ManageWise 2.0

Novell's Management Platform Comes of Age

By Dan E. Hakes and Laura Chappell

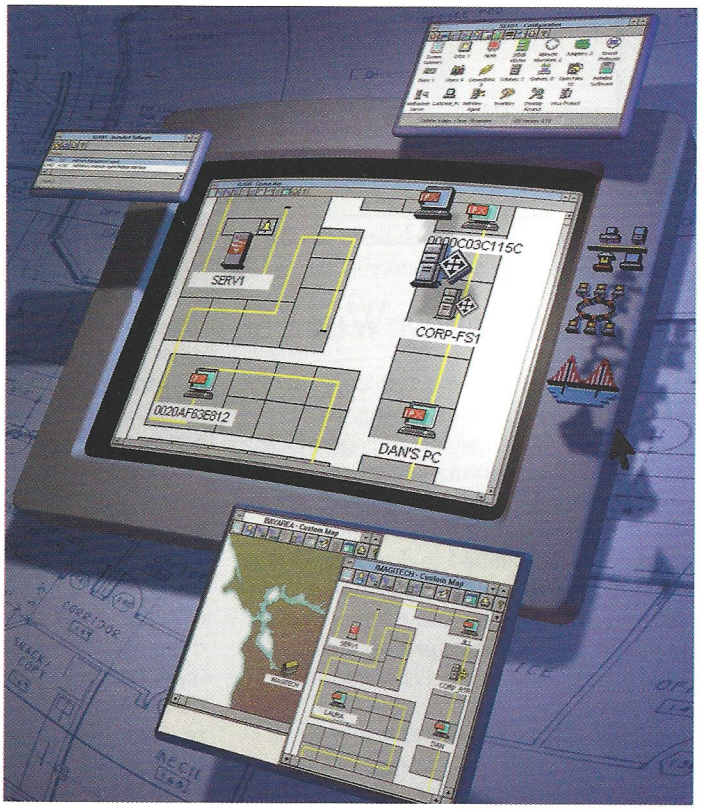

Illustration: Rob Magiera

Few beta tests have been anticipated here at the ImagiTech lab with as much enthusiasm as our evaluation of ManageWise 2.0, Novell's latest incarnation of its network management platform. All of us in the lab have worked with Novell's management platform in one way or another since it was first released as the NetWare Management System (NMS) several years ago.

Previous releases had a few shortcomings (such as the lack of true long-term trending or comprehensive router and workstation management), but each new release brought the product closer to fulfilling its potential as a proactive network management system that could manage any network, small or large, from end-to-end. With ManageWise 2.0, Novell delivers on its promise to provide a scalable, standards-based, all-encompassing management platform.

What's in the Box?

ManageWise leverages the functionality of existing NetWare servers to provide network-wide monitoring and storage of trend data (network statistics), independent of the management console. ManageWise agents on the server constantly monitor the server and the network, including devices that do not have management agents. Because the servers store this data for up to two years, the management console can retrieve it at any time and build trend graphs, which you can view on the console or export into a spreadsheet or database. In addition, you can define alarm thresholds, and the ManageWise agents will alert the console when the server or network reaches a threshold.

ManageWise provides a complete set of basic network services, including the following:

- Network logical and custom mapping
- NetWare server monitoring, trending, and management
- IPX and IP router monitoring and management
- Workstation monitoring and management
- Network segment monitoring, trending, and analysis
- Network virus control, including quarantine of discovered viruses
- A generic Management Information Base (MIB) browser that can monitor or manage Simple Network Management Protocol (SNMP) compliant network devices (although this browser is more cryptic than the graphical applications provided for other ManageWise services)

These features make ManageWise 2.0 an excellent management system. What really sets ManageWise apart from the competition, however, is its open management platform, which includes a Software Developer's Kit (SDK) with a set of Application Program Interfaces (APIs). This SDK is available from Novell.

Using the SDK, third-party developers can create plug-in modules that are integrated seamlessly into the ManageWise console. For example, you may want to supplement the ManageWise router monitoring capability with additional management capabilities for your network routers. However, while your router vendor may offer a custom management tool, you probably don't want to install yet another management console. With ManageWise, the router vendor can write a plug-in module, increasing your ability to manage the router from any ManageWise console.

Because ManageWise is based on industry-standard protocols such as SNMP and Remote Network Monitoring (RMON), the ManageWise distributed agents on the servers can also be managed with any SNMP-compliant management console, such as Hewlett-Packard's OpenView for UNIX or IBM's SystemView for AIX.

