Mind your own business

Are you a small business and keen to take advantage of the internet? Then why not set it up yourself. Dale Strickland-Clark helps you keep control of your system — and your money.

T he world is changing the way it conducts its business. Companies are getting on the net, and now even the smaller companies are finding the advantages too compelling to ignore. Email is generally the first consideration, but a corporate presence on the web and equipping users with browsers may also be important. Whatever the objective, if you have an NT server, it needn't be a complicated job to set it all up.

There's more than one way to achieve this, and many people might turn to a router to provide the bridge between the LAN and the internet. However, I've chosen a different approach which gives you better control and accountability (at least, in this price range). For browser access, you need just two things: a copy of Microsoft's Proxy Server, and a modem or ISDN terminal adapter. If you want to provide internet email you'll also need a mail system, such as Exchange. Hosting a web site requires a bit more thought, if only to make sure you're handling the security properly. Indeed, Microsoft recommends that you don't host a web site on the same machine as Proxy Server and I won't be covering that this month. Setting up email using Exchange will be the subject of next month's column.

A proxy server allows any number of machines to access internet resources external to the LAN using only a single public IP address. All client requests destined for the internet are transparently diverted to the proxy server which then re-issues (as opposed to simply routing) the request to the internet. Responses from the target sites are sent back to the originating system.

You will, of course, need an account with an internet service provider (ISP). If

You manage the Proxy Server's two components (Web Proxy and Winsock Proxy) from the same application you use for the rest of IIS, but it's not clear that the WWW service must be running before the Web Proxy can start

you're planning to run a mail service and want your own domain name, make sure the ISP handles SMTP (Simple Mail Transfer Protocol) and can register the name for you. They will also need to offer mail forwarding. This means that the ISP will store your inbound email while you're not connected instead of returning a "host unreachable" indication to the sending system. Demon is one of several who offer these services, and I use them.
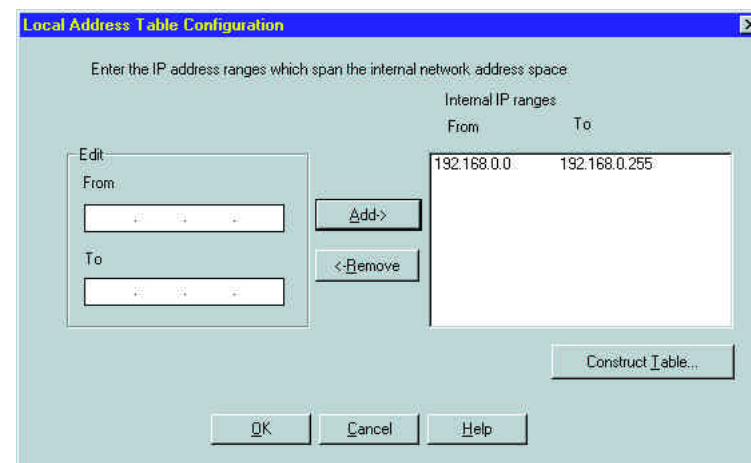
First, a modem...
The first task is to connect a modem. Even if you're planning to use an ISDN terminal adapter, you might find it helpful to debug the Dial Up Networking (DUN) connection using a modem. Then create the entry in the DUN phone book on the server that will connect to your ISP. I covered this a few months ago so I won't go into it again here. If you can establish a connection with this new entry and browse a web site from your server, the first phase is complete.

You can download the Proxy Server from Microsoft's FTP site. Unfortunately it's only an evaluation copy but it will last you a couple of months while you assess its

suitability. A licensed copy should cost you around £600 — rather more if you buy it from Microsoft. If you want the evaluation, your journey starts at http://www.microsoft.com/proxy with a registration form and a 6Mb download.

The Proxy Server comes in two parts: the server software itself and client software for each workstation. The server software is, in fact, an extension to IIS (the internet server component of NT) and you manage it from the Internet Service Manager applet along with the rest of IIS. The client software is responsible for identifying internet-bound traffic and diverting it to the proxy.

To install the Proxy Server, you will need an NT Server 4.0 system with Service Pack 2 already loaded. The installation is free of surprises as long as you've noted the CD key which you'll need to enter early in the process. (It was "375-1749043" when I last looked.) The only remotely taxing aspect is setting up the local address table. The LAT contains all the IP address ranges used in your local network and is automatically copied regularly to the client PCs. The client software uses this table to determine where it should direct network requests.

The local address table must reflect all the addresses used on your private network. In many cases, this may be a single entry

I always use one of the IANA (Internet Assigned Numbers Authority) suggested address ranges for private networks of 192.168.0.0 to 192.168.255.255 for all the networks I set up. This means my LAT only needs a single entry. You can build the table yourself or use the Construct Table button to have it attempt to build the LAT for you from information it can glean from your network. The server installation needs to know the name of the DUN entry it should use to start the link and the times during the day that you want to allow auto-dial on demand.

A matter of protocol
I haven't yet found the need to differentiate between internet protocols: a user is simply given access to the internet. However, you can restrict access by protocol, allowing FTP access but not World Wide Web, for example. You will find it easier to manage and see who can do what if you create a

security group for each type of access you want to control, then admit users to the appropriate groups.

The fun bit is determining who will be allowed to access the internet through the proxy. Your company may have certain business rules on this, but I have found that granting entrance to the necessary security group in exchange for bribes works well.

During the server installation, a network share is created on the server called, rather anonymously, mspclnt. Open this share from each workstation and run the Setup program found within. This installs the client software and takes a few seconds. It also updates Internet Explorer (if it's installed) to direct its requests to the proxy.

