

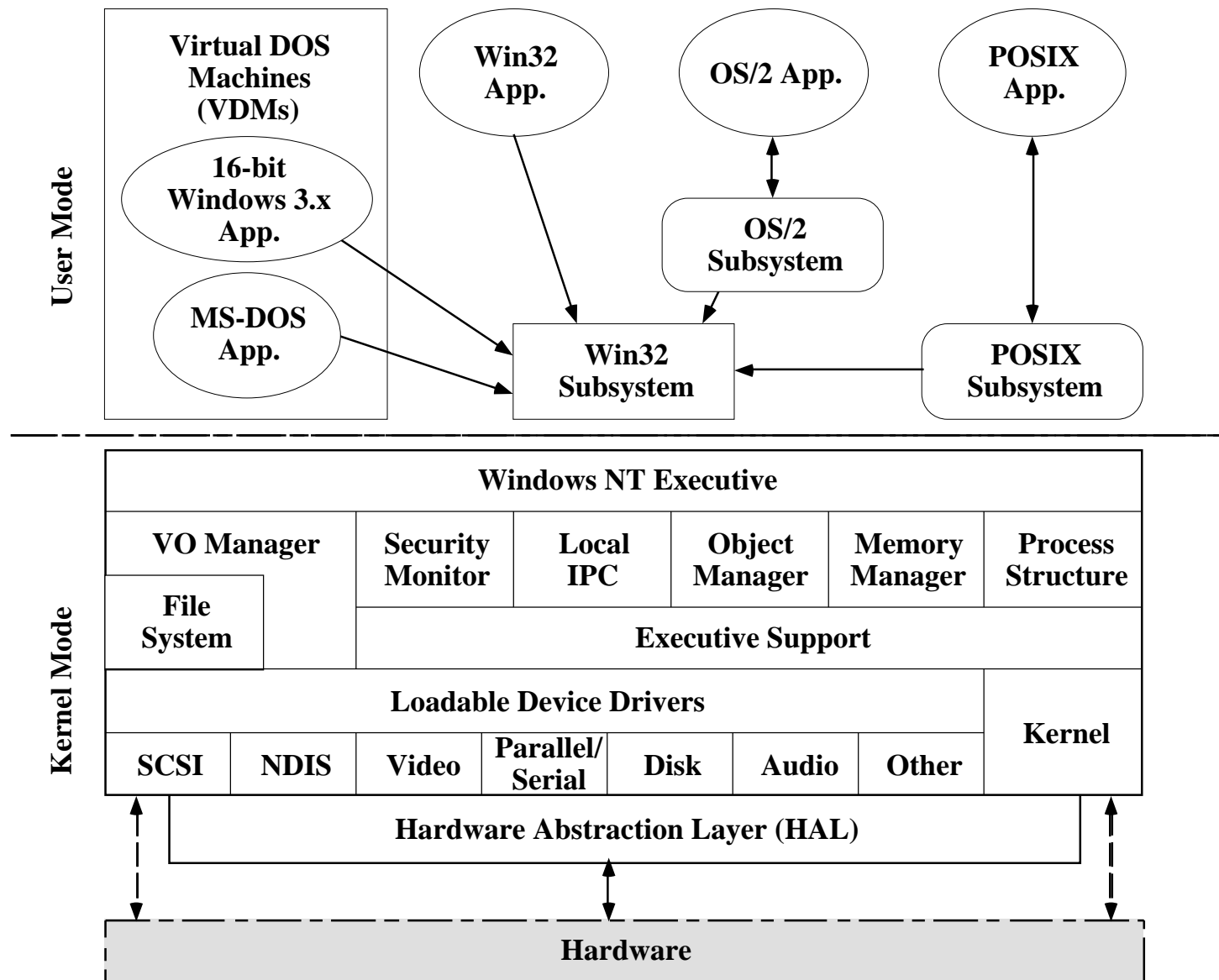
NT or the Distributed Computing Paradigm Shift

A Primer on Microsoft Windows NT

- **What is Windows NT ?**
- **What is Microsoft's strategic plan for Windows NT ?**
- **What will change for integrator's such as us ?**