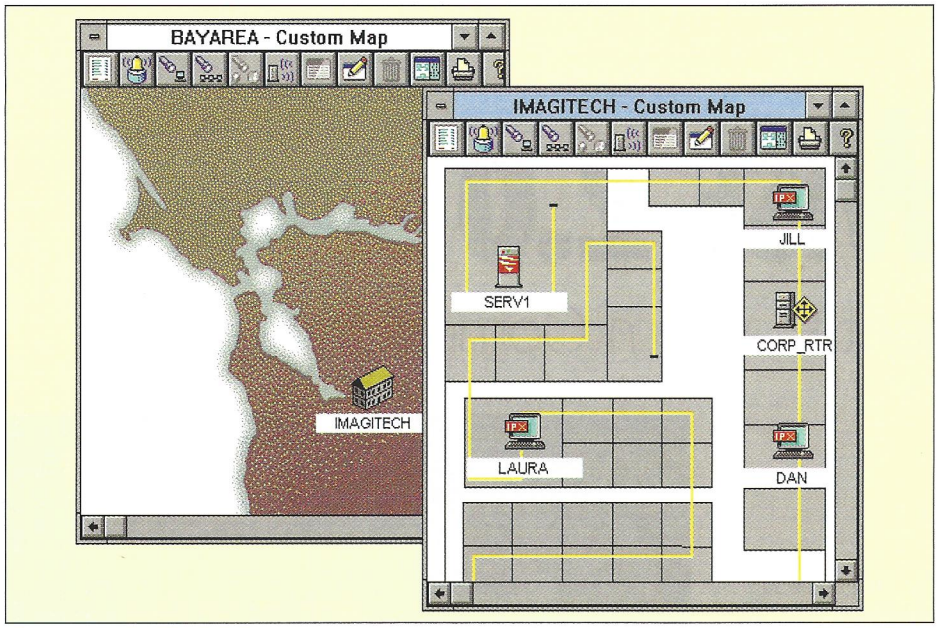

Figure 1. *ManageWise includes a flexible mapping feature that allows you to create an accurate drawing of your network.*

Installing ManageWise

When we opened our beta copy of ManageWise 2.0, the first thing we noticed was that there was only one CD-ROM and one setup manual (there is also a setup manual for the ManageWise online documentation). With previous versions of NMS, you had to deal with three or more separate modules, their associated disks, and installation and configuration manuals. One of the biggest challenges (and that's saying it nicely) was installing and configuring all of the individual modules on their respective servers or devices. Integrating the ManageWise modules into a single product with a single setup guide is a giant step forward.

Novell has also provided a Quick Path Card that clearly outlines the installation process. In addition, the card includes the following:

- A planning check list
- A list of system requirements
- Instructions for installing the online documentation
- An outline of the written documentation, explaining where to find more detailed information

ManageWise 2.0 is composed of a set of NetWare loadable modules (NLMs) for the server and a group of executable files for the console. The ManageWise console software is a Windows-based application that allows you to manage the internetwork. In addition to displaying IPX and IP network topology maps, the console software communicates directly with the ManageWise server software to collect server, network, and workstation performance statistics.

The ManageWise server software "discovers" network segments and devices (for use in the network maps), tracks NetWare server performance statistics, generates alarms to the ManageWise console as required, analyzes segment traffic (including utilization and errors), and enables the management of logged-in workstations that are running Intel's LANDesk product. (We will explain workstation management later in this article.)

The ManageWise 2.0 installation is divided into two parts: the server installation and the console installation.

To install ManageWise, you must log in as SUPERVISOR for NetWare 3 or ADMIN or equivalent for NetWare 4.1. After you launch the ManageWise Setup program, you will see a screen containing two buttons, "Set Up Server" and "Set Up Console."

We first chose "Set Up Server" and were guided through a simple step-by-step process of loading the agents on our server. We then installed the console software. The only gliche occurred because we were running old client software. Make sure you are running version 1.2 or higher of the NetWare Client for Windows.

The ManageWise Setup program provides seamless integration into Intel's LANDesk software. ManageWise creates a LANDESK group on the server and places an IF MEMBER OF "LANDESK" THEN statement in the login script. The Setup program provides sufficient information and checkpoints before it actually modifies the login script and the AUTOEXEC.NCF file.

