Driller **thriller**

Oh, the horror: staring at broken end-pins on one of your drives. When it happened to Dale Strickland-Clark, he got down to some soldering and writing of batch routines for backup.

I had a bit of a panic a short while ago. While reassembling my server, having just added a new 2Gb SCSI drive to work alongside the two 1Gb drives already there, I was having some difficulty getting the SCSI cable back into one of the old drives. Just a little bit worried, I decided to pull the drive out and investigate the obstruction. I broke into a cold sweat when I discovered that I'd bent almost flat the two end pins on the drive's SCSI connector. They were so bent, in fact, I knew that if I attempted to straighten them again, they'd break off.

I tried anyway and they broke off, but I gained a little satisfaction from being right. I considered my options. The chances of fixing the pins back on were pretty slim. I did have a backup of the data, and with a new drive installed, I could get away with simply restoring the data onto that drive. However, I had other plans for the new drive, and furthermore, the thought of dumping an expensive bit of kit because two of the cheapest components had broken off bugged me. I decided to try fixing it.

I trimmed away a section of the plastic surround with a tiny circular saw attachment on a modelling drill and exposed the base of the two severed pins. Then, with a small soldering iron, some fine solder and a steady hand, I carefully re-attached the pins to the connector. I can't hope to express the drama of the situation and the relief when, with it all connected together again, my server booted without complaint.

Although I was already fairly conscientious with my backups, this episode brought home the vulnerability of data and the large scope for mislaying it.

Backing up systems is one of those
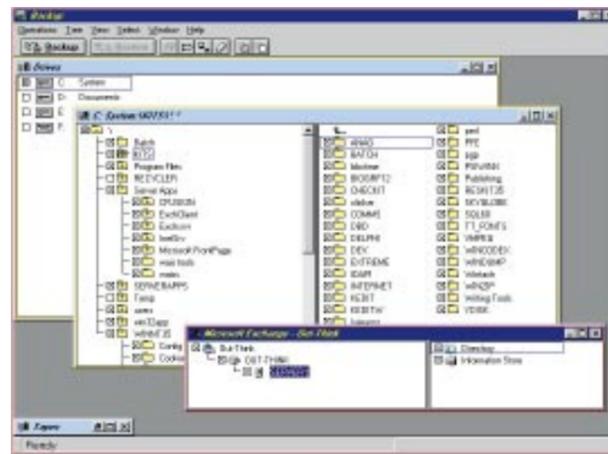
The standard NTBACKUP that comes in the box with NT is easy to use and provides control over what is backed up down to file level, but only if you run each backup by hand. It's hopeless to automate and won't back up the Registry from other systems over a network. Not recommended for use in production

tedious jobs you postpone at your peril. NTBackup shipped as part of NT is adequate for emergency use, but provides only the barest control over what is backed up and no help with automating the job. Consequently, running the backup is a bit of a chore. The greater the effort required to take a backup, the more likely it is to be skipped on a busy day. I've had a couple of goes at writing batch routines to take some of the pain out of the procedure, but tape cycling was still manual and far too much rubbish was being backed up, taking the data onto a second tape for a full backup.

My backup requirements are modest, with about 10Gb online around the network, the most important slice of that being the 4Gb on the NT Server. Much of the rest is just installed software and it wouldn't be a disaster to have to recreate it from scratch. My Sony DDS tape drive will manage between 6

and 8Gb to a tape, depending on the level of compression achieved.

There are some slight complications, too. Not all the data can be backed up by a simple file-level routine. Send an SQL/Server .DAT file to tape while the database system is running and there's an excellent chance that the data will be unusable. You must at least shut SQL/Server down first. The same applies to Exchange Server and many other server applications.

The example batch routine, BU2.BAT (Fig 1) shows one possible approach to automating a backup procedure using the standard features in NT.

