HOW TO KILL A PBX

by Stephen Coates

There's more than a few companies out there hyping up computer telephony technology as the death of the PBX. But the PBX isn't dead yet and won't be until computer telephony merchants can answer a few questions about scalability, reliability and even profitability

It started very quietly. It started in garages and small company labs. It started in such places as Stavanger, Norway; Lisbon, Portugal; Avalon Beach, Australia; and, of course, California. And it started with people who knew technology better than business and who knew computing better that telephony. But it has produced results and those results are telephone systems based on Intel and Windows PC technology.

Nonetheless, such telephone systems, which fall into two categories — PC-based and LAN-based systems — have emerged in the market with much fanfare and hype. Some such systems offer integral CTI functions, some offer integral voice mail and auto attendant, some offer unified messaging and a few have integral voice over IP capability. However, the emergence of PC-based telephone systems has been accompanied by a level of hype that underscores the origins of such systems in the world of PC computing, not telephony.

In addition to describing the attributes and actual benefits of such systems, many suppliers of PC-based telephone systems rubbish PBXs, using such terms as obsolete , proprietary , aging and legacy . And its not just the suppliers—a few commentators have made more outlandish claims (for example, a PBX an organization buys now is the last such system it will ever buy!). These are amazing claims to make in the absence of market share statistics and at a time when all of the major PBX manufacturers are enjoying healthy growth and profits.

Nonetheless, what is emerging is a new product category—or actually two, to be precise. The advent of PC-based and LAN-based systems have raised the bar on the user interface, integration of CTI and, above all, speed of development. But these systems have also quietly opened the door to integration of such systems with IP networks carrying voice.

Parallel development in VoIP

The availability of voice gateways and voice capable routers in recent years has led to a dramatic increase in the transmission of voice through both the Internet and private IP networks. In early 1998, International Data Corporation estimated that IP telephony worldwide was then US$1.9 billion per annum, and forecast IP telephony s expansion to US$24.4 billion in 2002, representing 11% of total call volume. But by midyear, they had revised their estimate to between 20% and 25%.

Telcos have certainly been watching this development with interest. On the one hand, traditional long-distance call rates are dropping, and although volumes are not yet dropping, they are representing a smaller percentage of total transmission volumes. On the other hand, the demand for leased lines, especially from ISPs, is growing rapidly.

PC-based telephone systems do not inherently use IP — most have yet to seriously address networking — but LAN-based systems do. But this will change, and an increasing number of PBXs will be available with integral IP gateways.

PC-based telephone systems are not that different from traditional PBXs. Like a PBX, a PC-based phone system has circuits cards — both trunk circuit cards for PSTN, ISDN and, on some systems, private network trunks, and extension interfaces. Within the chassis, these circuits connect to an internal bus which switches calls between circuits, all under the control of the phone system s software. The difference is that the chassis is a standard PC chassis, possibly with an extension chassis.

Although LAN-based telephone systems also use PCs, the ones they use are those on the users desks, equipped with a card and handpiece or headset to provide the telephony function, although Selsius, acquired last year by Cisco, uses a dedicated IP handset. LAN-based phone systems use a GUI screen to provide the user interface, and the LAN, typically using IP, to switch calls between PCs.

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LAN-based telephone systems are, of course, only one application that transmits voice through IP networks, but was certainly one that led to the development of the ITU-T standard H.323 — Version 1 of which was ratified in March of 1996.

H.323 is both a session layer protocol and, by citing other standards, a col-

lection of standards which defines a set of call control, channel setup and codec specifications for transmitting real-time voice, video and data over networks, such as IP networks, that don t offer guaranteed service or quality of service.

That said, it s worth pointing out that only some LAN-based telephone systems use the IP protocol and not all of these use H.323. Some use ATM instead.

The bright side

PC-based telephone systems have some key advantages. Some systems offer integration auto attendant, voice mail and CTI. Such systems are thus well suited to a smaller organization that requires such facilities but whose requirements are unexceptional. But auto attendant is not necessarily fully-functional IVR, and CTI is not simply a yes or no capability.

PC-based systems are also often less expensive than PBXs and key systems, and offer a faster and more comprehensive development path, albeit one that will also require numerous changes of PC hardware and operating systems. The most significant advantage appears to be with configuration. Many smaller organizations have expertise in PCs and LANs, but not in telephony. This expertise can be applied to configuring and managing a PC-based phone system.

As well as sharing these advantages, LAN-based phone systems has a few of their own. They are easily scaled and, by using LAN technology, may build on an existent LAN. They can also be networked, potentially offering feature transparency, through a WAN.

For all the claimed advantages of PC-based and LAN-based systems, one misleading claim is that

they are non-proprietary. Windows is proprietary to Microsoft and the system software of any PC-based telephone system is as proprietary to their suppliers as Meridian software is to Nortel.

In the real world of communications, however, the relevance of the proprietary vs. non-proprietary debate concerns interfaces between systems, not the internal workings of the systems themselves. So provided a telephone system s trunk and analog interfaces comply with the relevant

national standards, they are effectively non-proprietary. If its CTI interface complies with a recognized standard, preferably a *de jour* standard such as CSTA, this too is non-proprietary. The same applies to inter-system signaling protocols — QSIG is a regional standard, DPNSS is a *de facto* standard and H.323 is a global standard. What operating system or chip set a telephone system uses within is irrelevant.

The dark side

As with any new product category, PC-based and LAN-based systems have their disadvantages. Most PC-based systems are limited to fewer than 100 or 200 extensions, although some can themselves be networked to support far more.

Being new systems, they are as a group far less developed than PBXs. Basic extension features such as group call pickup, call forwarding, toll barring and conference calls are not universally available. Few such systems sup-

port QSIG, the ETSI standard for inter-PBX signaling widely supported by PBXs. This is significant for an organization considering such computer telephony systems at branch offices and wants to network them to a head office PBX.

Another disadvantage concerns tolerance of failure and loss of main power. Larger PBXs are typically provided with processing redundancy, internal power supplies and a switching matrix, making them incredibly reliable. And

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installing PBXs with at least four hours of backup batteries is standard operating procedure.

By contrast, PC systems, whatever their application, have a mediocre track record of reliability, although a few suppliers have developed strategies to improve overall availability. Similarly, as few PC hardware manufacturers are aware of DC power, such phone systems must be powered by UPS to have any tolerance of loss of mains, which can be quite expensive for supply in excess of 20 minutes.

Another disadvantage with both PC-based and LAN-based telephone systems is that of the stability and financial strength of the supplier. Although there have been a number of mergers, it has been a long time since a PBX supplier of any significance simply went bankrupt or dropped PBXs as a product. That is not the case with these upstarts, about half a dozen of which appear to have ceased trading in the past year. **telecomasia**