



Server Management for NetWare

Today's network users rely on computing resources for nearly every aspect of the job – from daily planning and e-mail to complex client/server databases. Regardless of network size, downtime lowers productivity and profits.

Because server availability is so critical, Tricord offers a complete easy-to-use availability management package for Novell workgroup and remote servers. By teaming some of the best management products in the industry, Tricord gives users the power to manage the server along with the rest of the network, even if the server is down and located across the country.

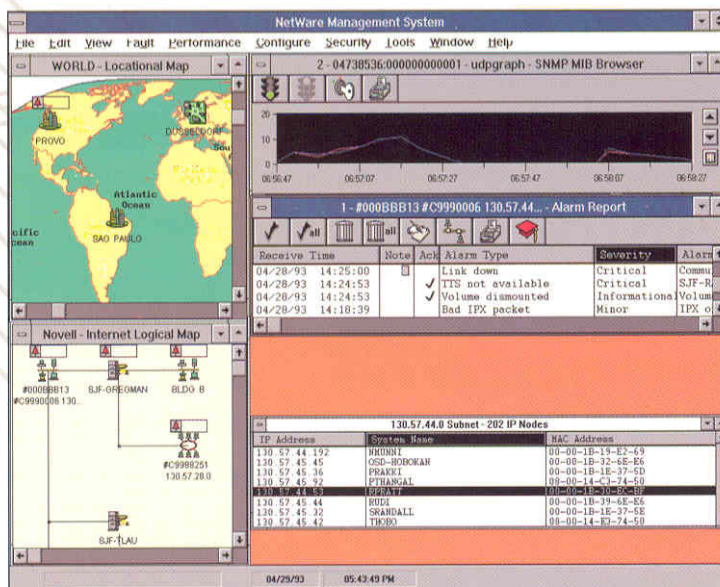
Tricord's management solution starts with Novell's NetWare Management Agent. NetWare Management Agent software gathers the information needed to predict and prevent faults, and manage server utilization.

The NetWare Management Agent ties into Novell's NetWare Management System (NMS), which manages network servers from a central location. Running on its own PC, the NMS continually collects information from each server's NetWare Management Agent. A Windows-based package sketches the network configuration, offers configuration information and utilization charts, issues user-defined alerts when errors occur on any of the servers and stores a history of all alarms for future analysis.

If a problem occurs on a PowerFrame DS Series server, Tricord's Availability Management Subsystem (AMS) takes over where other server management packages stop. Users can click on the NMS's PowerFrame server icon to access the AMS, even when the server is down. The AMS helps diagnose why the server failed and allows remote console access to

bring the server back up and running without dispatching a technician to the site.

With today's critical networks, network administrators need to count on performance and availability. Tricord's Server Management Solution for NetWare delivers the tools needed to make the server one less thing to worry about.



**Aggressive availability
management from
Tricord and Novell
protects your network
and your bottom line**



Teamed for Total

TRICORD AMS

Feature	Function
Remote Access	Allows management and network reconfiguration access to the remote PowerFrame, including RCONSOLE and DOS access.
Failed Server Access	Gives users access to remote PowerFrames via a modem, even during a power or server failure.
Remote Server Reset	Provides remote reboot capability.
Failure Diagnoses	Allows users to run diagnostics after reset to help diagnose the problem from a remote site.
Temperature Monitor	Monitors temperature and issues over-temperature warnings.
Voltage Monitor	Monitors voltage and issues power failure warnings.
NetWare System Failure	Provides notification of NetWare ABEND.
Pager Alerts	Allows users to determine where alerts are sent: to an alphanumeric pager, to the NMS console or to both.

Terminal - E52F.TRM

File Edit View Control Console Help

NetWare v3.12 (250 user) - 8/12/93

Information For Server DS1

File Server Up Time:	3 Days 13 Hours 52 Minutes 2	Packet Rece
Utilization:	2	Directory C
Original Cache Buffers:	7,540	Service Pro
Total Cache Buffers:	6,695	Connections
Dirty Cache Buffers:	0	Open Files:
Current Disk Requests	0	

Available Options

- Connection Information
- Disk Information
- LAN Information
- System Module Information
- Lock File Server Console
- File Open / Lock Activit
- Resource Utilization
- Exit

NetWare Management System

File Edit View Fault Performance Configure Security Tools Window

TRICORD... - Alarm Report

Alarm Type	Severity	Affected Station	Alarm
Low short term memory	Critical	TRICORD	Server
Low short term memory	Critical	TRICORD	Server

#C9011208 - Ethernet Map

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TRICORD - Configuration

Server Configuration Summary

NetWare Server Name:	TRICORD	Number of Adapters:	4
IPX Internal Net:	00008269	Number of Disks:	2
NetWare OS Version:	v3.11 (250 user)	Number of Volumes:	5
Server Uptime:	1 day, 4 hours, 40 minutes	Number of Queues:	5

Server Configuration Details

CPU 322 speed on ISA Bus OS & NLMs 7.8 MB 00-00-1B-33-E9-BD

VOL2: 157.7 MB SYS: 40.0 MB VOL1: 20.0 MB 00-AA-00-0C-90-33

TRICORD - NLMs

NLM Name	Description	Version	Tot
REMOTE.NLM	NetWare 386 Remote Console	1.31	
SPAGENT.NLM	Network Management Specific Agent for	1.50	
NXPPLUS.NLM	Netware 3.11 NXPPLUS, Network Explorer	1.10	

