a busy". The number of calls tried (attempts) as compared to the number of times the calls are blocked measures the grade of service (GOS) on that network. Most telephone networks are set up and engineered to a PO.1 GOS, which means that there should be no more than 1% of the attempted calls blocked. A call blocked due to network congestion can be identified to the caller through the "fast" busy signal the caller receives. There is very little that can be done to improve network congestion and there are normally very few problems in this area. Congestion will mostly occur when traffic greatly exceeds expectations. Where there is a national event that is of the magnitude that people are frantically calling one another blockage can be expected. Callers receiving a "slow" or normal busy have been blocked due to the unavailability of trunks from the CO to the call center system. The design of the call center starts with the number of trunks that allow access to the call center. The called company is telling a caller receiving a busy signal when dialing in; "I'm too busy to handle you now, call back when I'm not so busy." The chances of that caller returning the call are no better than 40%, what is worse is that the caller will most likely go to another source. Logic tells us that more sales are going to help pay for the call center equipment. Then it becomes not only a non-sale but also a lost sale. However a trunking arrangement that is never fully utilized is inefficient. Trunking designs are accomplished with different trade-offs depending on what the Call Center and their users or customers, can tolerate and/or willing to pay. Most companies are willing to pay more for better service if the logic of the telephone design is explained to them. The serving CO will provide, upon request, a study of the GOS on the trunks connected to the call center. They can provide the number of total calls, total number of blocked calls over a designated time period. They can also give the usage on each trunk in CCS (100 call seconds). One hour of telephone traffic is equal to 36 CCS (60 X 60 / 100 = 36). A trunk circuit that averages 30 CCS is being used 83% of the time. This information is valuable in determining the number of trunks needed to achieve the efficiency wanted. A well-engineered Call Center trunking scheme will go a long way in providing good service for the company and its customers.

Routing

When there is a plan for the trunking methods to be deployed, the next step is to consider the routing (selecting the correct path) of the call through the trunks to the proper group. Trunks can be routed to an ACD/UCD group via an attendant who first manually answers the call, via an automated attendant that answers the call and routes the call based upon the digits dialed by the caller, or directly to the group. The most efficient method is the routing of calls on a trunk directly to a group. Within the iDCS 500 and iDCS 100 the routing is accomplished in three ways: 1) by matching the trunk ID number (7XX number) to the UCD group number (5XX by default) in the MMC 406 Trunk Ring Assignment, 2) by following the digits received over the trunk MMC 416, or with trunk number translation tables MMC 714. This translation table routing is the most flexible and can be arranged to any of six (6) ring plans for routing based on time of day (Day, night, holiday, etc.). It is highly recommended that Call Center routing applications be set-up using the translation tables. This way any additional routing requirements are simply added to the translation table instead of having to reprogram the whole application.

The ring plan selections allow calls to be routed not only to other groups, but also to other systems via TIE lines or IP Telephony TIE routes. For example: A company has offices in Atlanta and Los Angeles with customer service Call Centers in each office. The offices are connected via a company intranet for data and record sharing. With the three hour time difference between Atlanta and Los Angeles calls to the Atlanta Call Center can be routed after 5 PM EST via the company's intranet using the translation tables, ring plan, ITM3/ITMC cards and VoIP signaling.

The translation table matches the trunk ID number or the received digits to the UCD group in accordance with the ring plan as set up. When using inbound 800 or 900 numbers, there is a service called DNIS (Dialed Number Identification Service). DNIS numbers are assigned to various telephone numbers that share the same digital trunking into a call center. These numbers identify who may be calling and where the call is coming from. This allows the call to be routed to a UCD group for special handling. For example, a 401K-Retirement Plan status program may be offered by a service provider to a number of different companies. The employees of each company are provided with their companies own 800 number to call for account status. The DNIS number assigned to each number is used to route the call to the UCD group in a manner that they can personalize the answering: "you have reached the 401K line for XYZ Company….".

Here is another application: various 800 numbers are used for testing advertisements in Phoenix, Milwaukee, and Chicago. The DNIS information can be used in a multitude of ways from playing different messages, routing the callers to specialized answering groups, presenting messages that allow special answering. Using multiple numbers that share the same trunking is an efficient way of utilizing the trunks to their fullest and providing routing techniques that improve the customer service of an organization.

