IBM

IBM Netfinity Systems Management for Servers

Powerful tools to manage your networked business for higher availability

Executive Summary

The complex IT environment is evolving at a rate that, just a few years ago, would have been unimaginable. And the rate will undoubtedly increase in the future, as new technologies make even more rapid change possible. In this environment, IT professionals are faced with a bewildering variety of manageability tools. They need to keep system availability high and to solve problems quickly and efficiently. But the tools available have few if any common characteristics and provide little or no integration. This means that you spend too much time managing IT assets and too little time managing your business.

IBM understands the consequences of not having your networked systems available and operating reliably when you need them. If your network administration tools fail, you can lose literally thousands of dollars a minute, depending on the applications running on your system. IBM's goal is to provide a systems management solution that will provide you with comprehensive control of your IBM Netfinity® servers in this complex environment and enable you to spend more time on your business.

Our systems management strategy is threefold and is fundamental to our efforts to help you reduce your Total Cost of Ownership. Our strategy is to:

- Provide a standards-based foundation to remove confusion and complexity as technology evolves. This is intended to help remove the guesswork from the industry offerings. The foundation is based on existing standards, and IBM's alliance with other industry leaders such as Tivoli, Microsoft and Intel help ensure that you have access to the cutting edge of technology.

- Provide industry-leading control of IBM Netfinity servers in heterogeneous environments. We work to accomplish this by offering tools that allow you unparalleled control of your Netfinity system during its life cycle—from procurement through retirement or disposal. These tools are designed to help you reduce your Total Cost of Ownership.

- Provide smooth integration with leading enterprise and workgroup managers, for a comprehensive solution built on a management foundation that fits with your existing assets and grows with your business. Our strategy can support a variety of management strategies you choose because our foundation and value-add tools integrate seamlessly with Tivoli™ Management Software, Microsoft System Management Server (SMS) and Intel® LANDesk®.

Central to this strategy are the "building blocks" for Netfinity manageability: the server hardware and its instrumentation, the Advanced System Management Processor and Adapters and the

server management software (IBM Netfinity Manager™ and ServerGuide). Designed to work in concert, they can help you deploy and install your hardware, physically manage your operations and assets and provide remote support and maintenance.

The bottom line? The systems management solution for IBM Netfinity servers is designed to help you run your business-critical applications with the confidence that they will be there when your end users need them.

Manageability Challenges and Requirements

Businesses today continue to decentralize their IT assets and consolidate their IT skills. They are doing this with new tools and technology that can offer more, and better, functionality, but often at the cost of increased complexity. The solution to this problem is **smarter** systems management—not simply "systems management," but the efficient, productive and proactive administration of IT assets within the business. Smart systems management enables early warning of impending problems and allows quick solutions to those problems remotely. IBM's Netfinity servers, with advanced local and remote management hardware capabilities, provide that management, no matter what size your networked business is. Some models provide such benefits as warning when the EC memory threshold is being reached, Predictive Failure Analysis® (PFA) for rapid identification of a failing component, automatic server restart and IBM's light-path technology to alert you to an impending problem with a vital component of your server.

Advanced systems management can help users produce a wealth of benefits, many of which directly affect the bottom line: reduced downtime, increased productivity, reduced service and support costs, and the ability to focus on running the business rather than managing the systems. Advanced systems management also integrates into the system management platform you have deployed.

The first challenge is to give administrators more control with less complexity that, until now, no vendor has been able to meet successfully. The second challenge is to provide the solution that helps significantly reduce the total costs associated with systems over their entire life cycle—from deployment to managing and troubleshooting. IBM Netfinity servers meet those challenges.

IBM Netfinity Server Hardware and Instrumentation

IBM Netfinity server hardware is the first building block of the Netfinity systems management solution. It provides excellent manageability, in part because of its balanced system design and instrumentation. Three important elements are PFA, environmental monitoring and the front-panel LEDs. Working together, they facilitate troubleshooting and service, which in turn can save you time and money.

PFA for such vital components as power supplies, fans, DASD, processors and memory enables early detection of problems, allowing you to replace these components before they fail.

Proactive **environmental monitoring** allows alerts and errors to be forwarded when environmental thresholds are outside the normal range, and shuts the server down when they are exceeded and would cause damage to the server or to data.

