Proactive Management Solutions for Campus and Wide Area Networks

Nways Managers Executive Overview

Networks are key to your business. Remote offices are connected to corporate networks; corporate and government networks are interconnected with customer, supplier, and business partner networks; and the Internet is pervasive. Geographic constraints are disappearing as technology enables us to form virtual organizations and workgroups. Maintaining connections, eliminating bottlenecks, and keeping up with ongoing moves and changes in today's networks is a complex, expensive, and labor-intensive problem. The cost of owning and operating a network far exceeds the network capital investment. With the right network management tools, you can reduce network operations and administration expenses and save time.

The Nways manager product portfolio helps you reduce network operation costs by providing easy-to-use integrated software applications that allow users to configure, control, and maintain local and wide area networks. The Nways managers provide you with a comprehensive set of tools to manage a complete range of heterogeneous networking objects. As we couple Nways Manager with Tivoli Systems' TME 10 product line, you will have a powerful, end-to-end management solution for managing all of the underlying elements of your computing infrastructure.

In this article, you will find how these management tools, built around industry standards, are flexible and modular to adapt and scale easily as your enterprise grows.

Today and tomorrow, IBM is prepared to offer you powerful, network management solutions designed to manage the complexity of today's mission-critical networks, while reducing network operation costs. Our solutions will help you keep your enterprise alive to opportunity, poised to compete, and prepared to succeed.

¡h4¿Who benefits from proactive management?¡/h4¿

Everyone.

Pretend you're a system administrator. Every time a piece of hardware goes down, you have performance problems, if not a full-blown network outage. With Nways management software, you can manage your networking hardware proactively. You can set thresholds to let you know when you're reaching a critical point and fix the problem before any of your users know about it. Notification can take the form of an icon or a topology map changing color, a pop-up message appearing on a network operator's terminal, or a pager alert. By managing your network proactively, you spend less time reacting to problems and more time preventing them.

Pretend you're a help desk employee. You support a network spread across the state in four different buildings with lots of hardware in between to monitor. Because Nways managers offer you a single point of control, you can monitor all the hardware from your desk. You save time by not driving between buildings.

Pretend you're a software trainer. Same network. Your company installed hardware from half a dozen different vendors. There are management packages offered for each of the pieces, but none of them are the same. You'll have to become proficient with half a dozen management packages and their user interfaces to be able to teach the skills to those who need them. But, with Nways management software, you learn only one, intuitive graphical user interface for all heterogeneous networking hardware.

Pretend you're a chief financial officer. Your main concern is, if you purchase Nways management software, how does it affect the bottom line? During a hardware failure, people are unable to do the work that brings your company money. Proactive management with Nways management software means potential failures are avoided, and employees keep working.

Pretend you're a chief executive officer. How are you going to beat your competition? You know that one of your greatest assets is information: your customer records, your inventory records, even the communication among your teams to get the job done. You can't beat your competition if you're spending too many resources on maintaining that asset internally—it's taking resources away from producing and selling your product. Nways management software makes management of internal resources easy.

Network management challenges

There are thousands of hardware and software products on the market today, and the more these products support heterogeneous networks, the more challenges there are managing these products. Systems management and network management have become more important than ever. If you ignore the resources that help you with this management, you'll find yourself overwhelmed—and at a competitive disadvantage.

A lot of the focus today is on managing software applications, and, true, this is important. But, what about your hardware? If your network has at least one bridge, switch, or router, you have a campus or wide area network. You can't be everywhere at once to keep up with your network. The trick is to select a management package that helps you manage all the hardware on that campus or wide area network from one place. Of course, cost is a consideration. And, wouldn't it be great if you could manage problems proactively? IBM comes to the rescue.

IBM offers network management applications for workgroup, campus, and wide area networks. These management applications help you manage your bridges, switches, hubs, routers, even ATM devices, from a single point of control. Now, that's systems management power.

¡h4¿**IBM comes to the rescue.**¡/h4¿

Getting to know the Nways family

You've seen how Nways management software saves your company money. Now you need some specifics about how the software helps you. The Nways family is a collection of products for managing switches, routers, bridges, and hubs. The following integrated products make up the family:

Nways Campus Manager LAN, Nways Campus Manager ATM, and Nways Campus Manager Remote Monitor manage your campus environment.

Nways Manager for Windows and Nways Remote Monitor for Windows provide traditional device management, ATM device management, and remote network monitoring capability for the workgroup environment.

Nways Broadband Switch Manager manages the IBM Nways family of wide area network switches in your wide area network.

Each product manages certain types of networks. The following pages describe what each product does so that you can determine which applications are best for you.

Proactive management with RMON

If you want to manage your network proactively, Nways Campus Manager Remote Monitor (ReMon) can help. ReMon is a Remote network MONitoring (RMON) management application that works with all RMON-compliant agents to collect, monitor, and threshold statistics from token-ring and Ethernet LAN segments. By moving the responsibility for monitoring down to RMON agents at the segment level, you reduce network traffic and focus on problem areas before they become a more serious problem.

