

# What Is Systems Management Server?

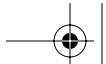
## ▲ Chapter Syllabus

### **MCSE 1.1** SMS Key Components and Features

As organizations move to distributed client/server systems, one of the biggest challenges is managing these types of systems. Thousands of desktop PCs in numerous locations worldwide must be maintained by large businesses; IT resources must be stretched to the limit by medium-sized organizations; and small businesses can't afford outside services, let alone in-house resources.

All of these needs are addressed by Microsoft® Systems Management Server (SMS), version 2.0. It is a comprehensive solution for centrally managing personal computers on a network of any size. It enables network administrators to send key information back to a central database, detect every machine on the network, and inventory software and hardware configurations.

This MCSE study guide is intended to help you prepare for Microsoft's certification Exam 70-086, "Implementing and Supporting Microsoft Systems Management Server 2.0." In doing so, it should also serve as an easy reference for discover-



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ing how SMS functions, how it is implemented or installed, and how it can help you improve the management of your desktop computers. Working from a business perspective so that you may see how it applies to your environment, step-by-step instructions, and user scenarios will give you insight and an introduction to the main components and capabilities of SMS 2.0.

To complete the MCSE exam-specific requirements in this book, if you're already using SMS 2.0, go straight to "What's New in System Management Server 2.0?" found at <http://www.microsoft.com/smsmgmt/guide/>. If you're not already using SMS, look at "System Requirements for 2.0" at the same URL.



URLs, as well as requirements, features, and components, are subject to change without notice.

### Overview of Systems Management Server

A lot of money is being spent today by businesses to upgrade, maintain, and support software on desktop computers. As previously mentioned, large businesses are burdened with trying to maintain thousands of desktop PCs that may be located all over the world. Medium-sized businesses have a variety of systems that are often distributed over several locations. These medium-sized businesses usually have limited Information Technology (IT) expertise. While small businesses are recognizing the value of desktop PCs, they don't have the money or the knowledge to maintain them, and hiring outside consultants is often too expensive.

Data collected by the GartnerGroup indicates that the capital cost of acquiring personal computers for a networked environment is approximately 21% of the total cost of ownership over the five-year life cycle of the computers.<sup>1</sup> The typical cost of ownership for a Windows®-based personal computer over five years is shown in Figure 1.1.

The vast majority of the cost is for support, administration, and operations. According to Microsoft, SMS should allow you to start to reduce dra-

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1. *Total Cost of Ownership; Reducing PC/LAN Costs in the Enterprise*. GartnerGroup corporate headquarters, 56 Top Gallant Road, Stamford, Connecticut, 06904, February 1996.



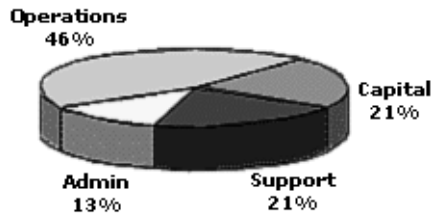


Figure 1.1 *Total Cost of Ownership—Reducing PC LAN Costs in the Enterprise.*

matically the cost of managing your distributed desktop PCs. In short, SMS provides centralized management tools for effective management of your computing resources.

According to Microsoft, whether you are migrating to Windows NT 4.0 or upgrading other system features, you can also save time and cost on remote administration and installation (see Figure 1.2).<sup>2</sup> For example, you can simply click an icon at your central console to find out the software

