**ENTERPRISE COMPUTING**

NetWare MP Router
Novell jumps into the internet fray.
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REVIEWS

Desktop for DOS
Norton brings Windows-like graphical power to DOS. **See page 62**

First Look / Kevin Strehlo
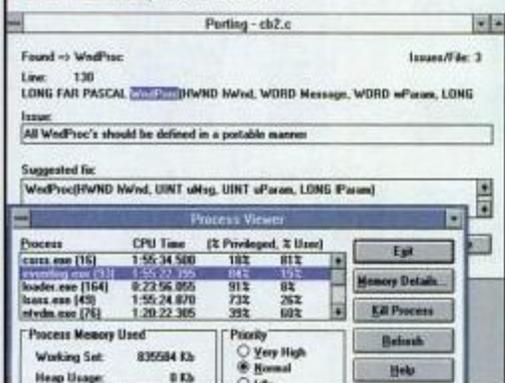
The Windows NT SDK includes tools to help programmers move existing applications to the 32-bit, multitasking OS.

Microsoft makes its move with Windows NT SDK

I have seen the future, and it is called the Windows NT SDK (Software Development Kit). Microsoft apparently learned from the litany of marketing mistakes and product weaknesses that doomed the launch of OS/2: This time it has done the job right.

The core operating system architecture is elegant and powerful. The price is right at $69 — $2,531 less than the original

Microsoft OS/2 2.0 SDKs). More important, the Windows NT SDK running in the *Info-World* Test Center is solid and has enough of the necessary tools in place for us to expect a sizable base of (dare I say it? yes) killer 32-bit applications by mid- to late-1993. The killer apps that never emerged for OS/2 will ship soon after the commercial release of NT,

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Task force readies API to manage LANs

BY TORSTEN BUSSE
AND VANCE McCARTHY

A high-level industry task force, to be joined shortly by three major systems companies, is

desktop PC be managed directly from any network management protocol.

The Desktop Management Task Force — originally comprising Microsoft Corp., Intel Corp., Novell Inc., SunConnect, and SynOptics Communications Inc. — in the next several weeks expects to make their draft application programming interface (API) specifications available to third-party hardware and software developers, task force officials said. The

Novell to ship enhanced router with WAN support

First in series of expected internetworking products

BY KARYL SCOTT

Novell Inc. plans to introduce an enhanced version of the NetWare Multiprotocol Router in August, according to company officials.

The new software package will include support for a number of standard and de facto network protocols. The router will also support wide area connectivity options, said Navindra Jain, vice president of the Novell internetworking product division, in San Jose, California.

The August release is expected to be the first in a series of internetworking products designed to make NetWare better suited to enterprise computing environments, according to Dick Boyle, program director with the Stamford, Connecticut-based Gartner Group.

A router is a network-layer device that routes packets of

information between multiple networks and LAN segments by reading the address headers on the packets.

The internetworking market is one of the fastest growing segments of the network industry, according to industry analysts; sales are expected to top $950 million within the next two years.

The NetWare Multiprotocol Router-Basic, Version 1.0 routes IPX, IP, AppleTalk, and NetBIOS transport protocols. It can only route IPX packets over wide area communications links, but the upcoming release will add wide area network (WAN) support for the other three.

Novell plans to add in the next two years support for DECnet Phases IV and V, Vines, the OSI Connectionless Network Protocol, AppleTalk

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NetWare router enhancements

Routed protocols
- AppleTalk DDP
- OSI CLNP
- DECnet
- XNS
- Vines

Routing protocols
- RIP
- NLSP
- OSPF
- PPP
- AURP
- IS-IS

WAN interfaces
- X.25
- T-3
- Frame Relay
- SMDS
- ATM

DEC rushes high-end PCs to market

BY CATE CORCORAN

Digital Equipment Corp. appears to have made a major strategy change for its Alpha RISC processor, with plans to introduce Alpha-based high-end PCs early next year when Microsoft ships Windows NT.

While the company has said the chip will scale from palm-

Microsoft lays out enterprise products

Aims to ease big-time downsizing

BY VANCE McCARTHY
AND STUART J. JOHNSTON

Microsoft Corp.'s release last week of the Windows NT developers' kit is the first step in its ambitious plan to release over the next year an array of products to support

Manager for Windows NT, which provides high-end management and administration.

Windows NT 3.1, when it ships late this year, will include shared file and print services, E-mail, and a distributed application facility and remote procedure call

Microsoft makes its move with Windows NT SDK

in part because developers already know (and have produced thousands of packages with) the Windows applied programming interface (API) that's being ever so slightly extended in the Win32 API.

More important, a sizable portion of the 10-million-licensee Windows market will respond to a higher level of functionality presented via the familiar Windows interface. There's no question: Developers will tap the extra power because they think it will be lucrative.

A porting tool that helps move the existing C source code of Windows 3.1 applications over to Win32 and NT is included in the SDK. If developers heed the warnings, their applications will run in full 32-bit mode on all the processors NT supports, including Intel x86, Digital's hot Alpha chip, and the MIPS R4000.

Fortunately, moving an application from the Windows API to the Win32 API doesn't take genius. Developers who have visited Microsoft's porting lab have taken anywhere from a few days to a few weeks to change existing Windows 3.1 applications to 32-bit NT code.

No, the real genius will lie in what inspired developers do with vast stretches of unsegmented memory; multiple threads to carry on tasks in parallel, pre-emptive multitasking to allow

depend on how far below $500 Microsoft goes when it releases Windows NT near the end of this year.

But the improvements are significant. Take security. All told, Microsoft promises a C2 rating that will make even government buyers happy (as will the ability to run Posix applications). The clever use of Ctrl-Alt-Del as the log-in/log-out sequence eliminates the possibility of someone writing an application that mimics the log-on screen in order to capture an unsuspecting user's password.

