

WHITE PAPER

Assessing the Business Impact of Network Management on Small and Midsize Enterprises

Sponsored by: Dell Computer

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October 2003

EXECUTIVE SUMMARY

Understanding the business impact of network management is important because business revenue depends increasingly on networks whose availability and performance are critical to survival and business growth. The company network is the backbone of mission-critical applications and the vehicle that customers use to access goods and services. When the network fails, customers and employees cannot communicate; access needed information and applications; or use basic print, file, and email services; so productivity suffers and revenue stops flowing. By minimizing downtime and network performance degradation, network management systems allow businesses to operate more efficiently, cut costs, and prevent revenue loss. They also provide companies with an opportunity to reduce the total cost of ownership (TCO) of the network infrastructure.

Large enterprises have long deployed sophisticated network management systems to maximize network performance and availability. With today's competitive business environment and the increasingly critical role of networks, small and midsize enterprises (SMEs) with up to 3,000 employees also need to implement network management systems. Such systems must provide an early warning system for network outages and tools that improve network performance and help network administrators to do their work more efficiently and effectively. This is certainly no simple task, but there are solutions available for SMEs that are easy to use and provide the needed functional capabilities. In one case, the solution is free. In view of these solutions, and the criticality of the company network, SMEs should consider deploying an easy-to-use network management solution that supports their business objectives and that drives revenue while reducing costs by helping IT administrators to manage the company network in less time and in a more efficient manner.

THE ROLE OF NETWORKS IN TODAY'S BUSINESS

In today's networked economy, the performance and availability of the enterprise network can have a significant impact on a company's financial bottom line. Companies are communicating and collaborating more with suppliers, partners, customers, and employees, and they will not tolerate downtime or delays in accessing important information.

SMEs are similar to large enterprises in that everyday business activities increasingly revolve around, and depend on, network-based systems, whether for Internet or database access, customer support, billing, or other common business practices. Senior SME business executives need to recognize that the availability and performance of their business networks have a direct impact on

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their capacity to generate revenue, save costs, and compete more effectively through improved productivity and instant access to critical information and applications. If the network fails, the business suffers. For example, consider the effects of a network failure on email. Every SME has an email server that depends on a network for connectivity. If a network switch or router fails, email and business stop. Customers are affected, employee productivity slows, and revenue dries up. Such network-related problems happen all too often, and savvy SMEs have put into place network management capabilities and tools that help prevent downtime and network performance degradation.

Network management tools designed for large enterprises may be too costly and difficult for SMEs with limited IT expertise to deploy and operate. Hiring more IT staff is not a practical option, given the scarcity of IT professionals with the skills needed to handle such tools. A better alternative is to use a network management solution that is easy to deploy and operate and that automates many of the management tasks and processes to reduce the time and money spent on network administration and management.

BUSINESS BENEFITS OF NETWORK MANAGEMENT

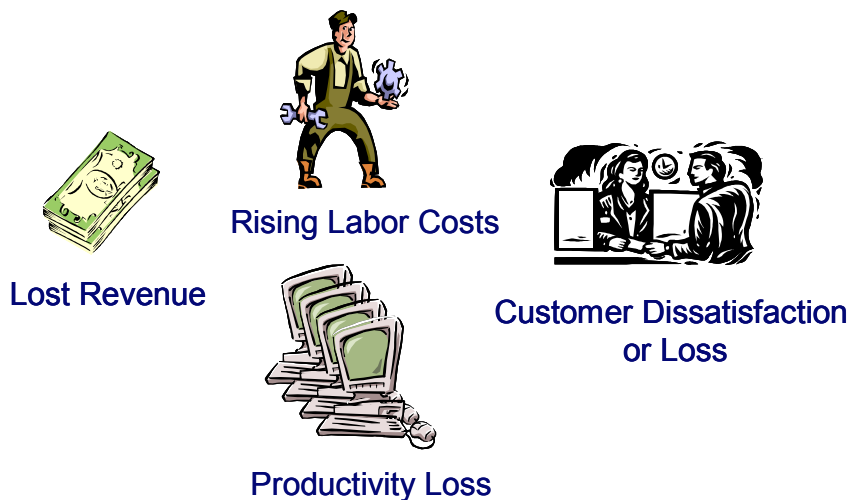
Without network management, SMEs face business risks that extend from lost revenue to customer dissatisfaction and lower productivity (see Figure 1). As labor costs rise, any reduction in productivity can hurt profitability and overall competitiveness.

