Incorporating Computer Telephony Integration into the MIS Course

Gordon W. Arbogast, Jacksonville University

ABSTRACT

A dilemma for business professors is how to integrate new topics into the Management Information Systems (MIS) course One such subject is Computer Telephony Integration (CTI). CTI is sweeping across the Information Technology (IT) landscape and is having a profound impact. This paper discusses (1) the major CTI concepts and issues; and (2) how CTI can be incorporated into a graduate level MIS course.

INTRODUCTION

The Management Information Systems (MIS) course has changed much over the past twenty years. As newer systems proliferated in the 1980s, it began to add variations such as decision support and executive support systems. More recently, topics such as telecommunications, and expert systems have been incorporated.

The increase in subject material poses a major dilemma to business professors. If MBA and undergraduate business students are to be kept abreast of relevant IT material, new approaches are necessary. The situation is aggravated by the rate at which subjects are being added to the IT. One area that needs to be addressed is CTI.

Computer Telephony Integration is the logical integration of the computer and telephone to create new, useful applications. CTI is projected to greatly expand the number of intelligent add-on applications to current PBX core telephone switches. Although the combination of phones and computers seems to be a logical extension of current technology, the real catalysts are the developing Novell and Microsoft application program interfaces (APIs). Together with the promise of a plethora of new intelligent CTI applications, this technology is booming.

TSAPI/TAPI

TSAPI (Telephony Services API was released by Novell in 1994. Another important API was developed by Microsoft in 1993, it is called TAPI (Telephony API). TAPI is part of the trend to open APIs. These APIs have now brought the cost of LAN-based CTI down into the range of several hundreds of dollars per desktop. More importantly they have stimulated the interest and creativity of independent software vendors. As a result there has been a major increase in the number of applications that are now available.

For example, call center packages now exist that can answer phones and automatically launch the appropriate network application, send faxes, and issue trouble tickets. These packages work with both TSAPI and TAPI. It is important to note the critical role of the APIs. Both TAPI and TSAPI essentially isolate developers from the underlying complexity of servers, PBXs, and other hardware. CTI applications can now be written in a matter of weeks (versus months before).

CTI APPLICATIONS

The major international CTI application areas today are in messaging, call centers, and in *providing* access and transaction processing. New Interactive Voice Response (IVR) software is included as part of the CTI messaging applications. Callers can be routed to a mailbox by IVR software and users can retrieve the voice mail at a later date. Similarly, E-mail can be retrieved with the added bonus that it can be done by voice. Probably the most well known CTI application is found in call centers. Automatic Call Distribution (ACD) has become a common application around the world for both incoming and out-going calls. The purpose of ACD is to distribute incoming calls rela-

tively equally to the various service representatives in the call center. ACDs have been moved into the CTI area because the applications can be made richer. When coupled with caller ID. service representatives can get immediate screens filled with essential information about the calling party e.g. telephone numbers and previous sales. Using Automatic Number Identification, trunks are linked to a computer database to produce "screen pops" at the call center terminals. These screens display tailored information that is having a major effect on the manner in which a customer can be serviced. Call centers so enabled not only support customer service representatives, but also technical support "help desks", sales personnel etc.

Call centers making outgoing calls are also being impacted by CTI. Predictive dialing is the capability of the computer to automatically dial numbers from a database without any human intervention or control. When the called party answers the line, a connection is instantly made to an available call center position. As before, a computer database produces a "screen pop" with the desired called parry information available.

Other CTI applications are in the areas of information access and transaction processing. Interactive Voice Response (IVR) provides voice prompts to lead a caller through a maze of options. CTI adds additional intelligence to add, "skill based routing". This can direct a caller to the person in the organization who can assist them most efficiently. The caller's input can be in the form of tones, dial pulses, or the caller's own voice. In the latter, voice recognition software is improving rapidly in reliability. As an example, Novell's strategy calls for the addition of voice services. Fax-on-demand is another new application that results in a caller entering a number of a desired page in a catalog; a device calls back the caller's fax number and deliver the proper fax.

Teaching CII

The MIS course is the logical place to include CTI. However, the dilemma that business professors have is that the MIS course is already packed. CTI needs to compete with existing material that is now included in the syllabus. One way to make room is to recognize that most students are computer literate before they reach a graduate level MIS course. Thus, the need to teach fundamental MIS concepts should be reduced. What is important in the graduate level course is to concentrate on the topics of IT that must be mastered so that business management professionals will be more able to function in this important area in the workplace. These should include telecommunications and networking. At the interface of the computer and these areas lies CTI, which can next be covered as an extension of the telecommunications/networking area.

The best way to cover CTI is with basic concepts and actual applications. There are a number of software packages that can be incorporated into the applications portion of the instruction. One such package is "Fast Call" which is available in demonstration format on CD-ROM. Using such a package students can simulate setting up a call center and routing calls to the appropriate agents. A "hands-on" experience is considered vital to the effective learning of CTI.

SUMMARY

IT is shrinking the world and making it a "global village". CTI is a new IT technology that will accelerate this trend. As more users join the Internet, it seems likely that powerful CTI applications, such as secure credit card transactions and automated call centers, will have a major global impact on business.

Thus, CTI should be viewed as an important new topic that needs to be incorporated into MIS courses. Immediate action is required to integrate this material into relevant syllabi. It will be a major contributor to the dynamic and rapid growth of the IT industry.

REFERENCES

References available upon request.