Running NetWare 4.01 on OS/2 2.1

By Stephen Force

Introduction

Why would anyone want to run to run NetWare 4.01 on an OS/2 system? Isn't it better for Local Area Network (LAN) servers to run on their own processors? For enterprises that have heavy-duty server access needs, a dedicated processor is best. For people who need moderate LAN server capability along with OS/2 applications, NetWare 4.01 for OS/2 might be just the ticket.

NetWare for OS/2 is simply the OS/2 device drivers necessary for NetWare 4.01 to run in an OS/2 environment. Ordered separately, NetWare for OS/2 consists of two diskettes (3.5" and 5.25" diskettes are provided) that contain adequate information to both understand how NetWare operates with OS/2 and to get NetWare installed. With an affordable price of $200 (list), NetWare for OS/2 is well within most people's budget.

Other reasons to use NetWare for OS/2 might include:

- CICS OS/2 transactions requiring Btrieve access can execute on the same processor as the NetWare server, thus reducing network traffic.
- NetWare for OS/2 provides a good environment for testing NetWare, since you can have both server and client requestor running on one machine.
- NetWare for OS/2 provides a good test environment for testing *all* OS/2 applications, including IBM's LAN Server, on a single processor. This is cost-effective.

How NetWare for OS/2 Operates

NetWare for OS/2 runs parallel to OS/2. When you run NetWare on OS/2, it is as if you have two logical computers on one physical computer. NetWare for OS/2 runs as a parallel operating system to OS/2—not controlled by OS/2.

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Processing time is split between OS/2 and NetWare. You control the proportions of processing time in several ways: statically by setting the performance tuning factor (weighing factor) in the NET.CFG file, dynamically by activating the OS/2 NetWare Monitor object, selecting the *TUNING* pull-down and then choosing a number between one and 10 (10 percent and 100 percent weighing).

Safe From Prying Eyes

NetWare and OS/2 do not share file systems. You cannot access the OS/2 file system from a remote workstation that is logged in to NetWare. You cannot access the NetWare file system from OS/2 without logging in the same way you would from another client computer.

If NetWare for OS/2 crashes, OS/2 continues to run. NetWare for OS/2 can then be restarted if the RAM memory has not been released (this is a parameter that you can set in the NET.CFG file).

OS/2 does not manage RAM memory for NetWare for OS/2. Upon NetWare startup, OS/2 allocates a pre-determined (specified in the NET.CFG file) block of memory to NetWare. NetWare for OS/2 manages its memory as it would in a stand-alone server environment. OS/2 will never swap this memory out, since it is no longer under OS/2's control.

Depending on the installation parameters specified, OS/2 may or may not control disk access for NetWare. NetWare data residing on OS/2 controlled disk volumes requires a NetWare Loadable Module (NLM) driver (DSKSHARE.DSK) between NetWare and OS/2 disk drivers. DSKSHARE.DSK is not needed for disk volumes used exclusively by NetWare.

All OS/2 controlled hardware used by NetWare needs a NetWare driver. These devices can include printers, disks, network interface cards (NIC), Modems, Fax boards, tape drives, CD-ROM devices, etc.—anything that is under exclusive OS/2 control.

Network boards (NIC) can be shared by several network applications. This means, for example, NetWare, TCP/IP, LAN Server, DB/2 Manager and Communications Manager can all be using the same NIC simultaneously. For NetWare, NLM LANSHARE.SYS acts

as a virtual network board. The OS/2 requestor communicates with the NetWare server by using LANSHARE as the link.

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How Do I Use NetWare For OS/2?

My company uses NetWare for OS/2 as its production LAN server. It runs on a Dell 466/T tower (486 66MHz, 32MB RAM), sharing a 750MB disk with OS/2. Stored on this server are data from several LAN-connected clients consisting of MS-DOS 6, Windows 3.1, Windows NT, SCO Open Desktop 3 and OS/2 systems. These clients run many disparate applications, such as word processing, Borland's Paradox relational data base and multimedia, as well as a Cakewalk for Windows music sequencer. Most data generated from these applications are stored on the NetWare server.

Running on the OS/2-side of the machine are several OS/2 and Windows applications. These all "connect" to the NetWare side over the globally-defined OS/2 NetWare Requestor (over the previously described LANSHARE.SYS virtual network board).

These applications include:

- FaxWorks OS/2 (with OCR) LAN Fax Server;
- CICS OS/2;
- OS/2 Multimedia Presentation Manager/2 (MMPM/2);
- Novell's LAN Workplace for OS/2 (TCP/IP);
- IBM's LAN Server (Advanced) Version 3.0;
- Corel Draw! Version 2.5 for OS/2 (32-bit);
- Communications Manager/2;
- TalkThru;
- Polypm/2 For OS/2;
- CPU Monitor Plus; and
- several windows applications, including:
  - Word Perfect for Windows
  - XTWIN 1.5
  - Pagemaker for Windows 5.0
  - ACT! for Windows Version 1.1b personal information manager (PIM)

NetWare for SAA is installed on the NetWare 4.01 server for research and testing purposes.