- Windows NT is not Windows
 - Like Windows, Windows NT:
 - Has the same look & feel (they use the same interface and file manager shell)
 - Can run 16-bit Windows 3.x applications
 - Unlike Windows, Windows NT:
 - Can operate on a reduced instruction set computing (RISC) machine
 - Will run 32-bit Windows applications (when these become available)
 - Has a whole new operating system dimension
- Windows NT is not a low-cost, uncomplicated, easily-managed and resource-constrained desktop operating system popular for client and stand-alone PCs...NT is aimed squarely at IS, with a wide array of new advanced technologies and industrial strength, high-performance capabilities.
 - Windows NT 3.1: base NT operating system, comprises:
 - Its own 32-bit implementation of the OS/2 LAN Manager networking product built-in
 - A group of local network management tools
 - Transmission Control Protocol/Internet Protocol (TCP/IP) networking capabilities
 - Windows-based workstation management tools
 - A security system to control file and application sharing that complies to C-2 security standards
 - Distributed computing clustering capabilities
 - DOS 5.0 (DOS 6.0 coming) and OS/2 1.3 operating systems built in
 - POSIX C Shell
 - LAN Manager client software (rebaptised Workgroup Connection) along with copies of its Mail and Schedule Plus workgroup products
 - Built-in symmetric-multiprocessing (SMP) capabilities, with the ability to spread itself, its multiple application processes within those applications, across as many as 16 parallel central processing units
- Windows NT: "Lower cost, high-performance, big-system computing made small"
 - You can run it as a stand-alone, power-computing OS like UNIX running on a RISC machine
 - You can run it as a high-capacity network OS like NetWare
 - You can use it in a truly distributed computing system of clustered processors similar to the Open Software Foundation's Distributed Computing Environment (DCE) running across a mix of mainframe- and workstation-class machines loosely tied together across the network
- 20,000 commercial NT beta test sites are already using their beta copies to move NT into production

What is Windows NT ?



What is Microsoft's strategic plan for Windows NT ?

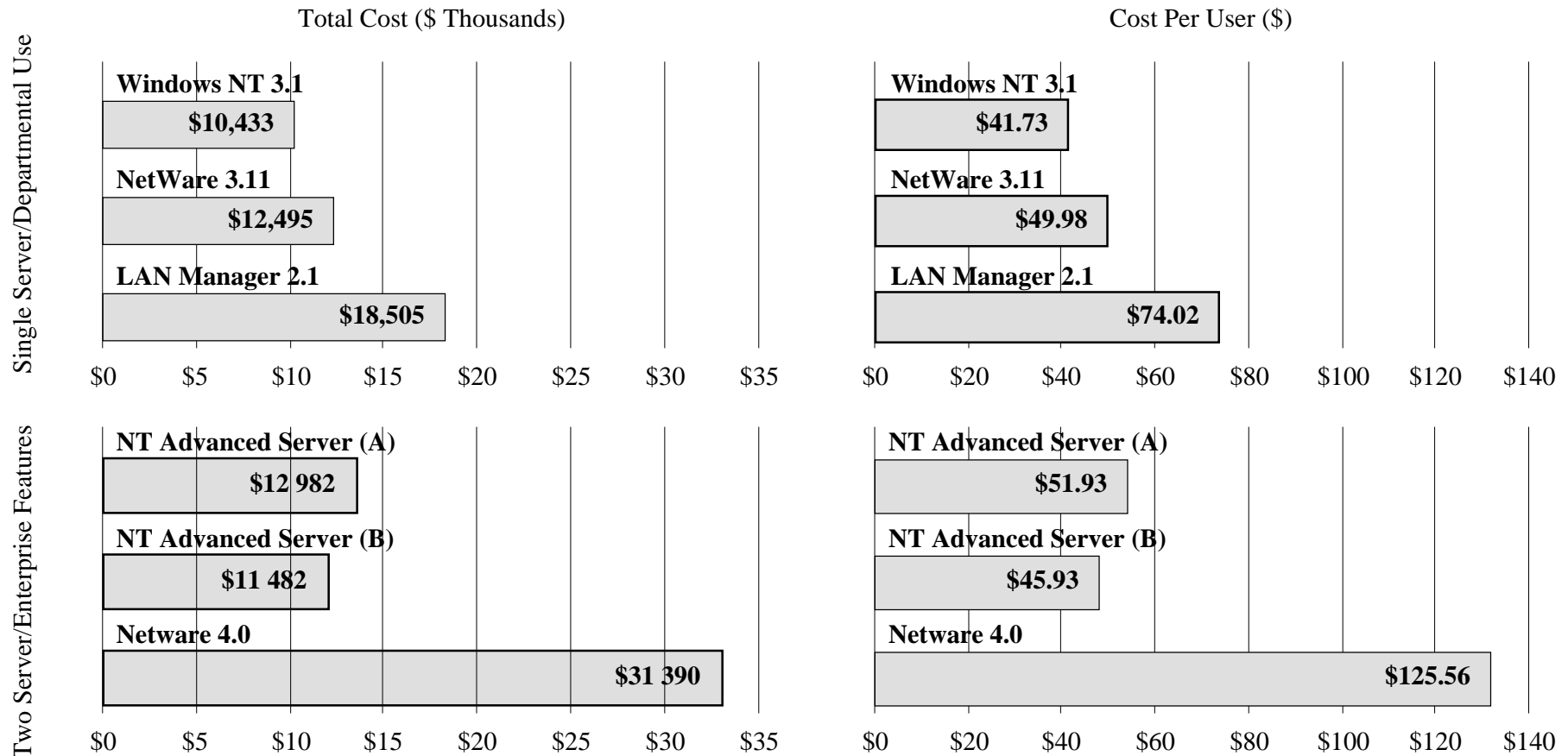
As explained by a key people of the Window NT project