Reducing or preventing network downtime is the biggest factor in preserving revenue, maintaining customer satisfaction, and maximizing productivity. Customers increasingly want to access goods and services through several sales channels, including the Internet, a company intranet, or a direct network connection. In all these cases, the network is at the core of the activities and must operate efficiently and reliably. Without network management, companies are vulnerable to network performance and availability problems.

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FIGURE 1

BUSINESS RISKS OF BEING WITHOUT NETWORK MANAGEMENT



Source: IDC, 2003

Most employees rely on the corporate LAN to access applications, share information, and communicate with their colleagues and others. Any downtime or poor network performance impairs their work and makes them, and the company, less effective. All but the smallest businesses use LANs for file and printer sharing, collaborative computing, and WAN connectivity. The appeal of high-speed Internet access has also helped to drive the installation of networks. The cost savings of consolidating multiple dial-up accounts into a single shared account are sufficient to justify the expense of a network installation. Network management helps to ensure that the LAN is available for employees to do their work with minimal delays and to avoid network problems that could impair their productivity and effectiveness. By proactively monitoring the network hardware, network management systems can often identify a problem before it affects business. Once identified, the problem can then be fixed quickly to avoid business disruption.

Other benefits of network management include the automation of configuration management and other processes, which saves IT administration time and eases the burden of hiring and training new IT staff. SMEs can save money and time by automating the configuration management process and eliminating the need to configure each individual switch, one at a time, in a scheduled manner. An additional feature that saves time is the backup of configuration files to a centralized database; thus, if a failure occurs on a switch, configuration files can be easily obtained and automatically applied. This capability reduces the network downtime that occurs because of configuration problems. Further, by reducing the amount of time network administrators spend on common, labor-intensive administration tasks, the automated features of network management free up network professionals to work on strategic business initiatives that drive revenue (see Figure 2).

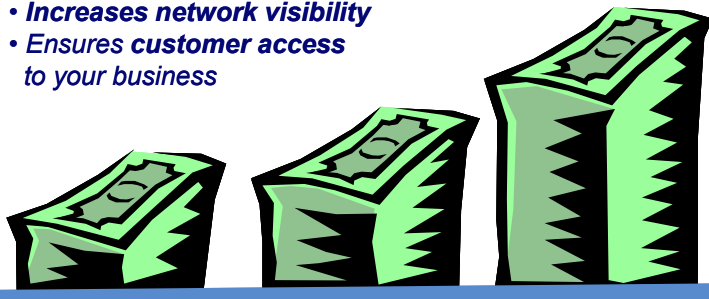
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Finally, SMEs can save money and drive down the cost of network ownership by increasing the utilization of their hardware through network management. Doing so allows companies to delay new hardware purchases and better manage network performance.

FIGURE 2

THE IMPORTANCE OF NETWORK MANAGEMENT FOR SMES

- **Saves money** through better network visibility and control
- **Reduces downtime** by proactively monitoring network hardware
- **Lowers the total cost of ownership (TCO)** of the network
- Allows IT staff to focus on more **strategic** projects
- **Saves time** by automating manual tasks
- **Increases network visibility**
- **Ensures customer access** to your business



Source: IDC, 2003

KEY FEATURES OF NETWORK MANAGEMENT

SMEs have unique network management needs and expectations because technology resources and staff are limited. These needs include products that are easy to use and deploy, show a fast ROI, are cost-effective, and offer features and functions that meet business-driven criteria. Many solutions on the market are expensive and require extensive integration and deployment. These solutions work well for companies with large IT organizations and the necessary resources, but they are not generally appropriate for SMEs.

IDC recommends that SME business and technology executives focus on three key criteria for network management products (see Figure 3). They are:

- ☒ **Low cost.** Look for a network management product that will meet your business and technical requirements at the lowest cost.
- ☒ **Ease of use.** Test-drive the application prior to purchase to confirm that the graphical user interface (GUI), architecture, and support needs do not overtax your users and IT staff.
- ☒ **Features and functions.** Focus on key features such as configuration management, support for the Simple Network Management Protocol (SNMP), event management, reporting, and discovery. Analyze the level of automation and manual time that is necessary to deploy, operate, and maintain the product.