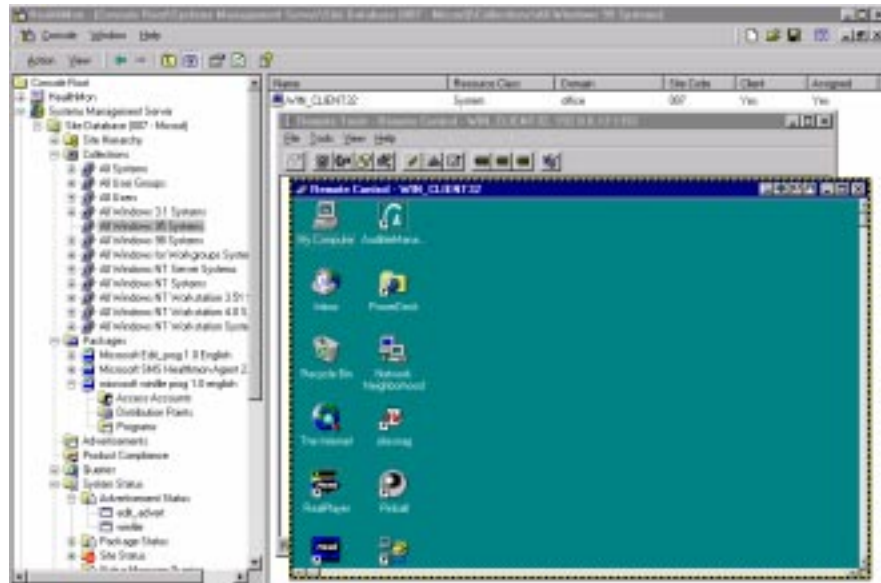
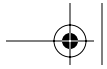


Figure 1.2 *Microsoft Management Console.*

2. Copyright © 1998 Microsoft and/or its suppliers. One Microsoft Way, Redmond, Washington 98052-6399 U.S.A. All rights reserved.



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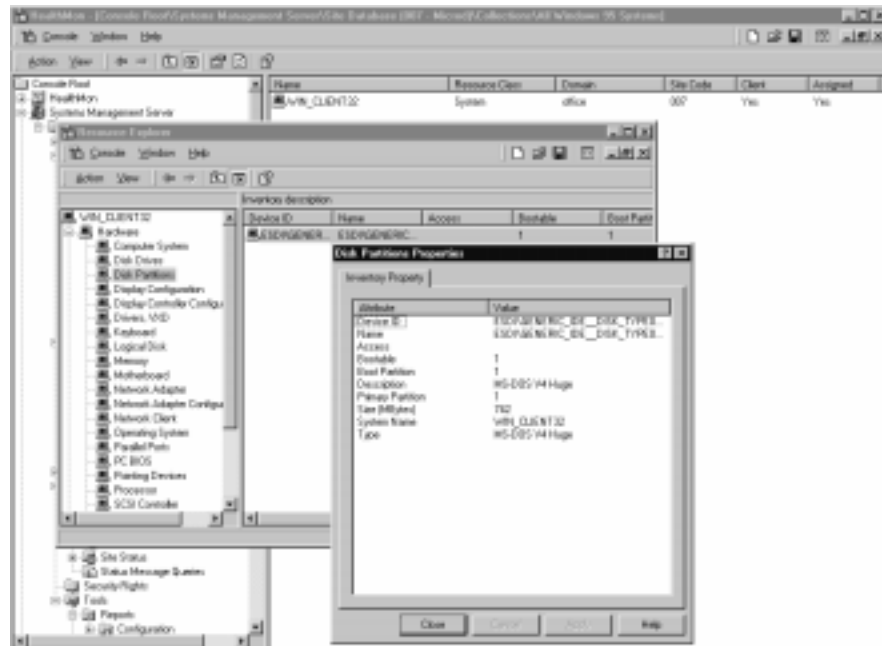


Figure 1.3 Remote Tools / Remote Control Utility.

inventory and configuration of a particular machine. You can perform remote troubleshooting by taking over a user's workstation screen, mouse, and keyboard to get configuration information, execute applications, or help the user through the proper use of new software (see Figure 1.3).

Network Monitor can detect bottlenecks and reroute traffic as shown in Figure 1.4. As a result, you can increase network efficiency and reliability.