For going beyond media-level traffic monitoring, you can use the Nways Campus Manager Remote Monitor Advanced (ReMon Advanced) feature. ReMon Advanced complies with RMON 2 standards from the RMON Working Group of the Internet Engineering Task Force (IETF). RMON 2 standards move beyond the segment level to the enterprise network level, giving you information about the health and performance monitoring of global, end-to-end communications. ReMon Advanced enables complete monitoring of network traffic flow, which shows internetwork communication patterns and a global view of applications, such as World Wide Web. ReMon Advanced also provides a fast, effective means of transmitting packets to specific segments or rings for stress testing or network simulation.

What is RMON?

The SNMP RMON MIB provides an industry-standard means of collecting LAN statistics, monitoring user-specified conditions, and capturing and examining the contents of actual packets. The MIB is divided into 10 groups that provide various MAC-layer data about individual segments or rings:

- Statistics—LAN statistics showing packet counts, error counts, and other information
- History—Historical views of LAN statistics
- Alarms—User-defined alarm conditions on all integer variables in RMON
- Hosts—Station-specific data showing packets, errors, broadcasts, and other information
- Host top N—Table that sorts host statistics by utilization, errors, rates, and other information
- Traffic matrix—Conversation matrix between stations or pairs of stations
- Packet capture—Buffered capturing of packets
- Filters—Filtering for the packet capture group
- Events—Generates SNMP events that can generate alarms and filters
- Ring Station Group—Token-ring physical station order and statistics by source station and nearest reporting neighbor
- Manages all RMON-compliant agents or probes

- Offers full seven-layer data collection
- Reduces network outages because you can handle problems proactively
- Monitors statistical thresholds
- Collects historical data
- Displays real-time LAN status
- Consolidates data from several agents or probes
- Captures and analyzes network traffic
- Monitors at the enterprise network level, as well as the segment level
- Enables network troubleshooting and stress testing before you implement changes
- Generates new packets and retransmits captured packets to specific LAN segments or rings
- Runs on IBM and Hewlett-Packard management platforms

According to a study conducted by a major industry consultant, an organization with up to 10 RMON-managed LAN segments realized management cost savings of $21 000 (U.S. dollars) over a comparable organization without RMON. An enterprise with 200 or more RMON-equipped LAN segments saved nearly $400 000 (U.S. dollars) in management costs, using RMON.

Managing traditional LANs

If your network includes routers, bridges, and hubs, but no ATM devices, it is a traditional LAN, and Nways Campus Manager LAN is what you need. It graphically manages over 30 different IBM hubs, hub modules, concentrators, routers, bridges, and switches on Ethernet and token-ring LANs, switched networks, and media. For multivendor networks, it also monitors the performance of heterogeneous devices, such as routers from Cisco, Bay Networks, and Proteon. During installation, you choose the device management applications you need and select more as your network grows.

Nways Campus Manager LAN gives you device configuration and network topology views to quickly determine the condition of your network and its components. It also provides performance and fault management for control and monitoring at the network, segment, device, port, or workstation level.

Nways Campus Manager LAN plays a key role in IBM's Switched Virtual Networking (SVN) strategy in support of virtual LANs. A virtual LAN, or VLAN, is a subnetwork defined by software configuration tools instead of physical wiring. VLANs allow logical communities of interest, with relatively high mutual traffic levels, to exist as one logical bridge community. VLANs enable networks to support the needs of workgroups, which improves worker productivity and network security, and, ultimately, cuts network administration cost. Nways Campus Manager LAN supports virtual LAN configuration management for IBM's Ethernet and token-ring LAN switches.

Switched Virtual Networking strategy

Switched Virtual Networking (SVN) is IBM's standards-based framework for both campus and wide area networks. SVN allows network managers to build switched networks at their own pace, preserves their investments in current technology, incorporates new technology that can save money, and ensures a path to ATM. The focus on SVN in network management is centered around the following strategic points:

- Manage elements of the switched virtual network
- Deliver added value applications and functions that address both physical and logical views of the network
- Enable virtual LAN management
- Provide attractively-priced application packages, with integrated installation procedures
- Provide management support of both IBM and non-IBM hardware
- Implement management support on multiple platforms, such as TME 10 NetView and HP OpenView
- Offers best-of-breed device management applications for IBM's campus networking devices
- Gives you one look and feel across all managed devices
- Offers seamless integration with IBM's Remote MONitoring (RMON) product for LAN performance monitoring
- Finds and fixes network problems before they cripple your network
- Displays your network with easy-to-follow color maps and submaps
- Allows virtual LAN configuration management, using a drag-and-drop interface
- Lets you define elements in your network as critical resources for specific management tasks
- Contains all functions from the LAN Network Management (LNM) application with major improvements
- Runs on IBM and Hewlett-Packard management platforms