PFA and environmental monitoring are complemented by the **front-panel LEDs** (standard on select Netfinity servers). The LEDs are another means that allows early detection of problems with components or the server, and notification when a process has stopped or a critical file has been changed.

IBM's revolutionary light-path diagnostics (available on selected Netfinity models) also contribute to advanced manageability. Netfinity servers were designed with quick problem isolation as a goal, implementing a light-path service panel in conjunction with the component LEDs. Service personnel can quickly and easily identify a failing component, potentially without even running diagnostics. And the mechanical design enables extremely easy access to the components via a sliding planar and processor carriage, a design for high availability. And many of the components, such as power supplies, fans and hard disk drives, are redundant and hot-pluggable, so that your system continues to operate normally while you replace the failing component.

To create full, system-level support for hot-plug technologies, IBM is working closely with Microsoft on an initiative called OnForever™. This initiative has a goal to provide uninterrupted computing on IBM Netfinity servers running Microsoft® Windows® NT®. OnForever is a system-level solution that is focused on providing higher availability and greater manageability for the entire system, including hardware, operating system, middleware and applications.

The Netfinity servers' advanced hardware instrumentation supports the DMI standard. DMI provides hardware component information in a format that permits management applications access to this information. As a result, DMI allows system administrators to monitor many aspects of a system's functionality, so that problems are avoided and users stay productive.

Netfinity Server Deployment, Setup and Configuration

The installation and configuration of a server can be a complex, time-consuming task. In addition to installation of hardware, the installation of the operating system, device drivers and applications makes the task more complex. Because of this, some of your highest costs are incurred in the initial installation and configuration of a server. When several servers are being installed, the costs can rise significantly. The solution for IBM Netfinity servers is IBM ServerGuide and LANClient Control Manager™ (LCCM).

ServerGuide. ServerGuide's goal is to simplify and shorten installation. This focus on deployment helps you reduce both your Total Cost of Ownership and the complexity that administrators and technical personnel face.

ServerGuide, an important part of Netfinity system management, is shipped with every IBM Netfinity server at no additional charge. It has been expanded and updated to help you install Windows NT faster than ever before. It addresses most configuration and onsite requirements during deployment, setup and configuration. ServerGuide's built-in intelligence recognizes machine types and models as well as software versions and other hardware criteria. As a result, ServerGuide offers installation and configuration choices for your system.

Recognizing that changes are made to BIOS, device drivers and other firmware over time, ServerGuide includes Update Connector. Update Connector lets you periodically check the Internet for code updates customized for your system's configuration and download them to your system. This is another function designed by IBM to help you reduce the manageability costs associated with servers and keep your system operating optimally.

To help administrators, ServerGuide provides tools such as Diskette Factory and Book Factory. Both tools can be installed on your local system as standalone programs. Diskette Factory provides a full library of device drivers tested and approved for your IBM Netfinity server. With a few clicks of a mouse, you can create diagnostic, device driver and many other diskettes for Netfinity servers. ServerGuide also has the ability to check IBM Web sites for newer versions. Book Factory allows you to view or print documentation about IBM servers, software integration, Netfinity Manager and more. In addition to these tools, ServerGuide also includes a variety of

application programs such as Norton AntiVirus, ServeRAID™ Adapter Administration and Monitoring Utility, Cluster System Management and others.

LCCM. LCCM is a key component of IBM's Universal Management offering, which delivers leadership services that can help reduce the cost and complexity of managing systems, so you can concentrate on your business. LCCM 2.5 introduces support for Netfinity systems and wizards to focus on simplified deployment activities, thus reducing the Total Cost of Ownership of your IBM hardware.

LCCM makes your job easier—particularly when rolling out multiple IBM Netfinity and desktop systems—by allowing for remote and unattended client configuration, deployment, redeployment, lower level management and disposal. Since LCCM gains control of the system before it boots the operating system, many lower level tasks that previously required a visit to each client can now be performed over your network.

LCCM is also useful throughout a system's life cycle for performing pre-boot functions such as reformatting a hard disk or restoring an operating environment.