That's it. The first authorised user to fire off an internet request will trigger the proxy to autodial and establish a connection. There's an appreciable delay here when using a modem and some clients may time-out, but if the user retries the request it

Assigning internet access permissions is best kept to specific security groups because it's easier to see what privileges a user has been granted by inspecting their group memberships. However, if group membership has wider implications, you can list users individually, too

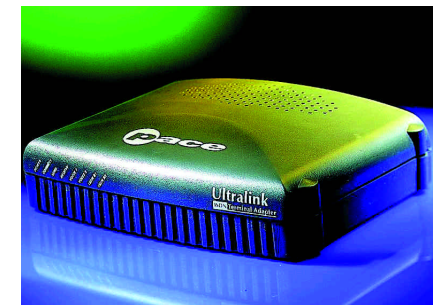should succeed on the second attempt.

The line will now stay up until the inactivity timer closes it down. This time limit is set in the DUN phonebook and you might want to try different values to keep connection charges down without the line dropping in the middle of an online session. To adjust it, open Dial-Up Networking from My Computer, click on the More button and select Logon Preferences.

A Control Panel applet allows the user to use an alternative server or switch the proxy off altogether, so they're not cut off from internet access through their own modem if they need it occasionally.

Ah yes, ISDN...
Using the Proxy Server for internet access almost feels like having a permanent connection, inasmuch as you don't have to take any special action to get the line going when you need it. Unfortunately, the time taken to establish a connection and get any data across it reminds you that your knees are firmly planted in modem land.

I needed something faster that wasn't going to provoke shrieks of horror from the Finance Director. I decided to go for an ISDN2 line and a terminal adapter (TA). BT has a number of price options for ISDN lines at the time of writing so you can get one installed for a modest outlay. ISDN TAs have been dropping in price too and I picked the Pace Ultralink which is keenly priced and comes from a reliable stable. This neat little box sits external to the server and connects via a suitable COM port. To be suitable, the port must definitely be buffered and preferably be on a Digi board serial port

The Pace Ultralink is a tidy little ISDN terminal adapter but don't let the picture fool you. This device can stand on its side, too

adapter to relieve the main processor of much interrupt handling. The Pace Ultralink comes with the installation material you need to set it up on NT in a few moments and then you just treat it like a modem.
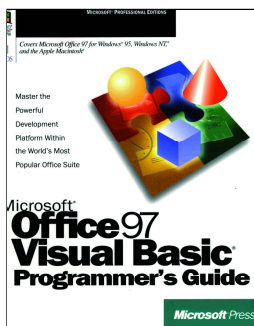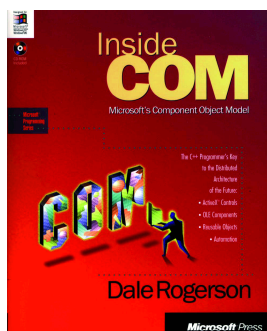
Connection times with ISDN are very

Windows NT Books

I am indebted, as ever, to Computer Manuals (0121 706 6000) who keep me supplied with books to review.

Inside COM
Author Dale Rogerson
Publisher Microsoft Press
Price £28 (£32.99 inc VAT)
Pages 376
Includes CD-ROM

COM is Microsoft's Component Object Model. It defines the way programs (or, more correctly, components) talk to each other and is the basis of OLE and ActiveX. This book assumes a solid grounding in C++ and develops the principles of the interface from the basics through to automation and beyond. It's a thorough book and the author explains the concepts clearly, although he has a tendency to lapse into patronising fables at the start of chapters. There are plenty of diagrams and code samples which you will also find on the CD. This is an ideal book for newcomers to the subject because of the careful explanations, but more experienced programmers will find it a bit slow.

Microsoft Office 97 Visual Basic Programmer's Guide
Publisher Microsoft Press
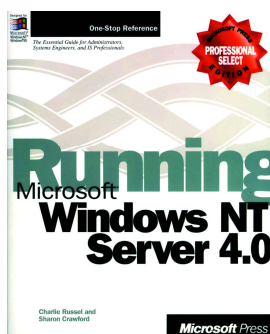**Price** £32.49 (no VAT)
Pages 528

Visual Basic now sits behind all the main components of Microsoft Office. It doesn't really matter whether you like it or not; if you are involved in administering Office or writing the odd macro, you are probably going to need to get to grips with it. Fortunately, the flexibility of the language has improved in recent revisions and the development environment in Office 97 helps a lot, but you are still going to need help with the object models of the applications. That's where this book comes in. Once it has explained the basic language principles, it goes on to describe the object model and then the object structure of each application. These are taken in turn and then the book goes on to explain programming the Office Assistants, manipulating the drawing layers and programming databases using Data Access Objects. Finally, it covers ActiveX and programming the internet applications. The appendices help with converting old Excel and WordBasic macros. You could probably get by without this book and just the online help files, but life has more worthwhile challenges.

Running Microsoft Windows NT Server 4.0
Authors Charlie Russel and Sharon Crawford
Publisher Microsoft Press
Price £36.99 (no VAT)
Pages 615

I was pleasantly surprised when I started dipping into this book. I was expecting the usual maintenance tasks explained and a list of steps you need to perform to complete them. Well, it's got all that, but it also offers more background and insight than I recall from similar books. The fact that it's an inside job might have something to do with this. It is also a very compact book and covers its subject without spreading itself across yards of shelf space, although it does stick to server issues. You won't find too many topics covered which might also fit in a book on NT Workstation.

much shorter than an analogue line and you don't get that confrontation between Hissing Sid and Zebedee as the modems suss out each other's capability and the quality of the line.

The question now, of course, is do I go for ISDN at home. It's awfully tempting.

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