Audio Call Recording

Linda Tripp isn't the only one doing it . . . the recording of audio calls has a valid place in the call centre. Stephen Coates explores the various technologies that enable call centres to record and store calls.

"Thank you for calling XYZ Corporation. Your call may be recorded for coaching purposes. If you do not want your call to be recorded, please advise the customer service representative." Most of us will have heard a script such as this when we've called one call centre or another.

The need to record telephone calls is almost as old as the telephone system itself. The earliest applications of audio call recording, or call logging, were to retain a record of the conversation in emergency service and military applications, and typically involved recording audio channels other than the telephone. Radio communications with trains, emergency service personnel, civilian and military ships, civilian and military aircraft, public radio broadcasts, police radio broadcasts, intercepted enemy radio broadcasts and calls to emergency services are just some of the many well-established applications of call logging. More recently, the increase in the use of call centres to provide services, such as share trading for which the contents of the call contains commercial instructions and hence must be recorded, has added another application for call logging.

One major stockbroking firm advised that it uses an Electrodata system to record all telephone trades.

In all of these applications, the entirety of the audio must be recorded. Whether a member of the public calling the 000 emergency service, or a radio channel used by air traffic controllers, it is essential that the totality of the audio be recorded.

Most of what is recorded will never need to be listened to again, but when audio must be reviewed, that record is essential.

Where the totality of the audio path is to be recorded, this is generally implemented by having parallel circuits between the circuits being recorded and the audio call recording system. If a PABX is used, the system will typically parallel either trunks, (see Figure 1 on page 46) or extensions (see Figure 2 on page 46).

Parallel trunks record the call from time of answer until completion, which may include interactions with an IVR system, listening to music on hold and speaking to an agent. The advantage of this is the recording includes any conversation with a second person if the call was transferred outside of the call centre or to a mobile phone. However, it also has the following disadvantages:

- The trunks on which calls are recorded have to be in a defined route;
- Calls to the call centre that did not use trunks in this route, such as from extensions or transferred from the console operator, are not recorded; and
- That portion of the call spent interacting with an IVR and/or on hold may not be suppressible.

  Recording by parallel digital trunks requires using a coupler or bridge, therefore only some of the audio call recording systems support this facility.

The configuration of taps on call centre extensions records each call to and from these extensions, which has the advantage

that only the conversation, not the caller's interacting with an IVR, is recorded. It also has the advantage that calls are recorded independent of the route or type of trunk used and the recording can be implemented, if required, for only agents in a specific skill group. The stockbroker uses this configuration, with each of the 150 channels allocated to either an extension on its NEC PABX or BT dealing system.

However, this configuration also has its disadvantages:

- It records all calls to and from these extensions, including personal calls;
- It records calls transferred within the call centre as two separate calls; and
- It does not record calls transferred out of the call centre after the transfer.

This configuration also has complications for the physical interfacing to the digital extensions which call centres widely use.

Such hand-sets can be equipped with an analogue port, but a more widely-used approach is to install a parallel cable between the hand-set and head-set. Not only is this clumsy, it requires a second cable installed from each hand-set back to the recording system. Some recording systems do, though, support interfaces between selected PABXs and their digital hand-sets.

Selective Recording

In recent years, audio call recording systems have increasingly been used to record caller interactions with call centre agents to monitor the service provided to the caller. The recordings of such calls are typically used for coaching of agents, to improve customer service.

This difference of application is fundamental. The recording of calls for agent coaching is inherently an element in a program to improve the quality of the organisation's telephone customer service, the topic of TARP Australia's

recently released *Call Quality* report. The report found that of the 52 participating companies, 39 (75 percent) did monitor calls. The most popular means of monitoring was side-by-side monitoring, used by 69 percent of surveyed organisations, whereas 54 percent used remote monitoring, a classification that includes both selective recording and unannounced but unrecorded listening. Remote monitoring was considered to be the most important tool.