IBM Netfinity Advanced System Management Processors

The IBM Netfinity advanced system management processors—the Advanced System Management Adapter, the integrated Advanced System Management Processor and the Advanced System Management PCI Adapter—are the second building block of the Netfinity system management solution. Working with the hardware instrumentation and Netfinity Manager software, they are key to problem notification and resolution. They provide the system administrator with complete remote management of a system, independent of the server status. The processors are their own administrator and act as a sentry or guardian for your system, keeping it up and available for your business-critical applications. Whether you are in the office, at home or almost anywhere, you can be confident that if a problem occurs with your IBM Netfinity server, you can be made aware of it and can take action—remotely—to minimize disruption of your business applications. The Netfinity Advanced System Management Processor family and their positioning with Netfinity servers is shown in the following table.

	ASM Adapter	ASM Processor	ASM PCI Adapter
Netfinity 3000	Option		
Netfinity 5000		Integrated	Option
Netfinity 5500		Integrated	Option
Netfinity 5500 M10/M20		Integrated	Option
Netfinity 7000 M10			Standard

You Can Call Your Server. Security features like password protection, user profiles (up to six profiles with the ability to define the level of access rights), log of last login time and dial-back configuration protect the server from unauthorized access.

The Power Stays on, Even When the System Is Off. Because systems management is a full-time job, the system management processor can still do its job even when the power is switched off or when the system has failed. Continuous power is supplied to the processor because the processor is integrated on the system board of selected IBM Netfinity servers. This gives you the capability to dial into the system management processor from a remote Netfinity Manager to perform numerous tasks, even when the system is down. No longer does your technical expert have to hop on a plane and travel to the remote site to correct all problems. Think of the time and money you can save with this powerful remote management capability. (The tasks are described in detail in the IBM Netfinity Advanced Systems Management white paper on our Web page. The URL is included at the end of this paper.)

Two more products have recently been announced: the IBM Netfinity Advanced System Management Interconnect Cable Kit and the IBM Netfinity Advanced System Management Token Ring Option.

The Advanced System Management Interconnect option for mainstream and high-end Netfinity servers extends this remote management to allow for "daisy-chaining" of multiple processors. The Advanced System Management Interconnect Cable Kit makes it possible to interconnect up to 11 system management processors with a maximum distance between the first and last processor being 90m (300ft), allowing them to share a common modem or LAN connection. Connecting processors in this way creates a systems management network to increase control, improving system reliability and availability. Each management processor attached to the Interconnect can be accessed as if it were directly attached, can share resources such as LAN or modem connection, and can forward alerts out over the LAN or modem connection.

The Advanced Token Ring Option is available only when the Advanced System Management PCI Adapter is installed. Token Ring and Ethernet networks cannot be enabled together.

For more information about the processors, refer to the IBM Netfinity Advanced Systems Management white paper on our Web page.

IBM Netfinity Manager 5.2

IBM Netfinity Manager, the software building block of the IBM Netfinity systems management solution, is a powerful set of tools and utilities designed to manage networked IBM and non-IBM PC-based server, desktop, workstation and mobile systems on a variety of platforms, including Microsoft Windows 3.1, Windows 95 and Windows NT, Novell NetWare, SCO UnixWare and IBM OS/2®, operating on both IBM and non-IBM systems. Netfinity Manager supports some of the industry's most popular LAN communications protocols, including NetBIOS, IPX, SNA (LU6.2) and TCP/IP. And, because it supports industry standards such as DMI, SNMP and the Multi-Platform Management (MPM) API, IBM Netfinity Manager 5.2 can integrate with robust enterprise and workgroup management systems from Tivoli, Intel and Microsoft.

In a recent survey of 753 PC server customers, Netfinity Manager 5.2 was voted the top PC server management tool in all four categories of satisfaction assessed: functionality, ease of use, integration with respondent's enterprise systems management product, and integration with respondent's desktop management product. HP OpenView was the only product to tie with Netfinity in any category, in integration with desktop management product. (Source: Datapro *1998 User Ratings Survey of PC Servers*, January 1999.)

IBM Netfinity Manager 5.2 PC hardware management and administration software can help you manage your networked PCs with ease and efficiency. And, most importantly, it can help you control many of the hidden costs of operation. For example, rather than physically traveling to each LAN-connected system to perform asset management, noting serial numbers and configuration information, the Netfinity Manager auto-discovery feature lets you collect this data remotely—right from your Netfinity Manager system. You can perform capacity planning proactively, learning in advance which systems will require additional resources, such as more memory, larger disk capacity or faster processors, to avoid performance bottlenecks. Maintenance scheduling for Netfinity Manager installed systems can be automated as well. You can also access and take control of remote Netfinity Manager enabled systems to identify and resolve problems.