If you do not want ManageWise to automatically change the login script or the AUTOEXEC.NCF file, you can choose to manually update them. Upon completion of the installation process, ManageWise provides a "Server To Do List" that defines all the steps required to update the login script and the AUTOEXEC.NCF file.

You must manually add users to the LANDESK group to ensure that the workstations can be managed remotely and are protected against viruses. Every user you add to the LANDESK group will automatically run several LANDesk files the next time he or she logs in to the file server. These files perform an inventory scan of local hardware and software and launch the USER.COM terminate-and-stay-resident (TSR) program required to control the workstation from a remote location.

Although we encountered some minor problems with our beta installation (which is not uncommon when testing beta software), Novell assured us these problems would be resolved in the final release. If you have shied away from NMS or ManageWise because you read about or experienced problems with installation, you owe it to yourself to give ManageWise another look: The advantages of managing your network with ManageWise 2.0 far outweigh the minor problems we found with the installation process.

Drawing Topology Maps

In our experience, one of the most overlooked, yet important, aspects of network management is keeping up-to-date network maps. NMS always allowed you to discover and map IPX and IP network segments. With previous versions of ManageWise and NMS, however, the ability to restrict the scope of the discovery process was limited, and you could not add a device to the maps. As a result, some network maps were large and complex, and only IPX and IP devices were represented.

ManageWise 2.0 overcomes these limitations: Creating and maintaining network maps has never been easier. Not only can you create logical internetwork and segment maps, but you can limit the

scope of both the IPX and IP discovery as well as add or delete any devices to the maps. By manually editing the maps, you can even represent bridged segments. ManageWise's new capabilities have enabled us to create an accurate map of our network.

Custom maps in ManageWise 2.0 are essentially the same as locational maps in previous releases. However, the edit feature has been improved, and additional wallpaper files (bitmaps of geographical areas of the world) are included. To create a custom map, you choose or create your wallpaper, and then drag-and-drop icons from the standard internetwork or segment maps that ManageWise creates in the discovery process.

Custom maps also allow you to create a hierarchy of maps that realistically represent your network from a global view down to the floor plan of your building. These custom maps are linked so you can easily navigate among the different views of your network. (See Figure 1.) For example, if your company had an office in California and an office in New York, you could create a custom map of the United States displaying a campus icon in California and another campus icon in New York.

Double-clicking on the campus icon in California would open a custom map of the California campus. This custom map, in turn, would contain icons of all the corporate buildings that are located on the California campus. Double-clicking on a building would open a custom map of that building's floor plan, including the cabling and icons of all the network devices.

Managing File Servers

Not surprisingly, ManageWise 2.0 excels at NetWare server management. After the ManageWise NLMs are loaded on a NetWare server, the server icon on the ManageWise map turns into a colored icon with the Novell logo. (See Figure 1.) Double-clicking on the server icon opens the server configuration window. (See Figure 2 on p. 54.) Each icon in the server configuration window—CPUs, users, print queues, NLMs, memory—opens another window, allowing you to control that server resource.

In previous versions of NMS, server management really amounted to monitoring. You could view information about the server, but you could not change any server parameters without launching another utility, such as the NetWare NETADMIN utility or the NetWare Administrator (NWADMIN) utility. With ManageWise 2.0, however, RCONSOLE and NWADMIN are integrated into the ManageWise console. As a result, you can add and delete users from this console.

The biggest improvement in server management is the ability to view and configure NetWare SET commands from the ManageWise console. This feature may appear to be a simple enhancement, but we have used it more than many of the other new features.

Server Trending

Another major improvement in ManageWise 2.0 is server trending, which is essential to proactive server management. ManageWise now enables you to monitor long-term trends in most areas of server resource utilization

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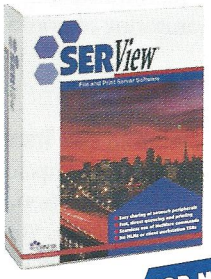

