



# The great bathtub curve mystery

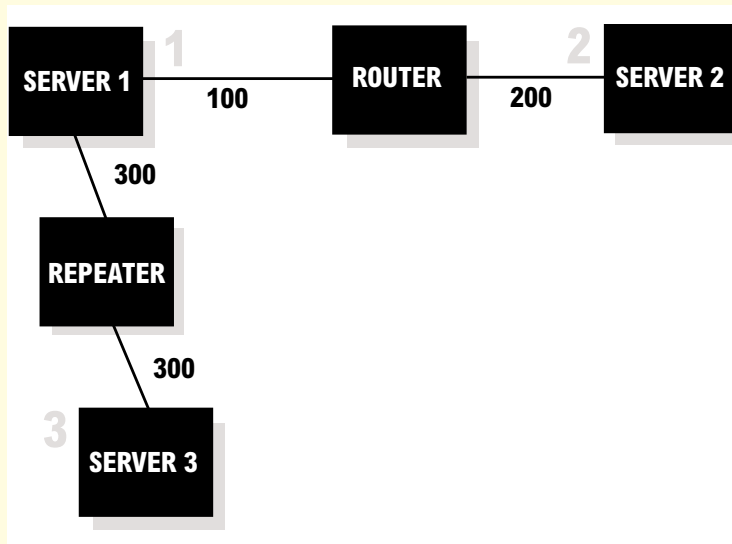
**A bad case of “stiction” nearly got the better of Stephen Rodda. This is how he restored order...**

**H**ard disks have only a limited life, you know. Mine did. Or, rather died. It must be about time for me to have what seems like my annual rant about backups and so on, so consider yourselves ranted at. I had a case of “stiction” (a combination of friction and sticking), characterised by the drive not spinning up when power is applied. Luckily it was under warranty (a DEC OEM warranty of five years) and was replaced next day.

## Bathtub blues

Unluckily, the replacement suffered from bathtub curve failure. A bathtub curve is the shape of a bath cut down the long way, half-way between the taps. You start at the tap end and graph failure of new units in pieces per thousand or so against time. At the tap end, fairly many new units will fail. As the faulty ones die, there's a fairly level area from the plughole up to where the bath starts sloping at the other end. This is where the equipment fails due to wear and old age.

No sooner had the engineer gone (around ten o'clock in the morning) and I had started to format the replacement, than I heard some funny noises coming from the disk. I wandered over to my Frankenstein machine which was formatting it, and received the dreaded Adaptec error screen, telling me the disk had failed. I switched the machine off and tried again.



**Fig 1** *How to stop servers complaining about the network numbers of the other servers [see “We’ve got your number”]*

This time it was better. The disk not only refused to come online, but after a while it powered down. I telephoned DEC again, telling them the disk had died. “There’s nothing we can do about it today,” they said. “We do warranty repairs with a day’s turnaround.” “But this was reported yesterday,” I howled over the telephone. “No, the report you made yesterday has been dealt with.” “By giving me a drive which died within ten minutes.” “Possibly so, sir.”

The moral of this story is that tomorrow I shall nail the DEC engineer down and force-feed her or him with coffee until the drive has finished formatting and verifying.

Luckily I only had stiction, and I could just do a couple of extra backups to make

quite sure. Remember — there’s no such thing as too many backups. Of course, all the live data was on the NetWare server, mainly because I’m too lazy to move it, so the NT Server and Linux machine is the one that’s out of commission. Actually, there’s a secondary drive in it. Let’s see if that’s bootable. No it isn’t. So, here I am, using an RM EISA machine. It’s a piece of luck that there’s a spare. I shall tell you what happens to the restoration of the data and the fitting of the new drive in a few lines, and you

will be a lot better off than I, since you will know in a few moments. I shall have to wait another 20 hours or so.

## Dear diary

Today. The hard disk has been replaced and formatted. Now I’m blessed if I know where I can find drivers for my CD. I suppose even if I found them, I’d have forgotten how to install them. Windows 95 and NT just don’t need all this. Oh, I forgot to mention *why* I need drivers for the CD. I need drivers for the CD so that I can install Windows NT so that I can use the backup routine to restore from the tape drive. In the end, I went and stole an Apple CD, stuffed it onto the SCSI interface and ran EZSCSI from Adaptec.

Twenty minutes later, my machine was running Windows NT and restoring data to the new hard disk. Within the hour, I’d rebooted finally and everything had been restored perfectly.



Never mind the internet, here's the intranet

Since the most recent buzzword seems to be "intranet", I thought I'd have a wander along that path.