In addition, one of the key features of IBM systems management for servers is the powerful combination of Netfinity Manager Event Scheduler and Wake on LAN™ tools. These tools work together to help lower your computing costs by automating time-consuming, tedious tasks and by performing them at a time that is least disruptive for users.

Netfinity Manager Web Management

The Netfinity Manager Web Manager, which can be installed as an option on any Netfinity Manager managing system, acts as a mini-Web server.

The Netfinity Manager Web Manager capability lets you manage your networked PCs from virtually any system that can run a Web browser. This lets you take advantage of existing network infrastructures and allows you to manage from the platform of your choice. You don't even need Netfinity Manager code running on your Web management console—so you can manage your network from almost anywhere, at any time.

IBM Capacity Management

IBM Capacity Manager is a service included with Netfinity Manager and is responsible for collecting server performance data and displaying this data graphically, gathered over time from 30 minutes to 1 month. With Capacity Manager, system administrators can easily determine how every server on their network is performing.

Capacity Manager has just been enhanced to include artificial intelligence, making it an indispensable tool for IT administrators. IBM's top performance experts have helped build intelligence into the latest release of our Capacity Manager tool. Now, Capacity Manager includes performance analysis and forecasting for hardware components such as CPU and memory, to let you know when to upgrade to avoid any performance degradation. Capacity Manager also identifies and predicts performance bottlenecks and recommends solutions to correct a problem before end users are affected.

Capacity Manager can:

- Identify existing and potential bottlenecks before they turn into problems that cost time and money, and provide recommendations for resolution
- Optimize server resource use
- Provide custom graphs and reports of performance forecasts and capacity usage data
- Maximize server performance with performance guidelines and forecasting

- Help you plan future system upgrade requirements needed to prevent network bottlenecks before they occur by reviewing past trends up to the previous 21 days of data. Parameters include CPU use, memory and free drive space.

IBM RAID Manager

Integrated into IBM Netfinity Manager, RAID Manager lets you monitor, manage and configure your RAID adapters and arrays without taking the RAID system offline to perform maintenance. Use RAID Manager to gather data about your system's RAID array and RAID adapters, rebuild failed drives, add or remove physical drives, perform data integrity tests and many other RAID system tasks. This service is available for both standalone and network use by any system that has a supported RAID adapter. Netfinity Manager supports all IBM SCSI RAID adapters.

IBM Cluster Systems Management

IBM Cluster Systems Management, a service for Microsoft Cluster Server (MSCS), is integrated into IBM Netfinity Manager, but can also integrate smoothly with Intel LANDesk and Microsoft SMS for a clear view of clustered resource components. IBM Netfinity servers running MCS will provide additional features that promote ease of use and increased productivity, as well as event and problem notification for a clustered server configuration, all from a single console.

IBM Netfinity Cluster Systems Management allows system administrators to:

- Discover and display individual clusters and, using a GUI, set up and manage those clusters

- Schedule manual load balancing of MCS resources

- Set up and manage alerts from one GUI

Integration with Other Management Solutions

Our systems management solution can be used as a standalone, robust, yet cost-effective PC management solution. However, most corporate networks today are growing in size and diversity of systems, as are the number and criticality of the applications running on them. Not only are there multiple systems using multiple protocols, but many customers implement more than one management solution. Our solution provides specific management data to a centralized manager so that it can be incorporated into overall management strategies including Tivoli Management Software, Microsoft SMS and Intel LANDesk. Customers can grow naturally into an overall solution that meets their system management needs while preserving their financial and skill investments.

Tivoli Management Software

Netfinity Manager is a Tivoli-ready product because it tightly integrates with Tivoli Enterprise Management. Integration is provided by a Tivoli Plus module—certified at the Premiere level by Tivoli—for Netfinity Manager. This Plus module provides hardware management functions to complement Tivoli Management Software for a more robust management solution. The ability to launch Netfinity Manager from the Tivoli Enterprise Console™ (TEC), allows the administrator to use Netfinity Manager functions that complement Tivoli Management Software from the same console. Also, all Netfinity Manager events can be forwarded and integrated with Tivoli. The Plus module also allows the administrator to manage the Netfinity Manager itself with functions such as software distribution of the Netfinity Manager and Client Services for Netfinity Manager code, and monitoring and alerting if critical modules within the Netfinity Manager software have

7

stopped, or failed to start. In addition, the Plus module provides for automated actions in response to alerts received from Netfinity Manager. The Plus module for Netfinity Manager is provided at no cost and can be downloaded from the Netfinity server Web site at **www.pc.ibm.com/us/netfinity/smtools.html#3**.