From a technology perspective, the fundamental difference between this application and call logging is that only some calls need be recorded. The significance of this is, although the cost of mass storage has been falling for years, to record all calls in a large call centre and retain them for any length of time requires a colossal volume of storage. If removable tapes or disk cartridges are used, labour is required to both periodically cycle the media and to reload them for subsequent access.

Consider a call centre in which agents receive about 80 calls per day. If five calls were to be recorded each fortnight for each agent, that would amount to less than one percent of the calls received. The storage requirement would be a similar fraction of that required if all calls were recorded.

Such call recording is inherently selective and there are a number of factors that can determine which calls are recorded. In some cases, specific agents or agent groups such as those who have just completed a specific training program can be recorded. An organisation may primarily record calls on a specific indial number (that is to a specific advertised number such as complaints) or at specific times of the day.

Probably the most widely used form of selective recording is to record each agent periodically according to a schedule. Not only does this ensure that each agent is recorded from time to time, it can allow the recording to be scheduled to occur towards the end of an agent's shift and/or during the night when there are few agents and fewer supervisors working. Some systems can also be configured to record calls at random, although it would be interesting to find out how many call centres actually use this feature.

Such recording can, at least in theory, take place using either of the configurations illustrated in Figure 1 and in Figure 2. The recording system would have the audio input from either all trunks or all extensions, but only record the required calls. In most cases, this selection process would require a CTI link to the switch. A far more cost effective method would, however, be to have a small number of circuits between the switch and the call logger, controlled by the CTI link. This is illustrated in Figure 3 on page 48.

When the call recording system records an agent's calls, it sends a command on the CTI link to the switch, instructing it to establish a conference call between the agent's extension, the other party to whom the agent is speaking and one of the circuits to the logger. This requires that the call recording system and switch support the function and the call recording system to know which extension the agent is using.

CTI Control

As tallied in Table 1 on page 50, most of the call recording systems support a CTI link to a switch, and most of these support the international standard CTI protocol, CSTA, as well as some de facto standard protocols. The systems must also have the capability to allocate a circuit for the recording of the call, issue a CTI command to establish a conference call to that circuit, and reference the recorded audio segment with the agent number and other call details.

On the switch site, the Alcatel 4400, Aspect CallCenter, Ericsson

FIGURE 1 – AUDIO CALL RECORDING SYSTEM WITH PARALLEL EXTENSIONS:
RECORDS ALL CALLS ON SPECIFIC EXTENSIONS

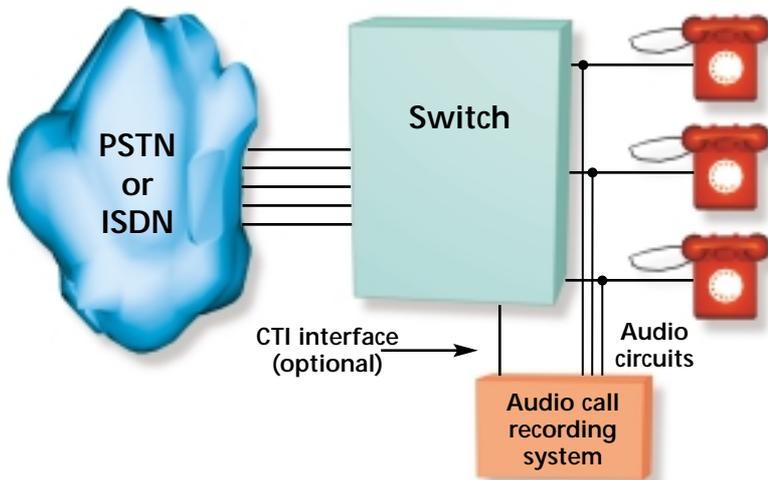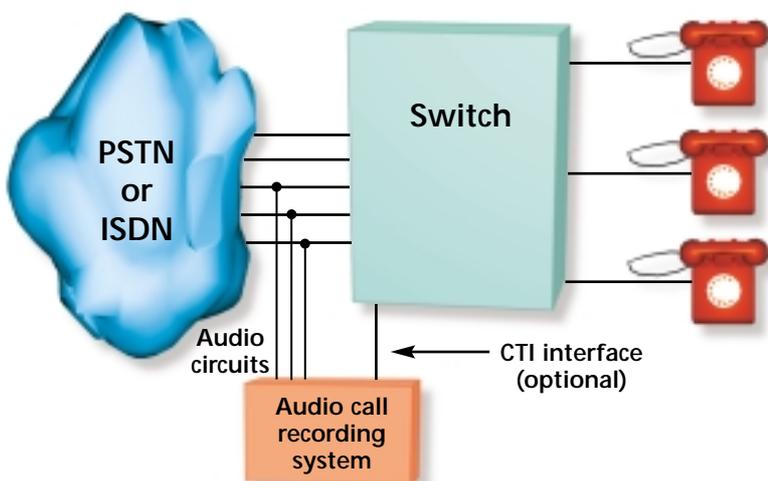**FIGURE 2 – AUDIO CALL RECORDING SYSTEM WITH PARALLEL TRUNKS:**
RECORDS ALL CALLS ON SPECIFIC TRUNKS