- **Marketing-mix: low price * high volume sales**
- **Competition: Novell, Unix**
- **Target: distributed computing**
- **Sales strategy: consolidate long-term**

- With a package like the basic NT operating system, a workstation can serve, at the same time, as
 - a network file and print server
 - an application server
 - a member of a high-powered cluster of NT processors working together on a single application
 - a single-user workstation
- Compare the price
 - OS/2 1.3+LAN Manager 2.1+TCP/IP > \$,3000 (and that's only part of the basic NT functionality !)
 - Santa Cruz Operation Inc's Open Desktop operating system at \$1,295 for a single workstation (TCP/IP built in) and another \$2,495 for the server software
 - Univel Inc's UnixWare Application Server pack, a UNIX approximation of the basic components of NT, at the recently reduced price of \$1,299 plus \$249 for the UnixWare personal workstation software
 - Novell Inc's Netware 3.11 100-user version at \$6,995
 - Depending on the final price Microsoft sets later this month for large corporate users, the Advanced Server network version of NT could come in about 63% cheaper than NetWare 4.0; \$45.93 per user for NT Advanced Server versus NetWare's \$125.56 per user for 250 users on two LANs

Marketing-mix: low price * high volume sales

- Windows NT will, from the start, sell at “hundreds of thousands of copies a month”
- Windows NT 3.1 system will cost “somewhere between \$495 and \$100”



- NetWare 3.11
 - Doesn't support SMP
 - Doesn't meet C2-2 security standards
 - Cannot run applications effectively (except for the difficult-to-develop NetWare Loadable Modules (NLM))
 - Doesn't offer an equivalent to NT's central Domain Server user management system
 - allows anybody's NLM application to run in ring zero and bring down the system !
 - Ring zero is the memory-protected mode of operation built into the Intel x86 chip architecture; most high-end operating systems (e.g., UNIX, OS/2 and NT) reserve access to the chip's ring zero for use by the operating system itself and restrict application access
- NetWare 4.0
 - includes a central global naming capability similar to NT's domain management
 - This allows NLM developers to choose whether their apps run in either ring zero or in the more manageable ring three on the Intel x86 chip.

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- Computing technologies are changing quickly. And just as mainframe host and dumb terminal computing gave way to PCs and servers, so too will pure client-server models of computing give way to clusters of high-powered workstations sharing data and processor power
 - The trend is clearly to distributed computing
 - Clients are going to be more and more capable of doing things with each other, of being servers with each other
 - With LAN Manager, SMP, RPC technology and other distributed computing capabilities built into every copy of NT, its not to hard to conceive of each workstation in an NT network eventually functioning as part of one large clustered NT machine, from an application's point of view at least
 - “Thats whats great about NT. It lets you continue to do what you're doing today and it's already got built into it the tools you'll need for the next five years” Barth

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- Microsoft isn't so much interested in NetWare managers and users; it is going after these computing opinion leaders and wants to lock in corporate IS's future networked computing implementations.
- NetWare, claims Microsoft, is last year's technology. NT is next year's.

“Windows NT is the next wave in computing...It's targeted at MIS, at people using networked machines working in front of their screens heavyduty six, eight hours straight a day” (Lou Perazzoli, Team Leader for the kernel portion of Windows NT)

**The company's primary target is some 2 to 5 million corporate
“power users” (Dwayne Walker, Windows NT Product Manager)**