### *Is SMS Unique?*

A number of servers on the market today perform some of the services that IT professionals require to manage their desktop PCs. These work only in specific environments, however, and tend to have limited functionality. SMS provides:

- Integrated and centralized management
- A scalable solution
- Support for heterogeneous environments
- An open architecture
- Ease of use



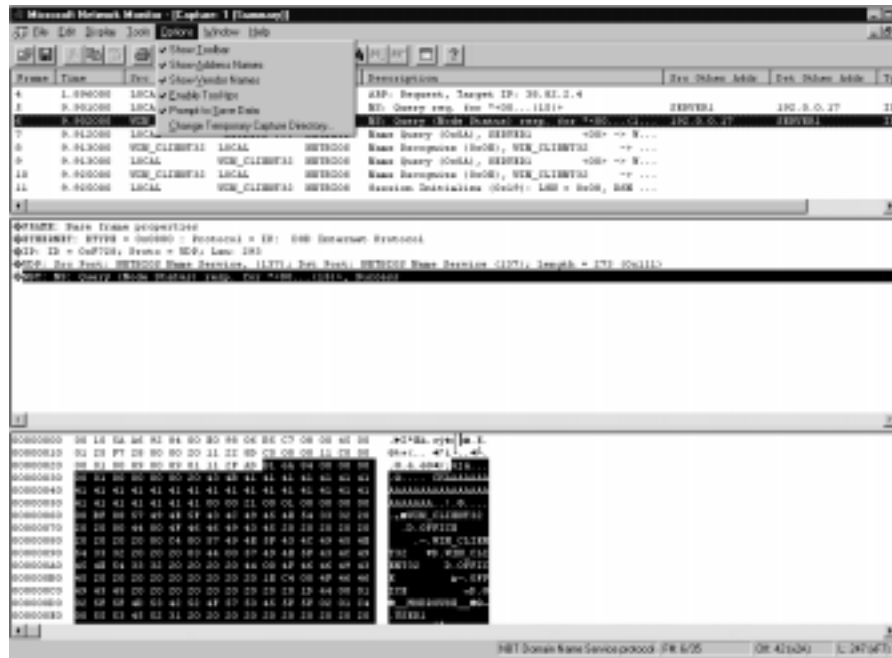


Figure 1.4 Network Monitor.

## CENTRALIZED AND INTEGRATED MANAGEMENT

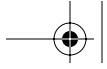
SMS utilizes a resource discovery process to find devices within its site boundary, including every PC on the network. SMS performs software and hardware inventory, software distribution, remote controlled diagnostics, and troubleshooting. All of this is accomplished from one central location (Primary Site) and with one package.

## SCALABLE SERVER

Utilizing SMS's distributed design to balance many management functions, it's no surprise that it works with ease on small or large networks. Also, the ability for you can change the structure of your network without having to reinstall your management solution is what makes SMS so flexible.

## HETEROGENEOUS ENVIRONMENTS SUPPORT

Since SMS supports leading client and server operating systems, it can work in most existing environments. Also, you can now manage your operating



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systems from any location on the network, because SMS supports these systems across most popular wide area network (WAN) and local area network (LAN) protocols.

### OPEN ARCHITECTURE

So that you can easily extend the inventory information stored in the SQL Server database, SMS uses Management Information Format (MIF) files. This allows easy access by any Open Database Connectivity (ODBC) program that can communicate with the database. In addition, to extend the provided information, you can write to the Application Program Interface (API) of SMS. Windows NT/2000 event log records (system, security, application) can be converted to industry standard Simple Network Management Protocol (SNMP) traps, SMS can even integrate with any SNMP network management product.

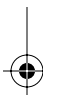
### EASE OF USE

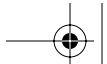
By installing management servers at one central location (site) and periodically checking on the status of the network, SMS makes life easier for an administrator. SMS *system status node can monitor* and warn the administrator if a process is not running correctly. In addition, SMS can automatically identify different types of resources, including every PC on the network, collect inventory, and install the client (client installation) management agents. All of this is done from one central location (site) or various locations (sites).