The first question which posed itself was, "What exactly is an intranet?" I define an intranet as a LAN or a WAN operating under TCP/IP and providing some or all of the facilities available on the Internet itself.

Now, I don't have a lot of use for local FTP since all machines can (sometimes with a little jiggery-pokery) talk to all other machines on my network. Nor do I find life not worth living without Telnet. Something which seems to be quite useful, however, is a local World Wide Web server (or perhaps I should call it an Office Wide Web). This allows you to test World Wide Web pages without

having to go online all the time. Most of the stuff you need from day to day would be available simply with a LAN connection, loading pages manually with File and Open.

Sometimes, however, it's nice to be able to test CGI scripts and image maps without going to the trouble of uploading the pages to a Web site and trying from there. To that end, I have looked at LeanHTTP (a simple server with no scripting abilities) and at Alibaba, which is built for Windows 95 and NT. LeanHTTP, which works well, really just changes your home page to a local version and can't really be recommended for any other reason than it will allow a Macintosh to access HTML files on a Windows 95 machine. Alibaba, however, on ftp://ftp.eunet.co.at/pub/vendor/csm/alibaba/alibaba.exe, is a very different kettle of fish. Be prepared for a 4Mb download. I used an ftp agent to get it, since it was too slow from The Netherlands, so I'm sure it's a reasonably slow site. It's currently running on our LAN and I'll be reporting on how we get on with it in a future column.

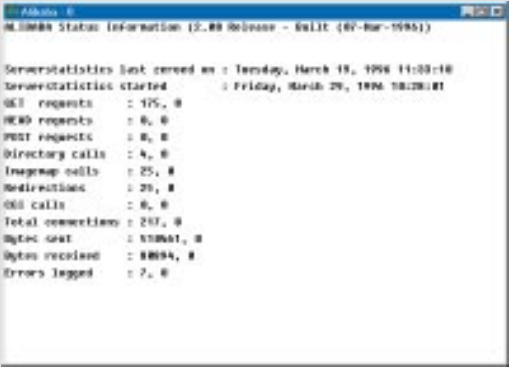


Fig 2 Alibaba's statistics screen

We've got your number

I am often asked about network numbers under Novell's NetWare, and how to stop servers complaining about the network numbers of the other servers. Remember this simple rule: you can't refer to the same piece of wire carrying the same protocol by different numbers. In this case, "the same piece of wire" includes two segments bridged together or an extended network containing a repeater. Fig 1 (page 323) may help to explain; for clarity, workstations have been omitted.

Server one has two networks attached to it. Firstly, it has the segment numbered 100, which is connected to a router. This could be any form of router, but let's just say that this is a connection to a kilostream link to an office in another part of the country, which is connected to server 2. Now note that the segment which appears after the router is numbered 200 — that is to say, differently from that which goes into the other end of the router.

Note also that server 1 is connected to a very long LAN which will not reach all the machines on the site. The network administrator has added a network repeater which has extended the effective length. This repeater is transparent to the server and server 3 will see that server 1 is calling the segment by its original number. Installing server 3 we have to be careful to use the same number as server 1 for that segment. If we were to add another LAN segment to server 3, we could not use 100 or 200 again, since these numbers have already been used on the same LAN.

Xen and the art of network upgrading

"For the past year we have run a very small PC network. I asked the local Novell/Apricot dealer to design a suitable network for our purposes. This consisted of:

- 1 x Apricot Xen PC Pentium 75, 8Mb RAM, 1Gb hard disk.
- 2 x Apricot LS Pro, AMD 486 33MHz, 8Mb RAM, 230Mb hard disk.
- 1 x HP LaserJet 4MP+ printer.
- 1 x Epson dot matrix printer.

The Xen PC is the server, running NetWare 3.12 and Tapeware backup. The LS Pros run WfWG 3.11, and on a daily basis use MS Office Pro, PageMaker 5, and Access for Windows accounting.

I have subsequently added an Intergraph TD4 PC workstation (2 x Pentium 100, 64Mb RAM, OGLZ graphics, 1Gb HD, operating under Windows NT Workstation 3.5). All are connected by 3Com Ethernet boards and coaxial cable.

The Intergraph drives an HP DesignJet 200 plotter, a 4Mb DAT drive via SCSI, and primarily runs Pro-Engineer 3D modelling software, MS Office Pro and PageMaker 5. Occasionally it needs to access the accounting package.

We are effectively networked to share data files and printers. We have no in-house anorak, but most of us have long experience of Windows since version 1.0, a year of NT, and virtually no experience of NetWare.