FIGURE 3

SME SELECTION CRITERIA FOR NETWORK MANAGEMENT



Source: IDC, 2003

Providing visibility into network performance and availability is an important requirement for an SME network management tool. However, this function is just the tip of the iceberg. SME executives should consider both the technical

and staffing costs associated with running a network. Network management talent is hard to find and expensive. Hiring the right experts and affording their services require time and resources that many SMEs may not have. These challenges underscore the need for a product with an intuitive GUI that is easy to use and cost-effective. Buying a network management product that is difficult to use and requires extensive training fails to provide the value that SMEs need and can actually increase the cost of network ownership.

Key network management features that SMEs should consider when selecting a network management product include:

- ☒ **Network element discovery** can be used for an accurate visual physical map of network assets.
- ☒ **Remote configuration management** is important for remotely managing a network device to support the organization's changing networking needs.
- ☒ **Event management** enables a filtering of network events via policies that allows an administrator to prioritize problems based on revenue impact.
- ☒ **Performance management** enables network device performance data to be collected and correlated to show performance degradation.
- ☒ **Group and firmware management** enables companies to manage network devices as a group or on an individual level, providing flexibility and improved management for firmware deployments. Deploying a patch to many devices through a single operation reduces the risk of human error.

Feature selection and analysis should center around the business requirements and resource limitations of the IT staff. Many network management products for SMEs do not have all the features listed above. Match your needs with products that best fit those areas and that are easy to use and deploy to lower your network TCO.

DELL'S APPROACH TO NETWORK MANAGEMENT

In late 2001, Dell Computer, known for its direct selling model for PCs and servers, extended its Buy Direct purchasing model to its PowerConnect switches. Now Dell is extending the purchasing model even further by offering network management software to existing managed switch customers free of charge from Dell.com and from Dell media kits for a nominal charge. New customers will receive the management software with the switches at no additional cost.

Called Dell OpenManage Network Manager, the software is designed to meet the cost and feature requirements of SMEs with up to 3,000 employees that need to manage their network infrastructure. Dell's network management solution helps SMEs save time and money by monitoring and managing their Dell PowerConnect systems. Dell OpenManage Network Manager provides an extensive management solution that has particularly robust functionality in a Dell network environment because of the tight software and hardware integration.

Dell's network management solution automates a number of labor-intensive and common network management operations to lower the TCO for PowerConnect switch administrators. It also provides advanced network element discovery, remote configuration management, and system health monitoring to proactively alert network administrators to potential network problems. If any problems persist, customers have access to Dell's support team, through either the company's Web site or an 800 number, for prompt answers.

As SMEs grow revenues, add customers, and create new partnerships, they must adjust and scale up their networks accordingly. Dell OpenManage Network Manager scales to meet the needs of such growing networks through support of SNMP and a flexible architecture. Besides managing PowerConnect switches, Dell OpenManage Network Manager can also be used in heterogeneous networks to monitor devices from a number of other vendors. It is also useful for larger organizations that want a cost-effective network management solution for their branch offices.

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DELL OPENMANAGE VALUE PROPOSITION

The Dell network management solution increases the value of a firm's PowerConnect switches by helping network administrators to monitor and manage the utilization, performance, and availability of their switch environment. SMEs gain more control over their network because they can proactively manage the network infrastructure to prevent downtime and revenue loss. This management capability is enabled by proactive alerts that can be customized by administrators for the level of control required and by an early warning mechanism for potential network failures. Better network control also occurs through a feature for trap collection from hosts. Trap collection can take place on an individual device, or group of devices, saving an administrator time by eliminating the need to telnet to each device to obtain hardware data. The Dell solution avoids the high cost of other network management solutions by providing similar functional tasks in an integrated and automated tool that is easy to use.

The Dell solution also lowers the administrative overhead costs and TCO for Dell switches, freeing up resources that can be devoted to other areas. For example, Dell OpenManage Network Manager allows switches to be grouped together so that configurations or firmware can be organized and managed from a central point and distributed to multiple network devices, reducing the risk of human error that often causes network problems. Automation of this process also saves administration time and money.

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The cost associated with training an IT administrator to come up to speed on a specific network management application can be daunting and expensive. Dell's solution addresses this issue with a discovery wizard, event filters, and configuration distribution and by capturing performance data. Network and IT managers have a plethora of responsibilities that usually includes network, servers, and systems management. As the network grows in size and complexity, the time to configure and manage it usually increases dramatically. Through ease of deployment and its extensive list of features, Dell OpenManage Network Manager minimizes the amount of time it takes to successfully manage a network and prevents outages that cause lost revenue.