MD110, EIC Coral (distributed by Fujitsu), Intecom E, Lucent Definity, NEC 7400, Nortel Meridian 1, Rockwell Spectrum, Siemens Hicom, Telstra Spectrum service and 3Com NBX-100 can establish a conference call under CTI control, although the 4400 does not permit such a call to otherwise be transferred or conferenced to a fourth party. Some switches do, though, use physical circuits to support conference calls and may thus limit the number of simultaneous conference calls.

The third requirement for selective call recording is identifying the agent's location. In single-shift call centres where each agent works the full shift and sits in the same seat each day, an agent's calls can be recorded by establishing a conference call with that agent's extension. But it's rarely that simple.

Selective call recording may require the call recorder to first determine whether or not the agent is logged in. In theory, the call logger will be programmed to record calls to an agent only when that agent is rostered, but in theory, no one is ever sick. So the recorder will interrogate the switch using the CTI command to determine if an agent is logged in and which extension he or she is using. Although this uses standard CSTA commands, the switch must support them, and the call centre must use unique agent logins.

CTI also has its advantages where all calls are recorded, as the call's CLI, trunk ID and the number of the agent taking the call can be passed from the switch to the recording system for logging with the call itself. These parameters facilitate the retrieval of recorded calls.

Going one step further, a call recording system can be interfaced to a workforce management system and interrogate it on current rosters to schedule the recordings. Some call recording sys-

tems offer a function to randomly record a selection of calls, such as one out of 20. This does save the call centre manager the time required to input a recording schedule, but it does not give the flexibility to increase the recording frequency of specific agents or skill groups.

In the above scenarios, the call recording is controlled by the call recording system. But there are variations. The Rockwell Spectrum includes the facility to record each call as a .wav file as it occurs, but save a recording only if requested by the agent. Similarly, the EIC PC-based telephone system can also be configured to record the call as a .wav file. Although the EIC itself has only a limited capacity to save recorded calls, the optional EIC Interaction Recorder peripheral provides the means to archive a significant volume of calls.

So much for the mechanics. The primary purpose of selective recording of calls is to train and coach agents. To facilitate this function, some systems offer an online evaluation forms facility which the coaches would use to enter call evaluations and discuss them with the agent.

Whether or not it is a capability of the recording system, the use of a formal system to maintain consistency in the evaluation of agent performance is, according to TARP's *Call Quality* report, essential. However, TARP found that 26 percent of the participants that conducted call monitoring had no system (that is process) "which raises questions about how they manage to achieve consistent and fair call quality evaluations or deliver relaiable feedback to CSRs and to management".