Legend

IP Packets Received
IP Packets Sent x 1.00
IPX Packets Received

TRICORD - General - Gauges

Current Value 32% Highest Value 68%

File Locks Record Locks File Cache Packet Receive

TRICORD - Memory Usage

Legend

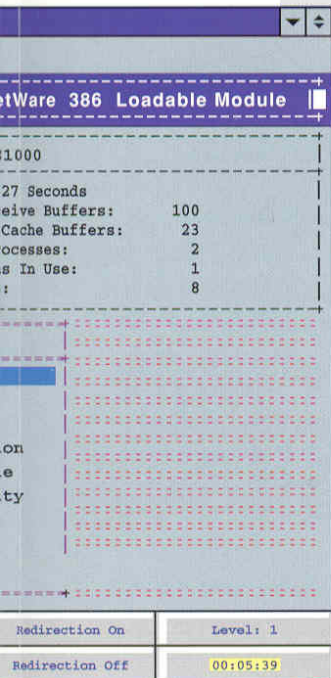
Cache Buffers (KBytes) 31.85%

11.27% 31.85% 10.74% 28.69%

04/30/93 05:25:36 PM

al Manageability NOVELL®

NOVELL NMA/NMS



Feature	Function
Configuration Information	Delivers server configuration data for all managed servers. Data includes file activity, volume data, disk drive configuration, adapter card, NLMs, CPU, memory and print services.
CPU Monitor	Monitors CPU utilization for configuration analysis and issues alerts when performance degrades below user-defined levels.
Network I/O Monitor	Monitors the network traffic associated with a certain server, identifies potential network interface card (NIC) errors and issues alerts to help users minimize downtime or reconfigure the network to maximize performance.
Disk I/O Monitor	Monitors server directory, disk drives and volumes, and notifies users of potential or existing server problems with real-time alarms. Delivers utilization and integrity information to help users determine when to add disk space.
Memory Monitor	Monitors memory utilization of NLMs and all server activities, and issues alerts when memory is low. Also helps users determine when to add memory or reconfigure the system.
Cache Monitoring	Monitors cache utilization for configuration analysis.
SNMP Compatibility	Provides configurable target designations for SNMP alarms.
User-defined NMS Alerts	Allows users to specify which parameters trigger alerts.
Logical Network Mapping	Creates an internet map that shows segments and routers, and the logical connections between them in the network. Segment maps show the servers, workstations, routers and other devices for each segment on the internet map.
Physical Network Mapping	Allows users to create maps showing floor plans with server locations for easy identification of alarm locations.
Alert Logging	Records a history of alerts for future analysis.

NETWARE MANAGEMENT AGENT SOFTWARE

Server Requirements

(Server must meet requirements to interface with NMS)

NetWare 3.x or 4.x

80386, 80486 or Pentium™ processor

8.0 MBytes RAM (NetWare 3.11) or 10 MBytes RAM (NetWare 4.x)

2.0 MBytes free disk space on the SYS:volume.

NETWARE MANAGEMENT SYSTEM

Management Console Requirements

80386 or higher PC-compatible computer

VGA/Super VGA adapter and monitor

12 MBytes RAM

40 to 80 MBytes free hard disk space, depending on network size

Microsoft Windows 3.1 compatible mouse

Novell's DR DOS 6.0 or later, or MS-DOS 5.0 or later

MS Windows 3.1, enhanced mode

ODI-compatible network interface card

Server Requirements

(One server must meet specifications to run the NMS)

NetWare 3.11 or greater

80386, 80486 or Pentium processor

2.0 MBytes RAM

10 MBytes hard disk space

AVAILABILITY MANAGEMENT SUBSYSTEM

Included with the AMS

AMS controller

Intel386™ SX processor

8.0 MBytes of main memory

Dual-ported memory

1.0 MByte of FLASH memory (stores software modules)

Voltage and temperature sensors

Serial connector – DB-9 (supports external modem)

Internal 2400-baud modem (optional)

Internal battery-backup module (for 30 minutes after power loss or power supply failure)

AMS Network Loadable Module

NMS compatibility software

Benefits

- **Centralized management** – lets users access all managed servers from a central console or from groups of consoles located across the network. Different users have different levels of management access and control as determined by the system administrator.
- **Highly available management package** – the AMS's battery backup and independent management processor keep management on-line when you need it most. Remote console access can mean the difference between minutes and days of downtime. Unlike other server management packages, uninterrupted access to the AMS keeps you informed, even during a general power outage or server failure.
- **Component monitors** – provide constant status and utilization data for the CPU, disks, files, memory, cache and the server in general. Early diagnosis of problems and potential failures eliminates or shortens potential downtime. Up-to-the-minute utilization data helps determine when to scale the PowerFrame to optimize performance as network requirements grow.
- **Remote access** – delivers easy, comprehensive access to off-site servers without wasting time and travel expenses. Day-to-day system monitoring and fault management capabilities help maximize remote server availability and performance.
- **Pager alerts** – let you keep abreast of server status, even when away from the network.
- **Trend analysis** – delivers valuable after-incident access to failure symptoms up to and during the actual failure, so you can predict and prevent similar failures in the future.
- **Easy-to-use Windows-based package** – lets you invest time into managing your network, not learning how to manage your network management package.
- **Snap-in Modules** – allow you to customize the NMS to deliver the tools you need to easily and effectively manage your specific network. Devices such as routers and hubs can be managed by independent snap-in modules.



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070201-00 9/94