With a growing pressure on schools to keep their increasingly complex IT systems up and running, ICTfE decided to talk to IT specialists within schools, as well as external support providers, to find out some of the most common problems and what's being done to keep things ticking over nicely

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ALIVE AND
TICKING

As ICT deployment and usage becomes more pervasive in education, the challenge of maintaining systems becomes ever more complicated. The wing and prayer approach may not suffice.

Neither will the response that all too many time-pressed teachers have employed in the past – ignoring problems as they arise and making do with what does actually work instead of fixing broken kit. It's a common problem highlighted by Steven

Wright, IT manager at Bootham School, an independent establishment in York. Wright explains that one of the most common problems at his school has been teachers with a finite period of time to teach a lesson encountering broken machines and electing

Stuart Gunning, Northgate Education

"Thin clients has also cut down on the time taken up with general network maintenance"

to move to one that does work while failing to report the problem or fault. "As time went on, more and more computers weren't functioning in the manner they should have been, or simply weren't working at all in some cases," he says. "The IT helpdesk knew nothing about it because a real disconnect existed."

With 300 computers at the school dispersed among numerous buildings, the three IT staff didn't have the time to go round all the computers checking they were functioning correctly. A solution was to come, however, when the school

invested in thin client terminals and desktop virtualisation. "What we've effectively done is taken away a very noisy box and replaced it with a box that has absolutely no moving parts," says Wright. "It has no hard disk that can potentially die, or fans that can give out. It simply turns on or doesn't, and that's the end of the matter. And with four physical servers serving them, we no longer have to look after hundreds of pieces of kit that can potentially fail, but simply four servers and lots of boxes that we can replace in ten minutes."

The adoption of thin clients has also cut down on the time taken up with general network maintenance, says Wright. With lots of boarding children all having their own laptops and plugging them directly into the school network, it was a constant battle keeping the network clear of viruses and

worms.

He explains: "With virtualisation, it's an almost-won battle. The thin clients aren't susceptible to viruses in the same way the PCs were. Although they have an operating system, it hardly does anything and, as it's Linux-based, the likes of Windows viruses that are generally floating around the network don't affect the terminals at all. We have a router between what the children access and the machinery that powers the terminals. That has access control lists on it, so any nasties floating around the network can't get into it. It's effectively firewalled."

Matt Harris, IT manager at Trent College in Long Eaton, has taken an alternative route to maintaining the integrity of the college's IT hardware. The school recently adopted a lease system, which allowed Harris to replace the school's entire infrastructure in one go. It now renews all equipment every three years. This includes all servers, printers and over 500 desktops and laptops.

Harris points out that all of the machines available to the students also get a fresh install on them every major holiday, and they all carry the same standard software, with students unable to install or change anything themselves. "We've effectively eliminated all of the user faults that often occurred. It's now practically impossible for a user to break one of the workstations. The problems we used to get were things like the installation of incompatible software. Staff would often install trial software that would conflict with the school software. **>**

Andy MacLeod, Cisco Systems

"IT teachers continue to take care of maintenance and support"

We'd also get viruses occurring, but our virus provision is now centrally controlled." Harris's team are still kept busy, but the majority of the calls coming into the helpdesk are now technical end-user enquiries – somebody might want to know how to access someone else's calendar, for instance.

Harris is adamant that having a single platform is very important – hence the College's decision to adopt Dell technology – as is a 'next-day fix' commitment, with

that all-important single phone number for all problems. "Obviously, there are other providers like Fujitsu where you buy through a reseller," he says, "but that means an extra step in the support chain, so we would always try to choose partners where we get direct access to them."

As the head of an IT team that models its network and support service on the corporate sector, Harris is amazed that he's still coming into contact with a lot of schools where the IT teachers continue to take care of maintenance issues and support. Kathie Daniels, deputy headteacher at St Dunstan's Primary School in Surrey, is a case in point. Daniels provides IT support to 486 children, aged three to 11, maintaining over 50 networked computers. Admittedly, the school pays into a borough-wide management information system that supplies technicians who deal with the larger and more complex jobs, but Daniels is still kept pretty busy.