### Resolving Problems with SMS

Systems management on mainframe computers has been available for quite some time now. It consists of managing operating systems (like OS/2, DOS, Windows, or UNIX®), managing the data, and managing applications. It also performs other tasks, such as scheduling system events, making sure there is enough capacity, and charging different departments for computer time. Systems management typically means local management in this environment. In other words, everything is inside one computer room or, in the case of a large company, two or three computer rooms around the world. Thus, fully automated or *lights out* management has been achieved with this approach.

Nevertheless, systems management has lagged behind as businesses have deployed more and more personal computers. Managing distributed





environments that are spread throughout many locations has created new problems, even though some basic issues have remained the same. For instance, an administrator is concerned with version control of many different systems, including user administration and automation of repetitive tasks for a large number of systems. Furthermore, the management of configuration files may be different on every computer. Also well known is the problem of simply locating all the PCs within an enterprise. Even more difficult is determining the hardware and software within each computer. Usually this is done during nonworking hours to not disrupt the user. In a large distributed enterprise, these procedures can take months to accomplish. In addition, installing and upgrading software on all desktops has its own associated problems. For example, such problems involve making sure that the versions are correct and that the computers are capable of running the new software.

As you know, things can go wrong with even the most comprehensive plan. To ensure that a computer is not unavailable for any length of time, you need tools to locate and diagnose problems. Equally important is the diagnosis and resolution of problems from a central location, thereby reducing the cost of managing your systems. In other words, in your existing environment, all these problems need to be resolved today and in the future as your business requirements change.

Let's take a look at what types of businesses can benefit from the problem-solving solutions of SMS.

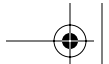
### ***Turning Problems into Benefits***

SMS can help any company that has the need to manage networked desktop PCs, especially those running Windows. From the very small to the very large, SMS has been designed to integrate easily with a wide range of businesses. The following are some typical environments for which SMS can provide a complete solution to most system administration problems.

#### **SMALL BUSINESSES**

Often, small businesses have no skilled IT professionals on staff. Usually a staff member who is computer literate helps out the other staff members. The company calls its local service provider to come onsite when upgrades are needed or troubleshooting is required. This is an ideal environment for SMS. Normally a single site system can be installed and managed by the service provider, providing dial-up remote access to diagnose and resolve various computer problems and to perform routine maintenance.





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### **MEDIUM BUSINESSES**

Medium-sized businesses often consist of a central office with a number of remote offices. The IT staff is usually responsible for supporting all locations and is based at the central office. The deployment of a central SMS site is an ideal management solution in this type of environment. The site would manage both the central office and all the remote offices. It would be linked by existing telecommunication lines or by simple asynchronous dial-up link—the universally familiar analog public telephone system in which dial-up connections are established to provide voice communication links. This network is still of major significance as a platform for data transmissions via modem or facsimile. Therefore, without sending someone to each office to troubleshoot and perform maintenance tasks, the communications link allows the central office to manage all remote sites.

In some cases various primary sites can be linked to the central site if remote location WAN link is a slow connection with many clients on the remote side.

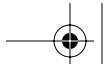
### **DOMAIN CONTROLLERS**

Primary domain controllers (PDC) are (first-tier site servers) that are used by a specific set of sites for logon authentication. The name and size of these master user domains are many times determined by geographic limitations, network topology, and the number of accounts to be supported by the medium-sized business. For example, the PDC for the master user domains for Europe, North America, and South America could be located in Europe. Others could be located near the constituent user population where local data centers provide administrator resources. A backup domain controller (BDC) for the master user domain is located at each respective remote site for authentication of accounts at that site. For instance, the European master user domain PDCs could be physically located in England, with a BDC for the appropriate European master user domain located in each respective European site. In addition, a BDC for the global master user domain could also be physically located at each network hub site worldwide.