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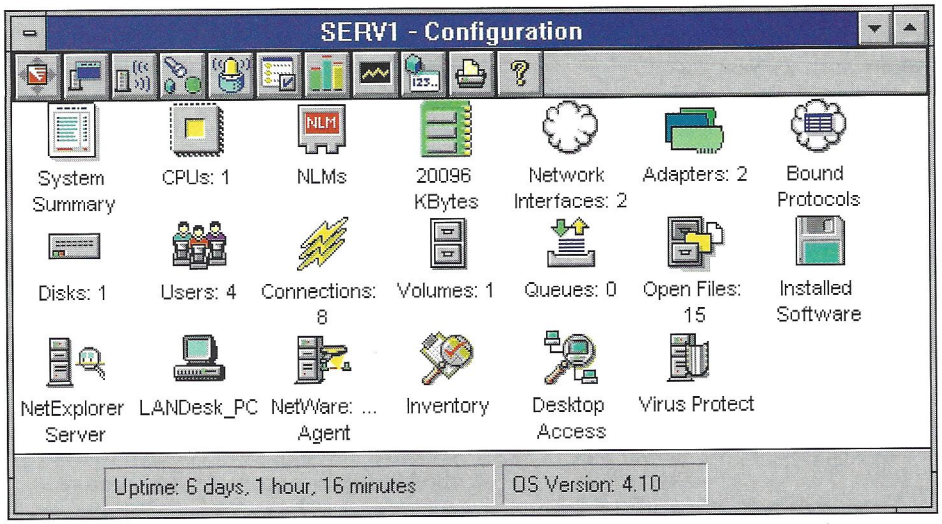

Figure 2. *To manage file server resources, you can double-click on any icon in the ManageWise server configuration screen.*

such as memory, CPU, and disk and volume usage.

Because you can store these trends for up to two years, you can track the resource usage of network servers and predict when these servers will become overloaded. You can then plan for upgrades or additions to keep up with the growth of your network. And ManageWise 2.0 provides the evidence to justify expenditures for new hardware or software.

Using this proactive approach, you can ensure that you always have sufficient server resources to meet the needs of your users and avoid service interruptions. As more companies move critical data to their networks, any loss of network services means forfeiting company revenues.

Setting Alarm Thresholds

ManageWise 2.0 enables you to monitor nearly 400 critical server areas, including memory usage, CPU utilization, user connections, LAN and WAN connections, disk and volume usage, NetWare Directory Services (NDS), and print queues. You can define alarms for more than 40 of these monitored server areas, including the following:

- Packets received and transmitted
- Average number of connections in use
- Average CPU utilization
- Percentage of cache buffers available
- Free space on a volume
- File cache hits
- Logged-in users

By default, ManageWise has predefined some important thresholds, such as available cache buffers (40 percent), free volume space (10 percent), file cache hits (50 percent), CPU utilization (90 percent), and the number of logged-in users (based on your NetWare license).

ManageWise 2.0 includes a new threshold and trend configuration utility, which has been incorporated into the toolbar of the specific parameters listed in the server configuration window. You can set trend and threshold parameters as you are reviewing the status of a resource.

Network Monitoring, Analyzing, and Trending

Our favorite ManageWise 2.0 feature is the remote monitoring and troubleshooting capabilities. The ManageWise 2.0 server agents contain an RMON agent, which provides segment management in three main areas:

- Segment monitoring and trending
- Proxy monitoring of non-SNMP devices
- Remote packet capture

Segment Monitoring and Trending

By monitoring segments for statistics such as bandwidth utilization, malformed packets, and error packets, you can discover problems with the network infrastructure before service is disrupted.

In addition to monitoring segments, the ManageWise RMON agent provides information about how devices are using the network. For example, you can view which devices are using the most bandwidth; which users, servers, or other devices are the busiest either transmitting or receiving packets; when a packet error is detected; and which station is sending packets with errors.

ManageWise 2.0 also provides segment trending, which allows you to gather statistics such as network utilization and error packet count from one hour up to two years. Like other trend statistics, this RMON information is stored on the server until it is requested from the management console. To manage the amount of disk space used to store trend information, you can configure the number and duration of sampling intervals for the trend captures.

Proxy Monitoring

Some devices on your network may not have SNMP agents and, as a result, cannot be monitored by a management console. ManageWise, however, enables you to monitor these devices by instructing the RMON agent on the server to act as a proxy agent.

The ManageWise agent checks for packets coming from any device, including non-SNMP devices. If the agent does not detect transmissions from a monitored device for a user-defined period of time, the agent pings the device to verify if it is down. If the device still does not respond, the agent sends an alarm to the management console, alerting you to the possibility that the device has failed. This capability allows you to monitor critical network devices that would otherwise not be monitored by a management system.

Remote Packet Capture

When you need to troubleshoot network communications at all levels of the Open Systems Interconnection (OSI) model, no tool is more important than a protocol analyzer. Protocol analyzers capture and decode information transmitted between network devices, allowing you to analyze network communications. Nothing is left to chance or second guessing.