It is now time to add a couple more workstations to the network (probably LS550s), mainly to use the accounting

package and MS Office. I have been receiving conflicting advice from suppliers, who should know more than we do, but I sometimes wonder. My questions are:

1. With NetWare, I have been told we cannot use the Xen as anything other than a server and for network backup duties. Is this true? It would clearly be helpful to have this machine as another workstation.
2. If we dumped NetWare and plumped for NT Server, what are the pros and cons? If we did, would you recommend Win95 or NT for the workstations?
3. Are there any other cost-effective solutions which would make the server available as a workstation?
4. If not, is there any advantage to updating 3.12 to 4.0?
5. Finally, I use a Xen-PCm at home, using most of the software mentioned above, and would like to be able to log on to the network after hours to access the accounting package and other files. The Xen has 16Mb RAM, a Pentium 120 and 1Gb HD, and runs Windows 3.11.

Which remote control software would you recommend, assuming MS Remote Access could be bettered? Again, should I run NT or Win95?"

Tony Young

Phew! I'll answer the questions in the order you posed them: 1. Firstly, whoever told you that the Xen can only be used as a server was guilty of feeding you utter rubbish. It's a computer, just like anything else (albeit over-specified for running NetWare). I also presume

that whoever sold you a Pentium as a server also specified the machine with an IDE or EIDE hard disk (was that scornful enough, by the way?). Really, it does make me cross that people specify the wrong sort of computer all the time. At least when a parrot is taught to speak, you know that whatever comes out of its beak is not going to be blessed with anything as dangerous as original thought.

2. Since NetWare seems to work in your installation, I wouldn't suggest changing it now. I'm of the "If it ain't broke, don't fix it" school of thought. Windows 95 and Windows NT make perfect clients for NetWare, so there's really no problem with your current installation. With the current specification of workstation you have, it's difficult to recommend any operating system other than Windows 3.11. If you were to put another 8 or 16Mb in the workstations, I'd suggest you go for NT Workstation. On these machines, it would be faster than Windows 95.

3. Certainly there are. Just swap hard disks between one of the workstations and the server, and reconfigure (if necessary) — not forgetting to make a note of the settings first, before you open the machines up. You've then got a faster workstation and a server which still goes as fast as before. My NetWare server for four machines is a 386DX-20: you just don't need anything faster if you're only sharing files.

Another possibility is to see if there are any second-hand machines available for use as a server. An old Compaq Deskpro 386 DX with 8Mb of RAM would be ideal, as long as it is capable of taking your exist-

ing hard disk. Even if it isn't, hard disks are cheap enough that you could (possibly) upgrade to a SCSI hard disk for the server. (I'll bet these shysters sold you an IDE disk, I really do...)

4. There's no advantage to changing your network operating system until it breaks. One possible cause is that you might exceed the user count. Have you got a five-user installation, and do the printers log on to the network through JetDirect cards? Using one of the printers hanging off one of the workstations frees a Novell seat if things are getting tight.

If they do, and you want to, then I'd suggest first that you change your dealer. The one which specified the system for you clearly can't find its corporate bottom with both hands. It would have been better for you to have two faster workstations and a slower server — and they would have made more money.

If you find that you run out of networking connections, there are two possible avenues you can explore. The first, and more expensive, would be to upgrade the server to NT Server (or Workstation, since that allows ten connections). Remember, however, you'll need an altogether beefier machine to run it. The other possibility would be to see if you can get another copy of NetWare 3.12 which allows more users if it's necessary, but you should be able to do this by buying from someone who's retiring their old NetWare system.

5. A remote control system isn't the same as a remote client system. I'm not sure whether you're really clear on that point. If you only want to grab a few files for work at

home, I don't think there's anything wrong with the MS Remote Access server and client which comes with Windows 95 or NT. Windows for Workgroups 3.11 on your home machine should be able to communicate adequately with one of the machines on the network for file transfer. There's no point in spending money on a flashier product which would only do what you're already capable of doing for free.

If you decide to upgrade your home machine's operating system, do remember that more memory would not go amiss.

Sharing is such sweet sorrow

"I wish to set up two computers to share files between them via a modem link. I have tried to set it up using Dial up Networking in Windows 95 but failed miserably. Could you describe how to do it? Otherwise I shall end up having to shell out an enormous £120 for LapLink 95 to do the job. P.S. Both machines run Windows 95."

Ian Powell

The problem here is that you only get the Remote Access Client with Windows 95. If you need a Remote Access Server, then you need the Plus! Pack. This supplies the Remote Access Server, and your troubles will be over.

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