The calls presented to the ACD/UCD groups are presented and handled in a logical manner as follows:

1) An incoming call will be presented to the UCD group and will look for an available agent to ring. The search for an available agent starts at a point within the group following the previously available agent was given the last call. For example: There are five agents within a group. The last call was presented to agent 3. The next call will look for an available agent starting at agent 4. The search will travel from 4 to 5 to 1 to 2 etc.
2) If an agent is found available their station will ring. If there are no available agents found, the Overflow Timer is activated and the caller continues to hear ring-back tone. The Overflow timer is programmable from 0 to 255 seconds, where 0 is no timer. Once the Overflow timer expires an Auto Attendant (AA) will answer the call; and the "Answer" greeting will be played to the caller. (The answer greeting is programmed as part of the AA card and each UCD group has its own answer greeting that can be programmed).
3) The call is then placed in Queue on the group awaiting the next available agent. The queue is arranged on a first-in first-out arrangement that grants the longest call in queue to be handled next. While in queue there is a timer engaged and a music/announcement source is connected to the waiting caller. This is the UCD Recall timer and it is found in MMC 607. The timer is programmable from 000 sec. To 255 sec. And the default time is set at 10 sec.).
4) If the call continues on hold and the UCD Recall Timer expires, the caller is given the "Hold" greeting from the AA. This "Hold" greeting is programmed individually for each group. Once the Hold greeting is played the call is returned to queue, in its original position, and the UCD Recall Timer is activated again. If the call is still on hold at the expiration of the UCD Recall Timer the "Hold" greeting will be played again.
5) The queue and the timer will continue (hold greeting, hold music/announcement, timer expiration, hold greeting, hold music/announcement, etc.) until one of three actions happen: a) there is an agent that comes available and that agent is rung and the call is answered. (If the agent has left their position and the call is not answered within a timed period, the call will be placed back into queue in their proper order, the agent that was not answering will be logged-out, and the caller will then ring the next available agent.) b) The number of loops through the message and the timer reach the Re-try count and the call is routed to the Final Destination. The number of loops through the Re-try counter is programmable from 0 to 99, with 0 signifying no loops. c) The caller knows the exit number and dials the exit number to go directly to the Final Destination.
6) Once the Re-try count has been reached or the caller dials the Final Destination code the call is sent to one of a multiple of Final Destination options. A final Destination could be a mailbox within the system voice mail. It could be another UCD group or a station group. It can be an AA port with a recorded message and termination of the call. Or a simple disconnect of the line.

Answer Recordings

When an agent terminal is not immediately available for call handling, the call is answered by the AA (Automated Attendant). The assignment of the number of AA ports that are required to support the Call Center operation depends upon the Call Center traffic and the number of agents available to handle the call traffic. When the AA answers a call, a recording is played to announce to the caller that the call has been answered and there are no agents currently available to handle the call. This is known as the "answer " recording. There is a standard recording with the AA, but in most cases it is best to record a custom recording for the "answer" recording. After the call has been answered and placed on hold awaiting an available agent, there is an additional timer activated. If the timer expires before the call is handled it will be picked-up by the AA and the "Hold" message will be played. This message informs the caller that the agents are still busy and asks the caller to continue to hold. It also is a standard message, but should be customized to meet the Call Center's special needs. The hold message will be repeated at the expiry of the timer until the call is handled.

AGENTS / SUPERVISORS

The individuals who handle the call center calls are known as **Agents**. In the Samsung Call Center application we need to make sure that there is a definition that separately identifies a difference between the **agents** and the **agent terminal (Keyset).** The agent terminal is permanent and an agent is mobile. In some Call Center operations agents work in shifts and share the same agent terminal as shifts change.

The same applies to Call Center supervisors who also will use a supervisor terminal (Keyset). Since the role of a call center supervisor requires different features the terminals are capable of being featured accordingly.

In the Samsung Call Center application an agent terminal (Keyset) doubles as an extension on the system. When an agent is logged-in the Keyset is an agent terminal, and when the agent is logged-out it is a normal extension. An agent may log-in to the group by pressing the "log-in/out" button flexibly programmed on the Keyset or dialing an access code. Where agents are mobile and share agent terminals with other agents, there can be PIN (Personal ID Numbers) given to each agent and the system programmed to accept these numbers. Then a agent would press the log-in/out button at the agent terminal they would be using and enter the PIN number.