In the past, most protocol analyzers were standalone, portable PCs that had to be carried to the segment containing the suspect devices. Remote analyzers have been available for a couple of years, but they were typically independent of other management systems and cost-prohibitive since an analysis device had to be purchased for each network segment.

With ManageWise 2.0, the agent that is running on a NetWare server and monitoring the segment will also capture packets as directed by the ManageWise

console. These packets are then sent to the console for decoding. For example, using the ManageWise console, you can have the remote agents on a server capture a communication between two devices, send the packets to the console for decoding, and troubleshoot the communication.

Router Management

In addition to monitoring IPX and IP routers for packets in/out, bytes in/out, packet discards, and errors in/out, ManageWise now supports the Novell Link Services Protocol (NLSP), a link state routing protocol. You can also view graphical representations of routing paths between two segments and the associated link cost.

When more than one route exists, routers make decisions on which route to use based on a characteristic called *cost*. The route with the lowest cost is considered to be the "shortest" path. Link cost provides greater control over what type of traffic can use a particular route. For example, you can optimize the primary and backup router paths on your network. With ManageWise 2.0, you can also locate the shortest path, in both directions, between two routers or two networks. Then you can evaluate how expensive it is to transmit packets between the selected routers or networks.

When multiple paths are available, you can compare the cost of routing packets over each path. If you want one path to be the primary path, you can configure the other paths to have a higher cost (in which case, they are no longer one of the shortest paths).

Hardware Inventory

BUS - Type	ISA
Fixed Drive 0 - CMOS RAM Type	48
LAN - Shell Driver - Description	Novell NE2000 Ethernet
LAN - Shell Driver - Interrupt Line 1	IRQ 03 exclusive
Processor - Type	i486 SX SL-Enhanced

Software Inventory

cfg - C:\AUTOEXEC.BAT	09-14-1995 09:29:30 9:54
Microsoft DOS Command Processor	6.2
Microsoft Mail for Windows {TM}	3.02

Figure 3. This information is only a portion of ManageWise's complete inventory of workstation hardware and software.

Workstation Management

ManageWise 2.0 includes the workstation management capabilities introduced with ManageWise 1.0: Intel's LANDesk workstation management, inventory management, and network virus protection systems have been fully integrated in this release.

If you need a complete inventory of workstation hardware and software, the

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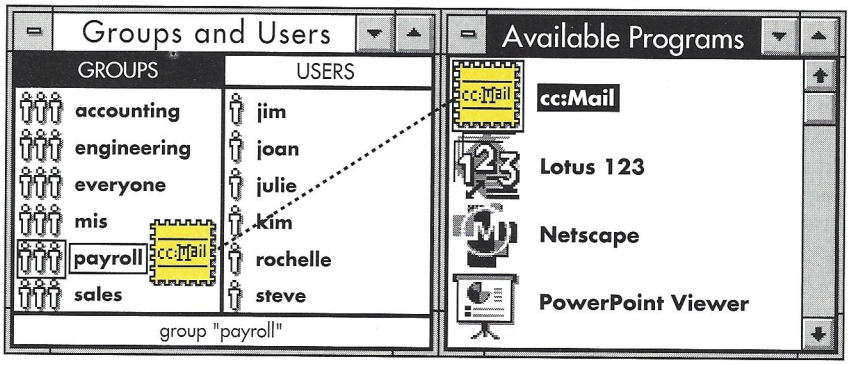

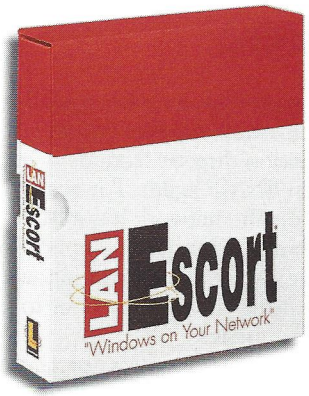

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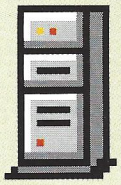
Minimum System Requirements for ManageWise