### **LARGE BUSINESSES**

Large businesses usually have many offices spread throughout a wide geographical area. Each office would have its own IT staff to perform support and maintenance for local users. Deploying SMS primary sites in each office enables IT resources to provide their own centralized functions. All offices





report to the central IT group in the main office. This means that there is one centrally located record of all the computers within the enterprise.

Now that we've looked at some of the problems that can be resolved with SMS, let's examine its key components or major features.

### Study Break

#### Microsoft and Management

Through the Zero Administration Initiative for Windows, Microsoft is committed to making the Windows operating system the best-managed platform and the best environment from which to manage the enterprise. Microsoft has specified four objectives in order to achieve this goal:

1. Build and develop infrastructure for Windows that allows programmatic control of critical components and makes management information available. Infrastructure components include the Web Based Enterprise Management instrumentation and Microsoft Management Console.
2. Provide configuration management and basic data security in the operating system. Today, the basic services that come as part of the Microsoft Windows NT Server 4.0 operating system include security management; user and policy administration; backup and restore; and review of basic performance and operational data. Microsoft IntelliMirror™ configuration management is in Windows NT Server 2000.
3. Make available sophisticated management solutions such as SMS for managing applications and Windows-based systems. Also, many third parties provide management applications for Windows-based systems that complement SMS.
4. By exposing interfaces and services that these applications can use, integrate both management and infrastructure management solutions with enterprise management platforms.

## **MCSE 1.1 SMS Key Components and Features**

SMS 2.0 has a number of new features or components. These provide comprehensive benefits to computer professionals dealing with the cost and complexity of building, maintaining, and managing distributed networks of PCs.

### *Components and Benefits at a Glance*

SMS allows you to perform a variety of management tasks ranging from monitoring the integrity of the network to identifying how many computers you have on your network. The main components of SMS are as follows:





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- Software and hardware inventory collection
- Distribution of software
- Troubleshooting remotely
- Working with mixed network environments of various sizes

### SOFTWARE AND HARDWARE INVENTORY COLLECTION

SMS allows the administrator to process an inventory collection (resource discovery) to automatically build a master database of computer hardware and software. Once this data is collected, it can be used to perform a number of administrative tasks, such as identifying systems that need bios upgrades or hard drives that are almost full to capacity. Administrators can determine how many computers they have in the organization or figure out how many copies of a software application are installed.

To provide you with specific data requirements SMS has predefined queries or you can build custom queries to your needs using Query Builder Tool. For example, a query can display a list of all PCs with 64 MB of memory and Windows NT 4.0 SP4 installed. These are very powerful tools to collect and analyze resources.

### DISTRIBUTION OF SOFTWARE

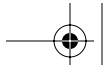
A major cost to organizations with distributed networks is software maintenance. Often a support engineer must configure, install, and upgrade each computer manually. Using SMS from a single and central location, you can configure, install, and upgrade each computer remotely. Also, at specified times, you can schedule and distribute individual software files or complete software applications to specific computers. SMS even allows you to initiate automated, unattended distribution of software to selected computers. This can be performed during off-hours when the majority of users have gone home.

### TROUBLESHOOTING REMOTELY

SMS allows you to remotely control the screen, keyboard, and mouse of a client's desktop. You can also remotely restart a client, run commands at a client (i.e., run the client installation), or even transfer files directly to a client.

The client's parameters can be monitored by the SMS diagnostic capabilities. For example, you can monitor memory use and client environment variables. The Network Monitor tool also allows you to perform general network analysis, perform checks on the integrity of communications links, monitor traffic statistics on remote or local area network (LAN) segments,





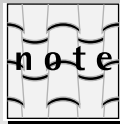
and capture packets. Network Monitor can now automatically interpret what it finds, making it a valuable tool for administrators, whether or not they have an extensive knowledge of packet decoding. Real-time monitors and postcapture experts have been added to Network Monitor to make it more intelligent in analyzing data. These include monitoring for rogue DHCP servers, duplicate IP addresses, and attempted Internet break-ins.