Managing ATM LANs

- Offers best-of-breed autodiscovery of ATM devices and provides graphical topology
- Monitors and controls your network's resources, with less work and more efficiency
- Helps you determine network problems and fixes them before they cripple your network
- Offers end-to-end display of connections (Permanent and Switched Virtual Connections) on the ATM network
- Displays and changes configuration information

- Gives you control of emulated LANs that are defined on the ATM backbone
- Runs on IBM and Hewlett-Packard management platforms

If your network contains asynchronous transfer mode (ATM) network devices, Nways Campus Manager ATM is for you. It does everything the Nways Campus Manager LAN product does, and it does it all for ATM devices. Nways Campus Manager ATM automatically discovers, maps, and monitors campus ATM devices, like hubs, concentrators, and bridges. Nways Campus Manager ATM supports the ATM Switch/Control Point and ATM Concentration modules in the intelligent hubs, the ATM bridges, the ATM switches, and the ATM concentrators.

Managing wide area networks

- Gathers, consolidates, and processes data from the Nways Switch family of products
- Identifies the addition, removal, or status change of key resources
- Offers easy-to-use graphical display of the network topology that is dynamically updated
- Gives end-to-end connection configuration with ATM
- Gathers performance of network resources
- Monitors the status of the ATM layer and ATM interface
- Offers online fault management, displaying events and alarms
- Offers event-driven network management procedures
- Graphically displays packet rates and other statistics
- Includes accounting functions
- Runs on IBM management platforms

For wide area network management, you can get Nways Broadband Switch Manager. Nways Broadband Switch Manager manages the IBM Nways family of wide area network switches. It allows you to manage an entire network of switches, using a single connection to any of the IBM switches. You can connect to the switches locally, using an Ethernet LAN, or remotely.

Nways Broadband Switch Manager configuration support simplifies operator tasks by helping you set network-wide parameters and procedures. For example, you can define circuits with a single step, even though these involve multiple network resources.

A variety of traps for alarm indications or statistics logging are available for all resources in your network.

Managing workgroup LANs

If your operating system is Windows and your network has less than 600 nodes, Nways Manager for Windows is the best choice. It provides integrated fault, configuration, and performance management functions for IBM bridges, routers, hubs, and switches, including ATM devices. Like Nways Campus Manager LAN, Nways Manager for Windows gives you device configuration and network topology views to quickly determine the condition of your network. It also provides performance and fault management for control and monitoring at the network, segment, device, or port level. Virtual LAN configuration lets you define a subnetwork, using software instead of physical wiring.

The Nways LAN Remote Monitor for Windows product works seamlessly with Nways Manager for Windows, helping you detect network problems before they occur. You also get the NetView for Windows program, included with the Nways Manager for Windows package, for even better proactive management.

- Graphically manages Ethernet and token-ring LANs, switched network, and ATM devices
- Supports IBM routers, stackable hubs, concentrators, intelligent hubs, LAN switches, and ATM devices
- Allows virtual LAN configuration management, using a drag-and-drop interface
- Provides an easy-to-use graphical user interface for centralized management
- Offers seamless integration with IBM's Remote MONitoring (RMON) product for LAN performance monitoring
- Enables you to install only the device management applications you need for your network
- Runs on IBM NetView for Windows management platform

Not just flexible, but affordable

The family of Nways managers provides a complete solution for managing your workgroup, campus, and wide area networks. Each Nways manager fills a different set of network requirements. Each product has a different combination of features and operating systems, offering you maximum flexibility in managing your network. And, only IBM integrates Nways Manager products with your network management platform, giving you comprehensive search capabilities, extensive LAN topology management, and enhanced media management.

As your network grows and your needs change, the Nways managers continue to grow with you. You can add the device management support you need. You need this flexibility to justify a good investment.

Without the Nways managers, you need to buy new network management software for each bridge, router, switch, or hub that you add to your network. But, the cost for buying your management software one piece at a time is staggering. The Nways managers are the more cost-effective solution.

Protecting your investment

The flexibility of the Nways managers doesn't stop there. While you're growing your network, our flexibility is growing. When the Nways family is compatible with the Tivoli TME 10 product line, Nways will be just part of your total systems management solution. Eventually, the Nways managers will be fully-integrated into the Tivoli Management Environment (TME) framework, which is known for its openness. So, you know that as your network grows, so will the flexibility of your Nways managers.

Together, IBM and Tivoli Systems continue to provide you with a comprehensive package of systems management applications and network management applications, so your Nways management investment is protected. For more information about the TME framework, see the Tivoli Home Page at `https://web.archive.org/web/19970801182318/http://www.tivoli.com/`

For more information

For more information about the Nways managers, contact your IBM representative or IBM business partner, today.

Or, you can visit the IBM Home Page at `https://web.archive.org/web/19970801182318/http://www.raleigh.ibm.com/netprod.html`

There are nways to build your networks, but only one way to manage it: Nways managers

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