ManageWise Server

- 80386/16MHz
- Network board with promiscuous mode support
- 16MB available RAM for ManageWise if installing NetExplorer (on one server on the internetwork)
- 7MB available RAM for ManageWise if not installing NetExplorer
- 23MB disk space for ManageWise
- NetWare 3.11 (except your NetExplorer server), 3.12, or 4.1
- User account with SUPERVISOR rights (or equivalent)
- For NetWare 4 users, bindery context set to the context of the user account
- Btrieve 6.10c (available on the ManageWise CD-ROM)

ManageWise Console

- 80486/33MHz
- VGA monitor
- Mouse
- Network board
- CD-ROM drive or network-accessible CD-ROM drive
- 3.5-inch floppy disk drive
- 16MB RAM
- 56MB disk space for ManageWise
- 10-50MB for ManageWise database
- MS-DOS 5.0 or 6.22 software
- 512KB free DOS conventional memory (before loading Windows)
- Windows 3.1, Windows 3.11, or Windows for Workgroups
- NetWare Client 1.2 software or later (available on ManageWise CD-ROM)
- SHARE.EXE or VSHARE.386

ManageWise workstation inventory feature will appeal to you. From the ManageWise console, you can view detailed information about a workstation's hardware (system board as well as all plug-in boards) and software (such as workstation drivers, network drivers, TSR programs, and applications). Figure 3 on page 55 shows the type of information ManageWise 2.0 can detect at the workstation.

The most impressive enhancement to workstation management is the ability to view and capture a user's workstation from the ManageWise console (functionality similar to that of pcANYWHERE and Carbon Copy). You can view what is happening at a user's workstation and edit any of the workstation or network configuration files such as the AUTOEXEC.BAT or NET.CFG file. This capability has to be at the top of any administrator's network management wish list. You can take over a user's workstation located in a building across the company campus or in another state or country, view the problem that user is experiencing, and then correct the problem by editing a configuration file—all without leaving your desk.

You can also use this feature to train users. As the user watches, you can demonstrate how to use an application or a network tool while both you and the user remain at your own desks. After you begin to use remote management, you will wonder how you worked without it.

The LANDesk software also includes virus protection, chat capabilities, and file transfer.

Virus Protection

With users downloading files from online services (such as CompuServe, Prodigy, and America Online) and the ever-popular Internet to their network server, virus protection is becoming more and more critical. ManageWise 2.0 includes comprehensive network virus protection by integrating Intel's LANDesk Virus Protect.

The ManageWise network virus protection will detect viruses on the workstations and the server, send an alarm to the ManageWise console identifying the virus and its location, and then neutralize and quarantine the virus to prevent it from spreading. Upgrades to LANDesk Virus Protect are available directly through Intel's bulletin board service (BBS).

Browsing

ManageWise includes a MIB browser, which enables you to get information directly from devices that have an SNMP agent. For example, if a router on the network has a MIB II agent but no third-party application for ManageWise, you can still manage the device using the MIB browser to gather MIB II statistics.

You can also create a "profile" that defines periodic SNMP polls to get information. This information can be plotted over time in a table or graph.

New Licensing

Novell licenses ManageWise in the same way it licenses NetWare. For example, you would buy a 25-user ManageWise license for a 25-user NetWare server. You can also buy ManageWise bundled with NetWare 3.12 and 4.1 or buy additive ManageWise licenses if you upgrade your NetWare license. This licensing scheme allows you to include network management when you budget an upgrade or purchase additional NetWare servers.

Considering all the benefits ManageWise 2.0 offers, the cost is competitive. For example, on a four-network LAN where the NetWare server acts as a router between the networks and supports 100 users, you can load a single 100-user copy of ManageWise on the server. For approximately $39.95 per client or $999 per segment, ManageWise will provide complete server management, traffic monitoring and analysis, and workstation management for all four networks. (For information about system requirements for running ManageWise, see "Minimum System Requirements for ManageWise.")

Conclusion

With ManageWise 2.0, Novell's network management platform has come of age. The built-in services outlined in this article plus others not mentioned (such as monitoring and management of HMI-compliant hubs), along with support for third-party plug-in modules from more than 100 vendors, make ManageWise 2.0 the most complete, distributed network management system we have seen. If you are new to network management, ManageWise 2.0 deserves serious investigation.

If you purchased earlier versions of ManageWise or NMS, Novell is offering a low-cost upgrade of ManageWise 1.0, NMS 2.0, NetWare LANalyzer Agent 1.0, Intel LANDesk Manager 1.51, and Intel LANDesk Virus Protect 2.1. For more information about ManageWise 2.0, call 1-800-NETWARE or 1-801-429-7000.

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