



David Moss of Stoke College stretches his budget - and increases his speed - by switching to a Terminal Server environment, and Jon Honeyball switches on to gigabit.

We're all used to plummeting prices these days, which mostly fail to raise an eyebrow even though they're cheap compared to costs a few years back. But even I raised an eyebrow when an email dropped into my inbox bearing the subject line "Acers now only £5 each".

As I was reaching for my mouse to open this mail, I suddenly realised it came from Thompson & Morgan, the gardening supplier... I suppose it would have been too far fetched really, but when you're on a tight budget - and anyone co-ordinating an ICT department at a school will know what I'm on about - you'll grasp at straws, or even saplings. The headmaster might frown if I were to replace our current systems with a thicket of maples, no matter how attractive their autumn foliage might be.

Good value for money, however, is the cornerstone of this month's column. I need to expand my ICT systems throughout the school and also to create a fully equipped resource room containing at least 16 systems. And I had plans that went far beyond the computers themselves - I could be heard muttering "cross-curricular" quite a lot over the summer, but that's a subject for another column. Problem one was simple: I needed 16 more systems that I didn't have, so I'd have to buy them, which might sound simple, but my budget doesn't stretch to 16 new PCs. I was clearly going to have to approach this acquisition from a different angle, and that angle was to use Terminal Server with 16 dumb clients. I wasn't contemplating a wholesale move to this solution, which isn't really suited to the CAD and advanced graphics applications used by some of the classes, but for many less-taxing apps it could work just fine.

Dumb clients

I started to investigate the cost not only of purchasing new dumb clients, but also of converting existing PCs to dumb clients. Doing the latter might seem odd, but for me it made a great deal of sense: take all my old Pentium III systems with their 128MB and 256MB of memory, and boot them as dumb clients. They were struggling as standalone systems, but as dumb clients they'd be over-specced and in theory should run like rockets. What I'd also need, of course, was a damn fine server to run all my apps, and this would be the expensive bit.

I priced 16 dumb terminals for the resource room, and the conversion of my existing clients to dumb terminals for both the junior and senior schools, and also looked at the option of leaving my existing systems alone and trying to source 16 new desktop PCs for the resource room. In terms of cost, the latter option didn't look good, as even buying at rock-bottom prices I could still convert all the existing systems, buy in 16 new dumb terminals and a server to run them all for less than the cost of 16 new desktop PCs. What's more, I found I was able to get 19in monitors at less than £100 a pop, and that included VAT.

As an aside, pay attention to the small print of some of the current monitor offers that are flying around. On paper, they may look awesome, but if you read the warranty information you'll realise that any problems encountered would require you to ship them to a destination in mainland Europe, and the cost of doing so would far outweigh any financial advantage gained by buying them so cheaply in the first place.

To me, the key was finding a supplier I was comfortable with, and whom I knew would provide me with excellent support if things went wrong. Helen at VdotCOM was already supplying my antivirus solution and was sure she could fulfil this requirement, too. We mulled over all the options and eventually arrived at a setup that would suit my budget, while also meeting all my other requirements. Bear in mind that these monitors would be running off dumb clients, so I didn't need all-singing, all-dancing jobs - the 19in ones were fine. I'd have settled for 17in units, but more real estate is easier on the eyes, and there was virtually no price difference. For the server, we went for an IBM eServer xSeries 366 with a 3GHz Quad-Core Intel Xeon, 3GB of RAM and an IBM SCSI ServerRAID containing two fast 74GB hard disks set up as a mirror. This system would run as a Terminal Server and host only the apps: user accounts and storage, printing, backup, email and all the other domain functions were to be left on my two Dell PowerEdge SC1425s.



Setting up

On the appointed day, Kevin from VdotCOM leapt into his rather nice Audi and trundled south with the server. Our mission was to get everything up and running in one working day: installing the server, adding it to the domain, getting applications installed and tested, and testing all the conversions, too. I'd sort out the monitors and set up the dumb terminals on my own later on, after running through one of the setups first, of course. The first thing we discovered was that my old, generously donated server cabinet wasn't going to let us fit the rails and allow the new server to slide into them comfortably. It seemed to be about 2mm too narrow and, in the end, after much fiddling we opted to put the server on one of the sliding trays. Not the best start, and I hoped it wouldn't be an omen of worse things to come. Once it was booted, we added the server to the domain as a member server, and then added Terminal Services in Application Mode and the licensing in Per Device mode. We also took the time to disable Internet Explorer's enhanced security, as it will drive you potty when you're carrying out the sort of setup work that involves frequent use of a browser.

Everything went smoothly and we were soon ready to begin installing the applications. If you've never done this before, there's only one rule to remember when installing to a Terminal Server, and that's to use Add/Remove Programs to install your apps and never just let the installation program auto-run when the installation CD/DVD is inserted. If you bypass Add/Remove Programs then, unless the installation program is coded to recognise a Terminal Server environment - which many aren't - you'll end up with a program that's just a single-user installation, which isn't what's required at all.

One other thing that needed to be done was to make sure the users lost their ability to do a shutdown from their terminal. Logoff was fine, but shutdown or restart was a big no-no, as they'd be shutting down the whole Terminal Server, not just their own client. To stop this happening required a trip to the Group Policy Editor. To do that, head for Start, select Run and type gpedit.msc into the Open edit box before hitting Enter. With the Local Computer Policy dialog open, select Computer Configuration and drill down through Windows Settings to User Rights Assignment. Look for "Shut Down The System" in the right-hand pane and remove the Power Users and Backup Operators groups. Then we needed to do some group setting up using the Group Policy Editor to add the Domain Users group to the Remote Desktop Users group and to the Power Users group.

Testing

After installing the first applications - I went for Microsoft Office 2007 - we took the opportunity to test the dumb terminal conversions. What you get is a CD containing a Linux-based boot kernel that simply boots the system, so it can talk to the Terminal Server. In place of the old Windows XP Professional login dialog you get a Windows Server login dialog, but other than that there's no visible difference - supply username, password and domain name as usual. I fired up one of the terminals, popped in the CD and watched as it booted into the server, then logged in as a user and launched Microsoft Word 2007. Now I knew this would probably be quick, as the machine was somewhat over-specified for a dumb-client role, but you really can't appreciate how quick it is unless you've tried it yourself. I'd say Word took about a second to load, and it was exactly the same with Excel and PowerPoint. It really was awesomely fast: CAD, graphics, whatever - it just rocked. Sure, there was some slowdown when manipulating complex CAD constructions, but it was still usable.



It was programs such as Tizzy's First Tools and Textease Studio CT that really made the system pause for thought, but these were still quite usable, with remarkably few redraw problems when moving images from the resource libraries of those applications around their documents. They're both very graphics-intensive programs, however, and had been causing problems for my standalone systems anyway. For normal use as word processors and spreadsheets, these terminals were much faster than they'd been before as standalone PCs.

Were there any other problems? A few of the terminals refused to boot off CD, but that was nothing a spot of CD drive cleaning couldn't cure. One application refused to install at all, but that turned out to be a case of corrupt media, and was fine once a replacement CD arrived. Have I succeeded in my aims? Time will be the judge of that, but certainly, in financial terms, I've achieved everything I wanted and under budget, too, and hence freed up funds for some new software I'd been after for a while. There are bound to be some teething problems, but our tests so far have been positive. However, as every admin knows, it isn't until the users come back that the real test begins, so watch this space.



Stoke

COLLEGE *David Moss*