Digital

VoIP had bad press not so long ago, but now the bandwagon is gathering serious pace. Brian Tinham looks at what's happening and what you need to know

Was the time when data and voice communications were separate and IT didn't have to get involved. That's long since gone and the IT department almost invariably has to deal with telephony because no one else does and it's technical, right? So the idea of converging the two into one infrastructure that's familiar to IT, and that also brings cost savings and business benefits, is appealing.

Except that early adopters ran up against problems, mostly involving disappointing call quality, hidden costs and savings that weren't anything like those predicted. Why? Several reasons, but taking them in the same order: because companies' data networks weren't equipped with QoS (quality of service) prioritisation; because they also needed more upgrading than anticipated (particularly with other demands, such as CCTV and streaming video); and because telephony call costs collapsed.

Failed business case

Richard McCammond, VoIP migration consultant at Verizon Business, recalls the saga: "I spent a lot of my career working for PBX companies like Mitel and then Octel before it became Avaya. The business case then was that national UK phone calls cost 10p per minute, so you could save significant money by moving over to IP. But, between development and deployment, that cost fell to less than 1p, and the main business driver just disappeared."

So it got fairly bad press. Now, however, VoIP has been turned on its head and you couldn't buy a non IP-enabled PBX from Siemens, Mitel, Avaya, Cisco, 3com, anyone, if you wanted to. You don't have to use the functionality, but it's there anyway. Why? Because VoIP technology has matured very rapidly; suppliers of network hardware, software, services and management tools ditto; and it's cheaper to build in the functionality for all.

As network infrastructure provider Bailey Teswaine technical director Rajesh Sinha puts it: "VoIP is the norm now. Two years ago, people were unsure about quality

and security, but people are out there now doing it and not seeing problems. We sell systems day in, day out, and 99% of them are VoIP; the rest are supporting legacy systems waiting until companies change over."

What's the new business case? Improved flexibility, productivity, mobility, collaboration and disaster recovery, as well as reduced network management cost and complexity. Quite a lot really and, although it's important, VoIP has become just one of the components. Because now the talk is of presence detection, single-number services, 'find me' services and direct links into desktop applications, as well as desk-based video net conferencing and document sharing.

And while these latter technologies have been punted for some time by the likes of Avaya, Cisco, Nortel and Panasonic, now that Microsoft is migrating from its LCS (Live Communications Server 2005) to OCS (Office Communications Server 2007), people are taking notice.

So what should you do? Well, a lot depends on where you are now, in terms of your phone network lifecycle, but also what functions the business is telling you might be key to its development – and what you decide to do to educate the management.

You can just use your PBXs in TDM mode, with the existing cabling and handsets, still connecting via traditional ISDN. You might well choose to do that because of the argument that there are still unavoidable costs involved in beefing up your Ethernet LAN for voice.

You may, for example, need to upgrade the cabling to improve bandwidth. You're almost certainly going to have to replace the LAN switches. You're going to need new phones, each with its own switch port. And you'll be told that you're going to need an infrastructure capable of QoS, using MPLS (multi protocol label switching), to prevent voice call degradation that will otherwise kill your project faster than you can say 'VoIP'.

So putting off migration to a time when you need to change your switches, hubs and routers anyway is a pop-

voice

ular choice – although that does mean you don't get the above-mentioned business benefits until then.

However, it's a different story on the WAN side: assuming that you, or your hosting service, already have QoS on the WAN, you can buy IP gateways to connect from your legacy PBXs and provide VoIP between sites, to suppliers and so on – and ditch your ISDN trunk. It's worth noting that Verizon's Integrated Access gateway is its biggest selling line – hardly surprising when it enables companies to eliminate charges for PSTN lines.

A different story

Returning to the LAN, however, there are alternatives – some service-based, others around technology. Looking at the former, companies like Bailey Teswaine offer managed services and hosted VoIP, with everything run from its data centre, just as you'd expect for your IT network. Going that route makes it relatively painless to add extras, such as converging your fixed and mobile phone systems, or providing single number dialling to anyone, anywhere, including from within desktop apps – and all at a fixed cost per user per month, with no capital outlay.

Meanwhile, on the technology side, bandwidth might be less of an issue, thanks to the data compression ratios of the various codecs. That's the approach taken by Microsoft. Mark Deakin, the software giant's unified communications product manager, explains: "OCS doesn't assume QoS. What happens is the codec is intelligent and adapts to the quality of the connection it finds.

"Here at Microsoft, we have switched enough people over to voice on our data network to know it works and it's stable. We are our first and worst customer, and we've also been working with users on rapid deployment programmes. So we're talking several thousand people using it for voice, and tens of thousands for presence and IM."

Incidentally, if you like this, you might also want to consider wireless VoIP – because there are now solutions to the formerly intractable problems of CSMA/CA (carrier sense multiple access with collision avoidance) and QoS. Meru Networks is one supplier that has what senior systems engineer Dave Crowder calls "an air traffic control system at the edge of the network".

The same company has also developed a solution to the issues of wireless VoIP roaming. "Instead of roaming being initiated by the client devices, which is the cause of voice losses, Meru makes all access points appear to the clients as one virtual umbrella."

One final point: if you opt to look after the converged network yourself, you're going to need new tools from the likes of Computer Associates, Exinda and Network Instruments. Yes, VoIP is just an application, but it's unlike most, in that its users have zero tolerance of disruption. Hence the providers' obsessive concern with MOS (mean opinion score) call measures.

Computer Associates' sales director for network and voice management, Verite Warriss, explains: "If there's any delay, jitter or packet loss, then callers can't hear anybody. So you have to understand voice capacity, and be able to see historical user profiles and trends right down to individual calls. You must see every part of the jigsaw."

Network Instruments sales director Ian Cummins agrees, adding: "Hopefully, you're buying from a profes-

> ## "We have switched enough people over to voice on our data network"
> ### *Mark Deakin, Microsoft*

sional company and your VoIP system will go in trouble-free. But we are the harbingers of doom, warning that at some point your network will deteriorate. Maybe one of the switches crashes and reboots, and everything is flowing through, but you've lost all the QoS settings. We can show you what happened."

Steve Bieniek, sales director of integrated VoIP and ISP firm VoIP Unlimited, believes that such tools are essential. He uses Exinda and says: "It allows us to have visibility of all applications across our network, with tools to monitor packet loss, latency and jitter, and to control IP connectivity and QoS within a single appliance. For example, we have a pipe in the BT network for broadband services that some customers use for data, as well as voice. We can put guarantees in precisely because we have the technology to see." ◼

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