"I actually do quite a lot of the minor IT maintenance and support jobs myself," she >

Dan May, ramsac

"The biggest issues we deal with on behalf of schools are hardware failures"

says. "You tend to get better and better at dealing with certain things, but I'm basically self-taught. I think you'll find that most IT leaders in primary schools will have simply learnt on the job. I tend to find myself dealing with a lot of printer issues, and it's nearly always a case of it not having any ink. It's usually something minor that can be dealt with quickly. There will be times when a teacher picks up the pen and tries to use one of the interactive whiteboards and it won't respond. Through past occurrences, I just tend to know now what to tweak to get it going again, although I'm trying to change the culture by showing the other teachers what to do themselves."

As a relatively small primary school, St Dunstan's can be forgiven for trying to deal with its own IT troubleshooting, as and when the need arises. However,

Dan May, operations director at computer network specialists ramsac, believes there is a growing need for a change of mindset in schools about their IT maintenance. "Previously, schools have been supported by IT companies specialising in the education sector and I think they've been accepting some second-best advice. We deal predominantly with businesses, although we look after the maintenance needs of half a dozen secondary schools too. For us, it's about working with schools to give them business service level responses.

"Resilience is a huge issue for schools," May continues. "Especially now you're getting schools that are increasingly eschewing a traditional white or blackboard in the classroom and only have a projector screen. If all the lesson plans are stored on the teacher's laptop and everything is being delivered via the interactive whiteboards, this puts more pressure on equipment always being up and available. It's a matter of schools changing their mindset. They need to consider themselves medium-sized business networks. Schools are effectively businesses."

It's a point Andy McLeod, manager of business development, public sector, at Cisco Systems, concurs with: "Unfortunately a lot of schools are still taking a DIY approach to maintenance. But there's no doubt in my mind that schools need to take an enterprise approach.

"They'll generally have a variety of maintenance contracts, for both hardware and software, but all told there are still relatively few with managed service contracts. If you look at Classroom 2000 or C2K in Northern Ireland [an initiative set up to provide an ICT managed service to all schools in the province], then you're looking at a very good enterprise approach to providing IT maintenance and support. It's basically looked upon as a utility," McLeod concludes.

Stuart Gunning, education client director with Northgate Education, which is heavily involved in C2K, is wary of this comparison of the maintenance needs of schools with businesses: "Schools aren't financial institutions, so they are not losing money with a PC being broken for a day. There's a fallacy about service level agreements

(SLAs) and what schools need versus what businesses need. The things that are important are, for example, if you've got a server in a school that goes down, then it's going to affect a lot of machines, so there would be a business-level SLA need for something like that; but for individual machines in classrooms, it's just not so critical."

Having said this, with 135 engineers serving 1,200 schools throughout Northern Ireland, Northgate's maintenance and IT support operation makes some businesses pale by comparison. "In a school, you've effectively got the same as, say, a 1,000-user company, but they just happen to be kids and teachers who every time the bell rings get up and move office," says Gunning. "In many ways, schools are more complex than businesses. But I guess the highest percentage of things we deal with on behalf of the schools are hardware failures. Things inevitably break, but it's a simple matter of getting the parts and fixing them," he adds.

"We're very fortunate in having a robust network and good hardware, and thankfully we don't get much in the way of catastrophic failures," says Andy Smart, network manager at Farmor's School in Gloucestershire. "It tends to be more user support that takes up our time rather than network management; people forgetting passwords, needing help with using software, students and staff not being able to print, for example – most of it is application support."

What Smart also points out (and rather cheerfully it has to be said) is that a natural corollary of the students becoming increasingly IT-savvy is that they often resolve their own IT troubleshooting issues. "Because we're dealing with children as young as 11, there's a limit to how much you can devolve to them, but the sixth form students pretty much look after themselves," he says.

So, wings and prayers might be of little use, but there's always sixth formers to bail you out. Failing that, whether you buy into May and McLeod's idea of schools operating as businesses or not, some form of organised troubleshooting strategy is fast becoming an essential for any forward thinking educational establishment. **ICT**