And if you choose to go with the full Microsoft network solution? The separate LAN Manager for Windows NT will allow integrated management of multiple network domains, support fault tolerance through disk mirroring and Redundant Array of Inexpensive Disks (RAID), and even allow users to work with the same desktop arrangement no matter what workstation they log on from.

The RAID5 support is notable, by the way, for working with any Windows NT-compatible SCSI drive without need for a special (read expensive) controller.

The improved data throughput from disk striping and the error correction that lets a RAID5 machine continue to operate with only four of five disks functioning is achieved entirely in software.

Data integrity is improved as well. If you install NT's file system over file allocation table or High Performance File System, every change in file structure is logged. In the event of file damage, the operating system simply switches to the previous version.

The familiar Windows applets? They are still less than earthshaking, but they have been improved. For example, the file manager includes a toolbar for changing sorting order and other aspects of display.

New applets let you assign user rights and permissions via a nice drag-and-drop interface, or monitor as many operating system performance parameters as a Unix guru.
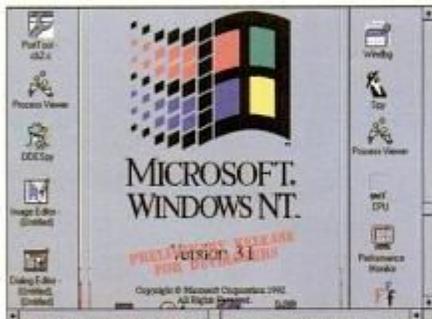
The Windows NT SDK includes a fill palette of tools for developing and debugging 32-bit applications.

heavy-duty background processing while the machine remains responsive to the user; improved drawing primitives; and the mainframe-level performance possible on a multiprocessor Intel or RISC machine running NT services such as SQL Server or Oracle 7.0.

ENTERPRISE COMPUTING. Windows NT also adds a remote procedure call (RPC) facility that will let anyone who can write a structured program write distributed applications. There's no real difference between calling a local subroutine and calling any arbitrary routine running on any machine on the network.

In other words, client/server development will no longer be limited to SQL databases and front ends.

And because the Windows NT RPC is compatible with the Distributed Computing Environment (DCE) standard, the remote server could be a Digital , Sun, Hewlett-Packard, or IBM machine.

I think Windows NT will do for enterprisewide distributed applications what the Macintosh did for GUI applications.

LEGACY APPLICATIONS. Thus far, Microsoft has focused on what NT needs to succeed: a lot of 32-bit application development. Although most of the foundation for running DOS, Windows 3.1, and 16-bit OS/2 character applications is in place, including the ability to load all of the above from a common prompt, it is not solid.

But Microsoft believes the NT version of SQL Server will be the real ticket. Like Oracle 7.0, the next release of Microsoft's database server will be able to split processing evenly among as many processors as you care to throw into the box. In other words, with NT, the Windows environment becomes scalable.

And that's where Windows NT really shines. With future versions of Windows running on diskless palmtops, and NT scaling up to mainframe-size processing power, Microsoft has recreated (even outdone) the key element of Digital's Equipment Corp.'s success. NT is Microsoft's VMS: a single operating system designed to interconnect all size computers into a unified system.

I think Windows NT guarantees Microsoft's dominance of computing until the end of the cen-

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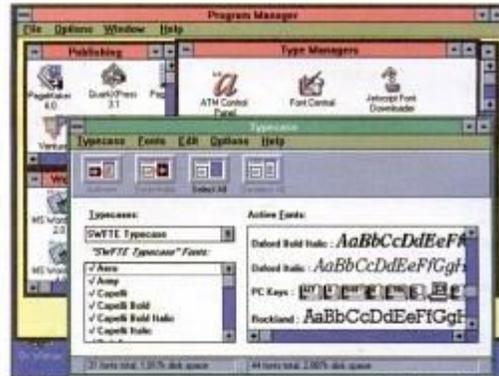
With Typecase, you can create your own collection of typefaces or select from the variety of scalable fonts available.

TrueType package offers superb variety of fonts
Package is inexpensive, but sleek

BY GALEN GRUMAN

At first I thought, "Oh, not another set of ripped-off typefaces!" But the collection of scalable TrueType typefaces from 52 type families in SWFTE International's Typecase is not just another set of cloned fonts. True, most of the fonts are clones of standards like Souvenir, New Baskerville, American Typewriter, and Bodoni.

But some are clones of elegant but less-than-usual sus-

the ability to compress fonts that have been deactivated.

The only trouble I had was when I tried to install more fonts than I had room for. Typecase eventually gave me a General Protection Failure (the old Unrecoverable Application Error renamed for Windows 3.1) after first trying to copy fonts after running out of disk space and then trying to decompress those it had copied. It should not have installed anything my hard disk it didn't have room for,

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At $99.95, Typcase is a great bargain for people looking to start a basic typeface library. It stands out from the others in the sea of font knockoffs.

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pects, like Garamond Condensed, Janson Text, and Caslon 54. There's even an original: PC Keys, which is a set of keyboard and other computer symbols that documentation publishers should love. It was a pleasure to see how well crafted the typefaces were; they printed cleanly on a 300-dot-per-inch PostScript printer.

But Typecase goes beyond just providing typefaces. It lets you create typecases, or collec-

because it tracks the amount of available space while installing.

At $99.95, Typecase is a great bargain for people looking to start a basic typeface library. Although high-end publishers will likely buy the original Adobe Type 1 typefaces (for use at service bureaus), those relying on laser printers (whether PostScript or PCL) for their output will find Typecase a welcome package that stands out from the many