Microsoft System Management Server (SMS)

Netfinity Manager also integrates with SMS to provide consolidated operations in three areas:

* Inventory data

* Alerts

* Problem determination

Netfinity Manager inventory data can be integrated into the SMS database, thereby enhancing the SMS inventory functions by adding IBM-specific data to its query capability and consolidating the SMS and Netfinity Manager inventory functions.

Netfinity Manager can send any alert to SMS in the form of an SNMP trap. Therefore the system administrator can be notified of potential problems from both SMS and Netfinity Manager on the SMS console.

Netfinity Manager can be launched for a particular system from the SMS topology map, so when an alert is received from a Netfinity Manager system on the SMS console, the administrator can drill down through the SMS topology map to the problem system, then launch Netfinity Manager on that system to identify and correct the problem—all from within the SMS console.

Intel LANDesk

Netfinity Manager integrates with Intel LANDesk as it does with Microsoft SMS. IBM Netfinity Manager 5.2 offers enhanced integration with LANDesk Server Manager and LANDesk Client Manager Administration in custom inventory extensions, alerts and Netfinity Manager launch support. This integration can provide greater productivity and better usability for the system administrator by consolidating Netfinity Manager desktop and server management tasks with LANDesk into one console, while retaining the benefits of both management strategies.

SNMP

Netfinity Manager now provides extensive integration with SNMP managers. It generates unique SNMP traps for each Netfinity Manager alert and can forward these traps to any SNMP management platform, such as HP OpenView or CA UniCenter. Then, the SNMP manager can issue commands to any Netfinity Manager to take an action in response to these alerts through Netfinity Manager's command line interface. Netfinity Manager also ships with MIBs for monitor, inventory and alert data, which is installed on the SNMP management platform, so the SNMP manager can "get" this information whenever it needs it.

Netfinity Service and Support

IBM, with 40 years of service and support for enterprise-class customers, now provides the same type of unparalleled service and support for Netfinity enterprise storage systems. IBM's limited, three-year onsite warranty[1] provides hardware problem-determination onsite, as well as remotely, with IBM's latest technology and tools. Labor and IBM parts are covered for the full duration of the warranty period, including parts identified during Predictive Failure Analysis and the installation of required engineering changes. This warranty offers far more than the typical industry-standard warranty. For example, when you add Options by IBM to a Netfinity server, they assume the warranty term of the server on which they are installed. International warranty service is also available.

And IBM's warranty supports you 24 hours a day, 7 days a week, 365 days a year.[2] Service for Netfinity servers is available through the Web at:
www.pc.ibm.com/us/solutions/netfinity/services.html.

90-day IBM Start Up Support. In addition to our warranty coverage, and included with the purchase of any IBM Netfinity server, 90-day IBM Start Up Support is a comprehensive program designed to speed installation of hardware and system software, as well as assist in resolving other technical challenges associated with the installation of new systems. To maximize the value of your investment and resolve issues during the first critical 90 days from installation, you'll receive installation, setup and configuration support for:

- IBM Netfinity servers

- Network operating systems, including: Microsoft Windows NT, Novell NetWare, SCO OpenServer and UnixWare, NCD WinCenter and WinFrame and IBM OS/2 Warp Server

- Selected network interface cards (NICs), such as IBM, 3Com, Madge Networks and Standard Microsystems Corporation (SMC)

IBM HelpCenter®. Easy-to-use electronic access to IBM experts is available by phone, fax, bulletin board, commercial on-line services and the Internet.[3] IBM is also introducing interactive Web-based forums, monitored around the clock by IBM specialists, complementing its support on all the major Internet service providers. And, customers can purchase extended services at any time during their IBM hardware warranty period.

Remote Connect..."Call Home" Remote Support. Using the latest technology advances delivered by select models of the Netfinity product line, IBM offers a "Call Home" remote support feature. If your server experiences a problem, it will dial IBM and set in motion the right level of support to keep your system up and running. And, you can select options to have IBM contact you or your approved warranty service provider.[4] For more information visit **www.pc.ibm.com/techinfo/6342**.