While this routine simplifies running a backup, it doesn't automate it. For this we

Fig 1 Automating backup using standard NT

This backup routine uses standard NT commands and none of the new features of NT 4. The Sleep command is found in the resource kit but is optional. The series of Echo commands at the beginning are a handy way of identifying command parameters without introducing case sensitivity and allowing abbreviation of long parameter names. For example, "incremental" can be abbreviated to "inc". A few frequently-used parameter combinations have been given names for convenience, such as "Sunday", "Daily" and "Weekly". This has been implemented by having the batch file simply call itself again with the expanded parameters when one of the combined names is used.

```
@echo off

echo /daily | find >nul /i "/%1" && bu2 incremental 4mm append
echo /sunday | find >nul /i "/%1" && bu2 incremental 4mm overwrite
echo /weekly | find >nul /i "/%1" && bu2 normal 4mm overwrite

setlocal
set tape=na
set butype=na
set append=na

echo /normal | find >nul /i "/%1" && set butype=normal
echo /incremental | find >nul /i "/%1" && set butype=incremental
echo /differential | find >nul /i "/%1" && set butype=differential

echo /small | find >nul /i "/%2" && set tape=1
echo /large | find >nul /i "/%2" && set tape=0
echo /4mm | find >nul /i "/%2" && set tape=1
echo /qtrinch | find >nul /i "/%2" && set tape=0

echo /append | find >nul /i "/%3" && set append=/a
echo /overwrite | find >nul /i "/%3" && set append=

if %tape% == na goto error
if %butype% == na goto error
if .%append% == .na goto error

Echo Backup type %butype% to %tape% %append%

Net stop "Allaire Cold Fusion"
Net stop "World Wide Web Publishing Service"
Net stop mssqlserver

rem —- Link to share on NT workstation
Net use x: \\dale-pc\drive-c

rem —- Link to share on Windows 95 workstation
Net use y: \\heidi-pc\drive-c password

ntbackup backup c: d: x: y: /v /b %append% /hc:on /t %butype%
  /tape:%tape% /e /l "c:\temp\backup.log"

Net use x: /delete
Net use y: /delete

Net start mssqlserver
Sleep 10
Net start "World Wide Web Publishing Service"
Sleep 10
Net start "Allaire Cold Fusion"              (continued over...)
```

Fig 2

```
at 21:00 /every:su "c:\batch\bu2.bat sunday"
at 21:00 /every:m,t,w,t,f  "c:\batch\bu2.bat daily"
at 21:00 /every:s "c:\batch\bu2.bat weekly"
```

can use NT's Schedule service (Fig 2). These commands entered into a console window will schedule three different types of backup to run at nine o'clock each evening. You then just need to make sure you have the correct tape in the drive each evening.

Before spending too much time attempting to mould NTBACKUP into your ideal backup system, however, it is worth considering the alternatives. There is an
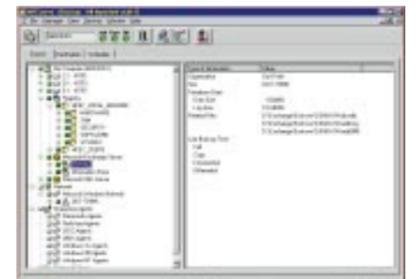
Top You control ARCserve from a comprehensive array of buttons, but not all of the rest of the system is as easy to get to grips with. Above With ARCserve, you can back up just about anything you can think of. If it's not handled by the standard package, there's probably an optional *agent* to add support to back it up

extended version of NTBACKUP, called "Backup Exec for Windows NT", from Seagate Software (a company formed from several mergers including Arcadia, the name some people may still associate with this package), and Cheyenne Software has an NT version of its popular NetWare backup package, ARCserve.

ARCserve for NT is a very comprehensive system and there are numerous options to extend its capabilities. In its basic form, it allows flexible control over what is backed up and, with its built-in scheduling, when the backup is run.

But there are some drawbacks. Cheyenne has shunned NT's own tape drivers in favour of its own. This means you have to disable the tape devices to NT, preventing any other standard software accessing them. Re-enabling the tapes requires a reboot of NT. This prevents, for

```
pushd temp
findstr /b /i /l /v /c:"Directory" backup.log >"backup summary.txt"
del backup.old
rename backup.log backup.old
start notepad "backup summary.txt"
popd

goto exit

:error
echo Syntax: bu2 daily ^| sun ^|\ weekly
echo Syntax: bu2 {normal^|incremental^|differential}
 {small^|large^|4mm^|qtrln} {append^|overwrite}

:exit
endlocal
```

example, using the SQL/Server DUMP command to backup database tables, or using NTBACKUP to write tapes to send to other sites (the latest service pack gives ARCserve the ability to read but not write the Microsoft tape format used by NTBACKUP).

Cheyenne has no plans to change this regime, claiming it is to maximise performance. Having seen ARCserve backing up to a Storage Dimensions MegaFlex TapeArray (four DLT4000 tape units of 40Gb capacity each) at nearly 100 megabytes per minute, I'm not in too much of a hurry to argue. But I wonder if the standard NT drivers would be dramatically slower. I'm hopeful of the chance to find out.