Suggested Hardware Requirements

To set up this type of environment, I recommend the following:

- CPU - at least an Intel 386 or 486 running at 33MHz. Otherwise, OS/2 applications will run sluggishly.
- RAM - minimum 16MB, however, 32MB is better.
- Disk - a hard disk with a minimum of 120MB (this is really minimum). A suggestion: Add another disk just for NetWare. This eliminates one layer of software between NetWare and its data (the OS/2 driver).
- At least one Network interface card (NIC) supporting Ethernet, ARCnet, 10BaseT, Token-Ring, etc., whichever is necessary for your installation.

- CD-ROM (if installing NetWare 4.01 from CD-ROM). I recommend installing from CD-ROM because it is much faster and less labor-intensive.

Pre-Install Determinations

Before you install NetWare for OS/2 on your system, take the following into consideration:

- Decide how you are going to use NetWare for OS/2 on your OS/2 machine.
- Are you going to be running other OS/2 network applications on the NetWare server machine? Server and requestor on the same OS/2 system? I would suggest doing this because it allows you to do LAN and server administration from a single system, rather than needing another LAN-connected system to do it.
- How is the NIC to be used? Will it be used by NetWare only or can it be shared with other OS/2 applications?
- Do you need two or more NICs?
- Calculate your disk requirements wisely. It is very difficult to change later, unless you add new devices.

Installation Procedures

Installing NetWare for OS/2 is practically fool-proof, once you have done it two or three times.

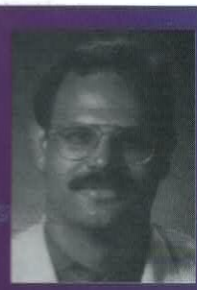
- Order NetWare 4.01 and NetWare for OS/2 from your Novell dealer.
- Delete previous NetWare version(s) from your OS/2 disk. This helps ensure that you do not mix old and new versions.
- Install and get running all IBM networking applications that should be on this OS/2 system. These include IBM's LAN Server, LAN Requestor, Extended Services, Communications Manager, Data Base Manager, etc.
- Install and get running OS/2 TCP/IP (if TCP/IP is needed in your enterprise).
- If you are installing the OS/2 requestor on this OS/2 system (recommended), create the requestor diskettes as described in both the NetWare 4.01 and the NetWare for OS/2 documentation.
- Make sure that you load the NIC driver before loading the LANSHARE.SYS driver in the server AUTOEXEC.NCF file. Otherwise, NetWare cannot communicate with the NIC.

Disadvantages of Running NetWare for OS/2

- A heavily used NetWare server running in tandem with OS/2 does not run as fast as it would on a dedicated machine.
- Due to the time slicing between OS/2 and NetWare, the OS/2 PULSE object is useless because it always indicates 100 percent processor usage. To get a better idea of total machine usage, install a OS/2 performance monitor (for example, BonAmi's CPU Monitor Plus.)

Tips and Techniques

- Start NetWare for OS/2 with a weighing factor of eight, which is the default. This will reduce NetWare's startup time. Then, if desired, reduce the factor. Be careful: Do not reduce the factor to a point where NetWarehas no processor time. A 50/50 mix should be acceptable on a powerful processor.
- If you are running the NetWare Monitor *and* another performance monitor, stop both prior to OS/2 system shut down. If not stopped after the next OS/2 startup, the NetWare Monitor sometimes falsely indicates the server is down even though it might be active.
- Consider not specifying "Remove Server Memory" in the NET.CFG file. If you do, your NetWare server cannot be restarted without an OS/2 re-boot. The same goes for the "Free Server Memory" option in the NetWare Monitor. Use these commands only when necessary.
- Load NetWare in OS/2 memory below the 16MB line if you want to be doing any tape backups from NetWare. To load NetWare low, specify ALLOCATE MEMORY LOW under the "NETWARE FOR OS/2" part of the NetWare NET.CFG file.
- Make sure you have a TESTED data backup and recovery plan for both OS/2 and the NetWare server. You never know when you might need it!



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NETWARE FILE UPDATE

The following are current versions of important NetWare files:

BINDFIX.EXE	3.52
CLIB	3.11d
ETHERTSM.NLM	2.14
IPX.OBJ	3.10
IPXODI.COM	2.10
LOGIN.EXE	3.67
LSL.COM	2.01
LSLENH.NLM	1.01
MONITOR.NLM	1.75
NE2000.LAN	3.24
NETX.EXE	3.32
PSERVER.EXE	3.75
PSERVER.NLM	3.76
RPRINTER.EXE	3.75
VREPAIR.NLM	2.18