MoST Connect...A Direct Communication Link to the Experts. Leveraging the latest technology advancements in Netfinity systems and Netfinity Manager, IBM increases its on-site support by enhancing the Mobile Solution Terminal (MoST), carried by our server field-service

---

[1] For terms and conditions or copies of IBM's limited warranty, call 1 800 772-2227 in the U.S. Limited warranty includes International Warranty Service in those countries where this product is sold by IBM or IBM Business Partners (registration required). Telephone support may be subject to additional charges.

[2] Response time varies. May exclude some holidays.

[3] Response time varies. May exclude some holidays.

[4] Remote Connect availability is limited to certain mainstream and high-end Netfinity servers (U.S. only) and supports selected network operating systems. Remote Connect is offered exclusively through IBM Global Services.

representatives. MoST Connect provides a direct communication link between the IBM field service specialist at your location and the experts at the IBM HelpCenter. Continuing to improve on-site support, IBM delivers remote-console capability with both voice and data communications through a Netfinity system's serial port.

MoST Connect allows the HelpCenter support specialist to perform remote problem determination and launch additional resources, including product engineering if required, to solve a server problem. MoST Connect enables the HelpCenter to assemble a pool of skills and be *virtually* on-site to address the most complex problems without delay.[5]

Conclusion

IBM systems management for servers brings to administrators a complete set of tools that they can use to reduce the Total Cost of Ownership through the effective management, maintenance and optimization of LAN-attached Netfinity servers and clients. These tools work together, in concert, for the best-enabled manageability of server systems today. As a result, the factors that contribute to most network business system failures can be anticipated, assessed and dealt with well before they can become a problem. It is estimated that most organizations spend as much as six times more than the purchase price of their systems in the installation and support of those systems. This is the Total Cost of Ownership, which is exactly the cost burden IBM systems management for servers was designed to tackle*.* The powerful tools we offer in the IBM Netfinity systems management solution give you the opportunity to truly *manage* your systems.

The advanced system management processors complement the server hardware instrumentation and network management software to provide system administrators with total remote management of a system independent of the server status. The processor also supports remote dial-in from an ANSI terminal for administrative tasks if you do not have Netfinity Manager.

The processors can automatically restart the system and alert the administrator in case of problems by dialing out to a pager or a Netfinity Manager through the use of an external modem. This enables the forwarding of alerts and errors so that the administrator can take any necessary corrective action.

Add to this industry-leading management function IBM's unsurpassed service and support, and you have a complete solution for your Netfinity systems.

The result is that the IBM Netfinity systems management features allow you to run your business-critical applications with the confidence that they will be available to your end users when they need them. This means that you no longer spend too much time managing your IT assets. Instead, you spend more time managing your business.

---

[5] MoST Connect is not yet available in all countries. MoST Connect is offered exclusively through IBM Global Services.

Additional Information

For more information on IBM Netfinity directions, products and services, refer to the following white papers, available from our Web site at **www.ibm.com/netfinity**.

Management

Implementing IBM Netfinity Server Management
Integrating IBM Netfinity Manager with Microsoft System Management Server
Integrating IBM Netfinity Manager with Intel LANDesk Server Manager
IBM Netfinity Manager 5.2
IBM Netfinity Advanced Systems Management
IBM ServerGuide for Netfinity and PC Server Systems

Other Topics

IBM Netfinity X-architecture
IBM Netfinity Predictive Failure Analysis
IBM Netfinity Cluster Directions
IBM Netfinity Web Server Accelerator
Lotus Domino Clusters Overview
Lotus Domino Clusters Installation Primer
IBM Netfinity ESCON Adapter
IBM Netfinity Hot-Plug Solutions
IBM Netfinity Storage Management Solutions Using Tape Subsystems
IBM Netfinity Technology Trends and Directions
IBM Netfinity Servers and Intel Architecture
IBM Netfinity 8-Way SMP Directions
IBM Netfinity Fibre Channel Directions
IBM Netfinity Server Ultra2 SCSI Directions
IBM Netfinity Server Quality
IBM Netfinity 5500 Server Family
IBM Netfinity 7000 M10 Server
Achieving Remote Access Using Microsoft Virtual Private Networking
At Your Service...Differentiation beyond technology