Your organization can minimize the number of onsite support visits by the use of these remote troubleshooting capabilities. This makes it possible for the same number of technicians to support a growing number of resources.

### *Working with Mixes of Networks and Various Sizes*

By strategically placing Windows NT 4.0-based computers throughout an organization, SMS can be implemented across different sizes of networks. Therefore, it is not necessary to make any actual modification to your organization's physical network.

The leading client and server operating systems are supported by SMS. Support is provided across popular WAN and LAN protocols and through configuring these protocols on clients. This allows you to manage your SMS system from any location on your network.



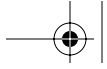
In every network environment, not every SMS feature is available on all supported clients. For more information on the latest client systems requirements and client features, refer to <http://www.microsoft.com/smsmgmt/guide/>. Remember, system requirements are always subject to change without notice (see Part 2, "Site Planning," for extensive system requirement considerations).

### *What's New, at a Glance*

The following new features, components, or enhancements are incorporated in the latest release of SMS 2.0:

- Remote control for Windows clients
- CIM-based hardware inventory
- Software metering
- More-specific distribution targeting
- Server health monitoring
- New network topology tracing tool
- New Network Monitor experts





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- Support for Novell NetWare Directory Service environments
- Event to Trap Translator
- New network analysis tools
- Crystal Reports 6
- Sender bandwidth controls
- Forced update of package distribution servers
- Added extensibility
- Performance

### REMOTE CONTROL FOR WINDOWS CLIENTS

You can now remotely control computers running the Windows Operating system. The same user interface and integration is available for Windows NT 4.0-based computers as it is for other supported clients. Also, all of the Diagnostics and Help Desk options are provided.

The ability to specify a list of administrators who can remotely control a client is an additional feature, although the user at the client ultimately determines whether or not one of the specified administrators can perform remote control. The user also determines the extent of the Help Desk options available.

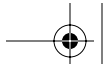
### CIM-BASED HARDWARE INVENTORY

Microsoft is supporting the Common Information Model (CIM) information from multiple sources, such as SNMP, DMI, and the Microsoft Win32 application programming interface. Microsoft has built Windows Management Instrumentation, which is CIM-compliant, into the Microsoft Windows NT version 4.0 operating system and Windows 2000 operating system environments. Microsoft Systems Management Server 2.0 has been designed to collect data in a CIM format. This means that it has access to data from many sources, including Win32, SNMP, and DMI, and administrators have greater collection of inventory information available. Given the large number of inventory objects, filtering options have been added so that an administrator can choose which data is most important.

### SOFTWARE METERING

SMS 2.0 provides new tools to analyze, monitor, and control the use of applications on servers and workstations. The administrator has many levels of control, ranging from simple alerts to actively preventing applications from running. This control can be exercised over specific applications with quota limits defined by the administrator, or any application that is not specifically





allowed by the administrator. Any application on any client or server can be monitored for compliance. The administrator can predefine a quota for a particular application. As users launch applications, the system checks to see if the quota has been exceeded.

### **EVENT TO TRAP TRANSLATOR**

Support for the Simple Network Management Protocol (SNMP) is now provided by SMS. Windows NT 4.0 events to SNMP traps can now be mapped. To alert administrators of other management systems of the event, these traps can now be forwarded to them, but not necessarily SMS. Also, the Event to Trap Translator can be installed on all SMS clients running Windows NT 3.51/NT4/2000.

### **MORE SPECIFIC DISTRIBUTION TARGET**

Systems Management Server 2.0 provides specific options for targeting software distribution. In addition to targeting machines (as in version 1.2), Systems Management Server 2.0 can now distribute to any combination of the following: Users, User groups, TCP/IP network segments, Machines.