In a Call Center operation agents become "available" to the group for call handling when the agent is logged-in on an agent terminal. Calls will be presented (in accordance with the UCD rules described previously) to the agent terminal when available and the terminal will ring. The agent answers the call and handles the business pertaining to the call. At the completion of the call the agent hangs up and terminated the call. Depending on the specific operation of the Call Center, there could be a requirement to complete additional work after the call is terminated and before receiving another call. This is

known as “wrap-up” time. Because every Call Center’s operation is unique the amount of time required for “wrap-up” differs. In the Samsung application this time is programmable for each group. The range is from 000 (no Timer) to XXX (seconds). Therefore an agent terminal will not become available to the group after the previous call is terminated until the “wrap-up” timer expires, thus allowing the agent time to complete the work necessary before receiving another call.

In some applications the amount of wrap-up time differs between agents within a group. Since the wrap-up time is set the same for all members of the group there are two ways agents can be allowed to vary their wrap-up time. For those who can complete their wrap-up work earlier than the allotted time, they can go off-hook and on-hook and cancel the timer. This is very useful for those applications where agents are compensated for the number of calls they handle. Those agents that require additional wrap-up time can have a wrap-up button flexibly assigned to their Keyset that when pressed overrides the timer and allows the agent terminal to be in wrap-up until the button is again pressed by the agent. These options are available to the agents, however they need to be under the guidance and direction of the supervisor.

Although most Call Center operations have agents operating full-time answering calls within a group there are times when agents need to be away (unavailable) from the group. This could be to accommodate breaks, special work, or meetings. The agent can log-out and be removed, or could simply press the DND button. The choice is up to the Call Center supervisor and should be made in accordance with the management data the supervisor wants to have available. For example, by using the DND key to remove an agent’s terminal from the group and using the reporting capabilities of the SmartCentre, the supervisor gains access to data that shows the time away from the group while still technically “logged-in”. This allows productivity studies to be made.

During the course of business there could arise a time where an agent would require the presence of a supervisor or have a supervisor join a call. Agents can be set up with supervisor call buttons *(MMC 722)* that when pressed will buzz the supervisors terminal (Keyset) and will light an LED on the terminal that tells the supervisor who is requesting them. Also there could be situations where an agent needs to record the conversation. In many cases this is done when customers become rude or abrasive to the agents. The agent terminal can be set up with a Record button *(MMC 722 and requires an SVMi Voice* Mail *Card)* that when pressed will record the call into a voice mailbox. There is also a Call Status button that can be assigned *(MMC 722)* to the agent terminal that will provide visual indications (Flashing) on calls in queue and their hold status.

As a safety guard the agent terminal will automatically log-out of the group if the terminal rings and is unanswered for a timed period *(MMC 607).* When the agent terminal is logged-out the ringing call is placed in the front of the queue and is presented to the next available agent.

Supervisor Position

The supervisor Terminal (Keyset) is designated by programming a supervisor button on the Keyset. There is no limit to the number of supervisor terminals, and a supervisor terminal can also be an agent terminal. The supervisor button serves as an alarm indicator (LEDs) and allows the supervisor to have access to simple statistics that can be viewed on the LCD screen of the Keyset or printed to a terminal. The supervisor button, when assigned to a specific group will provide visual indication on the status of calls in queue that have reached the end of a timing threshold. The LED will flash red when the number of calls-in-queue has passed the threshold and the LED will flash amber when the queue time has passed the threshold. The threshold times are applicable system wide and are the same across all groups. If there is no specified group assigned to the supervisor button then all groups can be individually selected and data accessed for each group selected, however the visual indication is not available. The data available to the supervisor terminal is very basic, but in many applications it is adequate to support the Call Center management. However for Call Centers requiring more management data the Smart Centre reporting package should be used. Where the Smart Centre is used the LCD display status on the Supervisor terminal is disabled. The supervisor from their terminal, can log-in and log-out agent terminals. The supervisor cannot log-in/out traveling agents with PIN access.

STATISTICS AND MANAGEMENT REPORTS

With the objective of a Call Center being to improve productivity and efficiency, there needs to be methods for checking the improvement. There are also needs for tools that help Call Center Managers plan and schedule agents, measure productivity, and ensure the quality of service given to callers. These tools are available with the **Samsung SmartCentre ACD Reports Package**.