Screen Capture

All of the functionality described so far monitors the audio component of the call and as this is, to the caller, all there is, its recording is paramount. But from the standpoint of measuring agent performance, there are advantages of also capturing the screen transactions the agent performs. While this can identify which agents play solitaire and minesweeper when speaking to callers (and how well they play), it can also illustrate how well or otherwise they navigate through the screens. This can highlight where training could be improved and the accuracy and appropriateness of the information provided to the caller.

FIGURE 3 – AUDIO CALL RECORDING SYSTEM WITH DEDICATED CIRCUITS: RECORDS CALLS UNDER CTI CONTROL
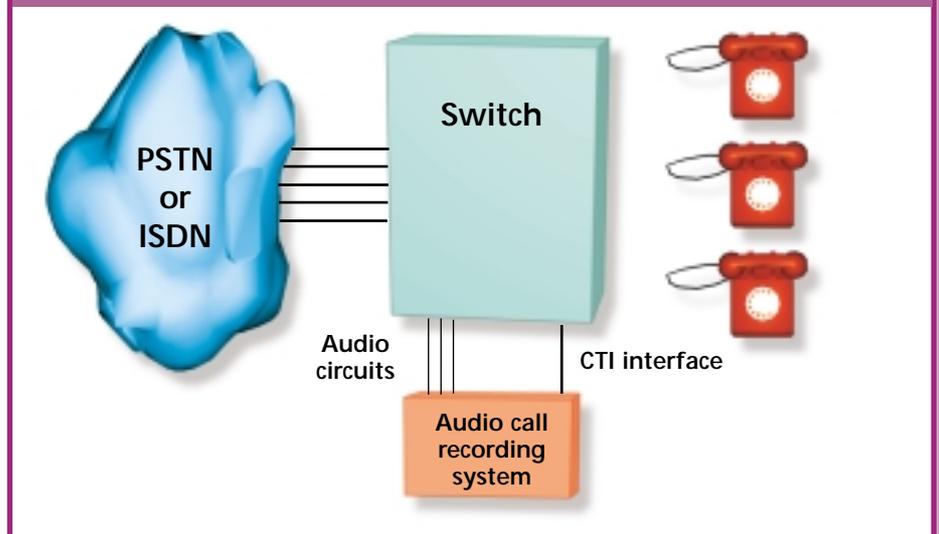
TABLE 1: SELECTED CALL LOGGING/RECORDING SYSTEMS										
Call recording system	Supplier/ distributor	Type of system	Jumpering trunks		Jumpering extensions	Dedicated circuits and CTI	CTI protocols supported	Screen capture	Online evaluation forms	Recording by schedule
			PSTN	ISDN						
Easyphone from Altitude Software (formerly Easyphone, Portugal)	Altitude Software, http://www.easyphone.pt	Call centre/ desktop CTI with integral audio call recording	No	No	With analogue or via PC telephony card	No	CSTA, CallPath TSAPI, TAPI, some proprietary	Could easily be developed	No	Yes
Voice Verification Recording (VVR) from ComTek (USA)	ComTek http://www.comtekintl.com	Selective recording	No	No	Possible with analogue, but not done	Yes	TSAPI, TAPI, CSTA, and CallPath	Capable, but no demand yet	No	Yes
Total Call Recording (TCR) from ComTek (USA)	ComTek http://www.comtekintl.com	Call logging	Possible, but not done	No	Possible with analogue, digital via headset module	Yes	TSAPI, TAPI, CSTA, and CallPath	Capable, but no demand yet	No	Yes
Ultra and Mentor from Comverse Information Systems (Israel)	Comverse Information Systems http://www.icominfosys.com	Call recording	Yes	No	Analogue only	Yes	CSTA, TSAPI, TAPI, CallPath, CT-Connect	Yes	No	Yes
Digitrac 2000 and Maxitrac from Electrodata (Australia)	Electrodata 02 9736 2444	Call logging	No	No	Analogue and, using converters, digital	No	N/a	No	No	No
MediaStore from Eyretel (UK)	Eyretel 02 9223 7988	Call logging and selective recording	Yes	Yes, using bridge	Analogue and, using DET card, digital	Yes, using Unify CTI server	Several	Yes	Yes, QualityCall	Yes
EIC from Interactive Intelligence (USA)	C4RM 02 8912 5800	PC-based telephone system with integral audio call recording	N/a	N/a	N/a	N/a	N/a	No	N/a	Yes
Audiolog from Mercom (USA)	Arunta 02 9906 4001	Call logging, but now primarily used for agent training	Yes	Yes	Analogue and, using converters, digital	Yes	Several	Yes	Yes, Intelligence 2000	Yes
NiceUniverse from Nice (Israel)	Hannamax 02 9907 1122	Selective recording	Yes	Yes, via passive coupler	Analogue, and Nortel and Lucent digital	Yes	CSTA, TSAPI, CallPath and several proprietary	Yes	Yes	Yes
WordNet from Racal (UK)	Racal 02 9936 7000	Call logging and selective recording	Yes	Yes	Analogue and digital for several PABXs	Yes	CSTA, TSAPI, TAPI	Yes	Yes	Yes
AutoQuality, On Demand and AutoLog from Teknekron (USA)	Callscan 03 9253 1000	Call recording	No	No	Yes	Yes, using embedded Genesys T-Server	Those supported by Genesys	Yes	Yes, P&Q Review	Yes
Witness Systems (USA)	Trade Centre Products 02 9250 2222	Selective recording	No	No	Yes	Yes	TSAPI, TAPI, CallPath	Yes	Yes	Yes