This allows applications to be sent in a more directed manner. For instance, a particular Windows NT based user group could be sent a software patch that was only relevant to that group, or all machines in a network segment could be sent a printer driver pertaining to the printer in that segment.

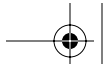
### **SERVER HEALTH MONITORING**

A server monitoring tool known as HealthMon is a completely new feature in Systems Management Server 2.0. It is designed to provide critical performance information on processes in Windows NT Server and Microsoft Back-Office Server. HealthMon uses information provided by CIM, allowing administrators to set critical or warning thresholds.

### **NEW NETWORK TOPOLOGY TRACING TOOL**

Systems Management Server 2.0 delivers a new network topology tracing tool that makes systems management tasks network aware. This new feature provides a graphical display of the network routes between servers within a site, including the activity of the infrastructure devices (such as routers and hubs) connecting those points. It also displays the status of services on servers between those points. This allows for easy analysis of the potential success or failure of an action such as software distribution to a remote location.





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### **EXTENDED SOFTWARE AUDITING**

The customizable audit database that allows you to identify installed software applications has been extended. This database now comes preconfigured to identify more than 8,000 software applications. You simply run a query, and the software applications referenced in the file are detected automatically for you.

### **SUPPORT FOR NOVELL NETWARE DIRECTORY SERVICE ENVIRONMENTS**

Systems Management Server 2.0 adds support for Novell 4.x NetWare Directory Service environments to existing support for Novell 3.x bindery and Windows NT-based server environments.

### **NEW NETWORK ANALYSIS TOOLS**

The Network Monitor tool has been enhanced to provide support for the network driver interface specification (NDIS) 4.0 or later and for a number of new protocol parsers. Network Monitor also includes additional functionality such as the ability to obtain statistical information about who is consuming the most bandwidth on your network (using experts). It also includes the ability to determine what protocols on your network are consuming the most bandwidth and how your network is being used.

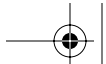
### **IMPROVED DATABASE MAINTENANCE**

The Database Manager utility includes additional functionality such as the ability to display a list of duplicate computers that can be deleted from the database. It also includes the ability to view the list of duplicate computers and then delete information for a computer or merge the information of two computers together. The ability to delete by date historical collected files is also included.

### **CRYSTAL REPORTS 6.0**

SMS includes a single-user, runtime version of Crystal Reports 6.0. With this application, you can retrieve and correlate information in the database and present this information in report format. Crystal Reports 6.0 allows you to save data in a number of formats including Microsoft Excel, Rich Text Format, and HyperText Markup Language (HTML). Crystal Reports is a product of Crystal Computer Services, Inc. Microsoft does not provide support services for Crystal Reports. You'll need to contact Crystal Reports Technical





Support for help or choose About Crystal Reports from the Help menu in the Crystal Reports application.

### **SENDER BANDWIDTH CONTROL**

You can control sender and address-based bandwidth use by using the Sender Manager. You can also specify the estimated link speed and the percentage of the link to be used for a selected site server.

### **FORCED UPDATE OF PACKAGE DISTRIBUTION SERVERS**

SMS supports guaranteed updates to packages on distribution servers. Previously, the delivery of the package could potentially fail if any file contained in an SMS package was being used during the delivery of an update to that package. You can now configure the Windows NT 4.0 Server Registry to force disconnection of files in use during package delivery. To do this, you can specify the number of retries before a forced disconnection takes effect and the amount of time to elapse after notification of a disconnection.

### **ADDED EXTENSIBILITY USING MICROSOFT MANAGEMENT CONSOLE**

Now, through the SMS Administrator, you have direct access to third-party applications. Through the SMS Microsoft Management Console, you can also access SMS tools such as the Security Manager and Service Manager, as well as some of the Windows NT 4.0 administrative tools. See the Microsoft BackOffice Software Development Kit for information about extending the SMS Administrator.