The SmartCentre is a software application that is loaded on to a server PC. The PC is then connected to the iDCS 500 or iDCS 100 through a serial port connection. Call processing and handling information is sent from the iDCS 500/100 System to the Server. The SmartCentre software application was built on a building-block format that allows Customers to select only the application that suits their application need and saves them un-necessary expenditures. When using the SmartCentre application it is important to understand the specific application services provided by the various configurations.

Lets start with some general Call Center terms and available information. The most basic information exchange between the telephone system and the Call Center manager is with **Real-Time** data. This data is presented to any number of locations as it is happening. This real-time data is a visual interface that informs managers of parameters outside acceptable limits; such as too many calls waiting, longest call waiting, abandoned calls, and many others. The real-time data can be sent to various locations for viewing.

The real-time data are displayed on window screens located within the workspace of the viewers PC monitor screen. These windows are called **InView Wallboard** windows and they can be positioned, sized, and configured according to the Call Centers or viewer's requirements. There are two types of real-time displays: **Status displays** and **Statistics displays.** The Status displays show the current status of each device. The status can be busy, available, logged off/on, ringing, etc. Within the Status displays there are Agent status displays, Extension status displays, and line status displays. These displays function much like a busy-lamp field. Statistics Displays provide data on the statistics based upon parameters set. These are generally associated with hold times, calls in queue, abandoned calls, etc.

Real-time visuals can be presented to agent/extensions, as a motivational tool, or in general anyone with connectivity to the company's LAN has the ability to have these InView Wallboard displays (License Permitting). These InView Wallboards are windows-based and can show the two different views (Status & Statistics) and can be customized using standard windows tools such as "click and drag", toggle buttons, and a tool bar. These displays remain in the same format until changed by the user. There are over 200 character windows available, which are customized to present only the information desired by each Call Center application. The InView Wallboards are protected by a login procedure that includes user name and password.

The InView Wallboard also includes an internal messaging system. This allows InView Wallboard users to send messages directly.

In addition to the InView Wallboards that appear on the PC monitor there can be external Wallboards applied to the Call Center. These are generally located within view of the agents and present information for all agents to see. The external wallboards are connected to the customer's Computer hosting SmartCentre. Within the SmartCentre there can be up to 6 of these wallboards installed. The external wallboards are purchased directly from **Spectrum Corp (www.specorp.com).** There are numerous models of these available and the cost varies depending on the size and capabilities of the external wallboard needed.

The real-time information can be associated with guard time parameters that will set off alerts and alarms when the parameters are exceeded. These appear as visual alarms and are shown by a change in color, with red indicating a alarm condition. Audible alarms can be presented through the sound card within the PC. The alarm can be configured in various ways and are flexible across the Call Center.

Real-time data is valuable for Supervisors and Managers as a tactical tool. It allows them to take action immediately to correct problems.

Historical Reports add an additional element to Call Center management by allowing a look-back at previous days, weeks, and month's events. These events can be broken down and evaluated to chart the productivity and efficiency of the Call Centers operation. The historical reports can be printed or exported to a spreadsheet for manipulation into

charts and graphs. The historical reports can be retrieved on demand or scheduled for automatic access.

There are many Call Center events that are monitored and kept as records for historical reports, so many that it is generally inefficient for all of them to be printed, downloaded, or reviewed. Therefore there are report templates that can be set up that provide the pertinent data most likely used to manage a Call Center. Even with report templates there are items that are required to meet various needs within specific Call Center operations. To further aid Call Center managers there are report filters that allow customized reports that give a greater detail and allow unimportant information to be left out of the reports. Since there are many special applications and requirements for each and every Call Center the ability to customize the reports is a valuable tool for the Call Center Manager.

The report scheduler allows reports to be run automatically. These can be set-up to run hourly, daily, or weekly. Other details such as interval reporting and specific report periods can also be scheduled.

Historical reports provide valuable management information on the Call Centers efficiency and more importantly the productivity of each agent. Many Call Centers use this data to provide incentives to agents for increased productivity. It also can be used as a management tool for counseling those agents that are less productive.

We have looked at real-time data that provides tactical information to the Call Center manager and historical data that provides information to grade the efficiency and productivity of the Call Center and individual agents. However Call Center managers need the ability to schedule into the future to be capable of handling the Call Centers needs. The **Forecasting** module is designed to allow the Call Center manager to perform "what if" scenarios on their historical data and be able to predict the future needs.