Dell OpenManage Network Manager provides a management platform that functions as a client/server application. Up to three distributed management stations can connect to the management server, which allows multiple network administrators to manage the network from disparate locations. Other capabilities include:

- ☒ **Equipment Discovery.** The Equipment Discovery Wizard is designed to provide a fast and efficient way to discover IP-based network elements on the network. Network discovery ranges can be specified in a number of ways, including as a range of IP addresses or as a subnet. These same parameters can be used to exclude a range of IP addresses from the discovery process so that network administrators can avoid discovery of network elements they do not want to add to the database. Once discovery is complete, the discovered network elements can be easily added to the Equipment Manager and Topology Map.
- ☒ **Equipment Management.** The Equipment Manager allows the network administrator to configure PowerConnect switches as well as other management features, such as backup and restore of configuration files, configuration management, and configuration file comparison. Configuration files can be compared to each other so that network administrators can more easily troubleshoot the network problems encountered.
- ☒ **Equipment Group Management.** PowerConnect switches can be grouped together, in either static or dynamic groups, so that configuration changes and firmware deployments can be made to many switches through a single operation. Static groups are groups of preselected switches. Dynamic groups are switch groups that are dynamically developed as new network elements are added to Dell OpenManage Network Manager's database that match the dynamic group's criteria for inclusion.
- ☒ **Event Management.** The Events Monitor allows the network administrator to view traps and events as they are received from network devices. Event History records all events and traps, which can be filtered according to event type, severity level, the system issuing the trap or event, and the status of the event. Events and traps can also be forwarded to another network management station, or delivered to an individual email address, so that others are alerted to potential network problems.
- ☒ **Scheduling.** Network Manager delivers scheduling capabilities for a number of operations, such as backup and configuration changes, so that activities can take place according to a managed and predetermined schedule. Scheduling can be established by date, time, date and time, and number of recurrences and according to a schedule that specifies an event to occur every certain number of days, weekdays, weeks, months, and years. Scheduling can enhance the administrator's control over network availability and bandwidth utilization because operations that may adversely affect network bandwidth can be scheduled to run during nonpeak network utilization times.
- ☒ **Performance Management.** Evaluating network performance is instrumental to engineering a fully optimized network. Profile Manager provides this capability by allowing the network administrator to capture statistics from PowerConnect switches and to graph the statistics for troubleshooting and network optimization.

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- ☒ **Operating System/Firmware Management.** The OS Manager provides centralized management of firmware for PowerConnect switches. Operating systems can be added to the database and categorized by the PowerConnect switch that the firmware supports. Once a specific firmware is loaded into OS Manager, the firmware can be deployed to one or many PowerConnect switches through a single operation.
- ☒ **Topology.** Topological maps allow the administrator to geographically structure the network based upon the physical location of the network devices. With click-through capabilities, the administrator can drill into specific locations to manage network devices in those areas. Whenever a critical condition exists, the location or network element is highlighted in red so it can be easily seen.

CONCLUSION

Over the past few years, the business value of network management has been widely validated as companies large and small have embraced network management to find, isolate, and solve network problems before they disrupt internal operations and cause revenue loss. SMEs, in particular, are finding that network management is a necessary expertise to have as a company grows and develops new partners and sales channels.

Because networks play such a key role in generating revenue and keeping employees productive and customers happy, senior SME business and IT executives and administrators need to understand the importance of network management and the role it plays in maintaining network performance, availability, and customer satisfaction. IDC recommends that SMEs:

- ☒ Analyze network management tool options and implement network management to save money, time, and improve network performance
- ☒ Closely evaluate tool features and functions that enable automated performance management and revenue protection
- ☒ Recognize that network management is a valuable, important capability to develop within an organization because it can prevent downtime and business disruption

Selection of a network management tool should not be taken lightly. Technology is just one selection criterion. Other important factors include customer support and the stability of the company. Dell is one vendor that has the technology, stability, and customer support to help SMEs address their network management challenges.

Dell OpenManage Network Manager monitors and manages Dell PowerConnect systems, automating labor-intensive and common network management operations to lower the TCO for PowerConnect switch administrators. It also provides advanced network element discovery, remote configuration management, and system health monitoring to proactively alert network administrators to potential network problems — and it's free. Besides managing PowerConnect switches, Dell OpenManage Network Manager can also be used in heterogeneous networks to manage devices from a number of vendors. It is also useful for larger organizations that want a cost-effective network management solution for their branch offices.

SME executives must manage their IT investments as an extension of their business strategies. Tactical, consistent network management can add incremental value and become strategic as a company innovates business ideas and generates revenue from its technology infrastructure.

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