Books

Inside Windows NT Server 4
Author Drew Heywood
Publisher New Riders
Price £46.99 (incl VAT)

No matter how well you thought you knew NT, it's a fair bet you'll soon learn something new flicking through these pages. This is a very readable and extremely informative volume, and covers a huge amount of ground all in good detail. It sticks to explaining things that aren't obvious, avoiding the torture of describing each menu item. Complex subjects, such as security, are illustrated sufficiently clearly for you to wonder why they were ever thought complex in the first place.

If you work with NT Server, start clearing two inches of shelf space now.

Special Edition Using Windows NT Workstation 4.0
Author Paul Sanna et al
Publisher Que
Price £46.99 (incl VAT)

With more or less equal weight given to using WordPad and configuring SNMP, it's difficult to identify the target readership of this book. Whoever buys it is going to have to lug around several chapters for which they have no use. That said, it's a book that will take the novice through to a good degree of competency — given sufficient time. The authors (all thirteen of them) clearly wanted to leave no gaps in the subject matter and they have succeeded, even covering Microsoft Internet Mail and Internet News which are not included in NT as standard.

A very comprehensive reference, but slightly spoiled by pointless and obvious detail.

Inside MAPI

Author Irving De la Cruz, Les Thaler
Publisher Microsoft Press
Price £37.49 (incl VAT)

If you thought MAPI was a simple API to send and receive messages, you haven't looked recently. The MAPI supported by Microsoft Mail and for which a VBX provided an easy interface for Visual Basic, has been renamed Simple MAPI — and for good reason. The MAPI you'll find in NT and used by Exchange is a very much more complex beastie.

This isn't a book for the faint-hearted. You'll need a good grounding in messaging systems, Microsoft's COM architecture and C++ to get much beyond chapter two. This is Microsoft's definitive reference on the subject so there's lots of code samples to help you get through it, and
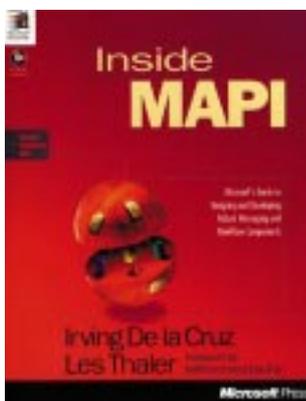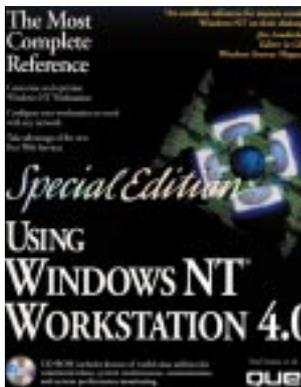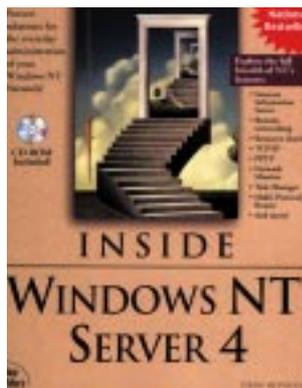
Dear Santa...

1. NT has come a long way since its birth, and it might seem a little ungracious to ask for a better user interface so soon after we've already had one, but a) I'd like each folder to remember where I had it on the screen, which view I used and how the icons were arranged; b) I want some MUCH faster ways to get to the folder I'm interested in, both through Explorer and from File Open and Save dialogue boxes; and c) Closer integration between console windows and the desktop. For example, I'd like to be able to quickly make a selected folder the current directory in a console window.

2. 1997 is going to be NT's year, but the take-up is going to be hindered by hardware manufacturers being slow or reluctant to bring out peripheral drivers for NT. The Windows Driver Model will address this problem but that's at least eighteen months away. I'd like to see tape drive, scanner, CD-ROM writer manufacturers and others wake up to the potential and write some native NT drivers.

3. The mouse is an ergonomic disaster. It's too far from the keyboard and it doesn't do enough when you get there. The cable snags on everything and notebook manufacturers have universally failed to emulate it in the space available to them. It's time for a rethink. When the ideal solution is invented, it will be wireless or part of the keyboard, it will have at least a button for each finger so you can do more without returning to the keyboard, and it won't need a square foot of desk space to itself. It should also double as a telephone handset so I can just lift it to my ear when it squeaks and have a shaver attachment for when I get up late. Oh, and there will be NT support for it — first.

•PCW Contacts

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