Because there are standard calculations used in forecasting other factors can influence the results. To help in these situations there is a correction factor provided that can take into account the response time of agents to a ringing call, the number of agents available, the call distribution pattern, and switch routing to name a few. The results produced by the forecasting are calculated from a set of rules and may not be perfectly suited for every application,; however, this is a valuable tool for Call Center managers as they plan their upcoming needs.

SmartCentre

The SmartCentre reporting package is a building block application that is based upon three system levels and agent use licenses. This arrangement allows flexible pricing to meet the specific needs for each Call Center application. Although it may seem complex to configure and price, once there is an understanding of the pieces and how they fit together the pricing becomes clear.

The most basic reporting system is the **SmartCentre V.** This is a real-time package based upon a single position InView Wallboard. It contains software licenses to support 5 active agents. There is one supervisor position. This supervisor position contains the InView Wallboard and the system configurator. Additional agent licenses are added in 5 seat increments. The InView Wallboard can be arranged to view up to eight of the 200 character windows.

Since this system provides only real-time data, reports are not available. In small Call Centers this basic application providing real-time data is sufficient to meet the needs.

The next level system is the **SmartCentre VR**. This system provides real-time data and printed statistics. It supports up to 5 active agents. Additional agent licenses can be added in 5 seat increments. It includes a supervisor position that includes an MIS Viewer, a Configurator, and a Reporter. Additional supervisor positions can be added to the SmartCentre VR.

The MIS Viewer (Data Window Layout) is a full screen workspace that allows the supervisor(s) to have access to Call Center Status and Statistics simultaneously. With the Smart Centre VR there is only one **Data Window Layout** per supervisor.

The Reporter allows the supervisor to arrange, view, and print reports. With the SmartCentre VR there are a limited number of report templates. The available reports are identified in the SmartCentre General Description document. Reports can contain data that covers up to a 31-day period. Data can be retrieved for up to one year past. The reports can be printed but they cannot be saved.

The SmartCentre VR can have InView Wallboards that appear on the PC monitor of agents or others that are connected to the company's LAN. These InView Wallboards are available in 5 seat license increments.

Any existing SmartCentre V can be easily upgraded to a SmartCentre VR. Information on statistics is available for the past year when the system is upgraded.

The most powerful system within the Smart Centre family is the **SmartCentre VAR**. This system is similar to the VR, but offers any number of data window layouts for its MIS Viewer templates to be created and saved. The Forecasting module is available as a template to the Reporter module. The Reporter has a complete set of report templates that may be saved and exported as text files or comma-delimited format to spreadsheet packages such as Microsoft Excel and Lotus 123. The specific report templates can be found in the Report section of the Installation Guide. Once on a spreadsheet program the data can be graphically presented. Reports from a VAR system can be collated for the previous one-year period of events. Additional agent licenses are available in 5 seat increments.

The VAR also supports InView Wallboards. These PC monitor window screens are available in 5 seat increments. The support of **External Wallboards** is provided only by the VAR system.

By far the Smart Centre VAR provides all the tools and functions to allow a complete Call Center management system. It is capable of being customized to meet the specific requirements of the many Call Center applications that will be found. It is a powerful system at a reasonable price to the customer. Consider a SmartCentre VAR with 20 agent licenses, 1 additional supervisor, and 20 InView Wallboards will cost approximately $21,000 (list price - dealer discounts would apply to this amount) and with a mark-up of 2.0 the sales price would be around $42,000. This equates to a per-agent price of $2,100. This is considerably less than the industry average price of over $5,000 per-agent.

SUMMARY

The application for a Call Center operation can be found in most businesses. If a company receives calls from the outside world, and these calls need to be handled by a certain group of specialized answerers, there is a Call Center application. The level of sophistication required to support that Call Center application may vary. The good news is that with the Samsung iDCS 500/100 you have several configuration choices to meet each customer's unique Call Center needs. Whether those needs are for simple hunting groups or the sophisticated ACD/UCD application, with the Samsung suite of products can satisfy those needs.

Call Center sales are truly application driven. Most Customers have no idea that they have a Call Center application and even more don't know what to ask for to meet their needs. Identifying the Call Center application, and calculating the savings in efficiency and productivity to manage the Call Center can easily justify the Call Center application cost.