Continued

Screen capture does, however, require the implementation of desktop software to perform the screen capture and significantly increases the storage requirements of the recording system, especially where GUI screens are used. With a well-designed desktop application, the advantages of screen capture to improve application navigability are reduced.

A modest number of suppliers worldwide manufacture audio call recording systems. In addition to two CTI products that incorporate this capability, there are a total of nine audio call recording systems available in the Australian market. Of these, Electrodata has the largest share of the market of more than 2,000 such systems installed with 51 percent, followed by Racal (28 percent), Eyretel (11 percent), Nice (six percent) and Mercom (four percent). The other five suppliers, some of whom are only just establishing their presence in the Australian market, have less than one percent amongst them.

The recording of telephone calls is subject to the *Telecommunications Interception Act* which requires that both parties be notified. Periodic beeps do not constitute notification, hence call centres serving the public at large and which record calls are required to announce this to callers. Financial institutions, on the other hand, will typically have advised their customers of this in the standard contracts. The stockbroker, for example, includes this in its client agreement form. Departments and agencies of the Commonwealth and ACT Governments are also subject to regulations administered by the Privacy Commission.

Call Quality noted that 69 percent of the companies surveyed that undertook remote monitoring did not notify callers, although this is required only for those whose calls are recorded.

This brings us back to the issue of the caller being advised that their call may be recorded and being offered the option of not doing so. For many of the PABXs on the market, there is no simple means of disabling the recording. The Alcatel 4400 does identify a conferenced call on the agent's hand-set and allows the agent to simply terminate this third party, and hence, the recording. But some suppliers suggested that the call be transferred to an extension that was not monitored, or to develop a desktop client of the call recording system to allow the agent to stop the recording from their PC. At least no one suggested Maxwell Smart's cone of silence.

An organisation considering implementing an audio call recording system to improve the quality of its telephone service must be aware that there is much more to it than buying the box. *Call Quality* notes, for example, that of those monitored, coaches at the larger call centres recieved 14 hours of ongoing training per annum, which TARP considered to be inadequate, and the report includes an eight-step monitoring program.

Finally, an organisation planning to introduce call recording would be prudent to consult with the agents themselves, and if they are members of a union, with that union. Hopefully they will have better luck than *e-Access*, as several calls to representatives of the Financial Sector Union, Australian Services Union and Communications Workers' Union were not returned.

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munications consultant. He can be reached
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