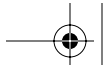
### **PERFORMANCE ENHANCEMENTS**

To help you and the client users of SMS, the overall speed and performance of SMS version 2.0 has been improved. In particular, this enhancement provides quicker processing of event and job-related information and faster processing of database information.

## **■ Summary**

Microsoft has recently made available Systems Management Server 2.0 Service Pack 1. SMS 2.0 reduces total cost of ownership by centrally managing Windows operating system-based networks. It delivers the most comprehen-





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sive solution for Windows management through software distribution, hardware and software inventory, remote diagnostics, and software metering.

This release delivers key Zero Administration Initiative for Windows features by exploiting new management infrastructure components, providing better ease-of-use facilities, ensuring greater scalability, extending the existing features of SMS 1.2, and adding new functionality for SMS 2.0.

You should come away from this chapter with an in-depth knowledge of the following MCSE exam-specific highlights of what SMS provides:

- Integrated and centralized management
- A scalable solution
- Support for heterogeneous environments
- An open architecture
- Ease of use

You should also now have a general knowledge of how to solve business problems—which is what systems management is all about—with SMS for organizations of any size. SMS provides you with the following advantages:

- A comprehensive solution to manage your networked PCs
- Integration with your existing systems
- An open scalable foundation which can be easily extended

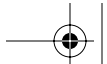
SMS also allows you to perform a variety of management tasks ranging from monitoring the integrity of the network itself to identifying how many computers you have on your network. The main components of SMS are as follows:

- Collection of software and hardware inventory
- Distribution of software
- Troubleshooting remotely
- Integration with different networks of various sizes

You'll need to have specific and detailed knowledge of what you need to work with SMS. The system requirements are not limited to the fact that SMS 2.0 has been designed to collect data in a CIM format. Not only does this help with Windows98 and Windows NT 2000 environments, but SMS is also able to use this architecture to get information out of all 32-bit Windows operating systems. This means that SMS 2.0 has access to data from many sources, including the Microsoft Win32<sup>®</sup> application programming interface, SNMP, and DMI.

Finally, you need to understand that the system's distributed, balanced design allows changing the structure of the network as you grow without having to reinstall your system management solution. With that in mind, you'll be set for today and for the future.



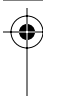
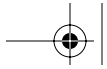


## ▲ CHAPTER REVIEW QUESTIONS

### ▲ True/False

- 1. True or False? To provide you with company-specific data, you can extend the inventory database information by creating customized queries. For instance, you can run queries that request type of operating system and bios date. When the inventory is run, this customized information is collected and added to the standard inventory data.*
- 2. True or False? By installing management servers from one central location and periodically checking on the status of the network, SMS makes life easier for an administrator. SMS writes an event to warn the administrator if a process is running correctly.*
- 3. True or False? The leading client and server operating systems are supported by SMS. Support is provided across popular WAN and LAN protocols and through configuring those protocols on clients. This allows you to configure or manage your SMS system from any location on your network.*
- 4. True or False? Support for the Simple Network Management Protocol (SNMP) is now provided by SMS. Windows NT events to SNMP traps can now be mapped. To alert administrators of other management systems of the event, these traps can now be forwarded to them as well as SMS. Also, the Event to Trap Translator can be installed on all SMS clients running the Windows NT operating system, version 3.51 or later.*
- 5. True or False? SMS does not allow you to automatically build a master database of computer software and hardware details.*
- 6. True or False? A major cost to organizations with distributed networks is software maintenance. Often a support engineer must configure, install, and upgrade each computer manually. Using SMS from a single and central location, you can install, monitor, upgrade, and configure each computer. Also, at specified times, you can distribute individual software files or complete software applications to specific computers, schedule the distribution, and monitor the progress. SMS even allows you to initiate automated, unattended distribution of software to selected computers. This can be performed when the majority of users have gone home during off-hours.*
- 7. True or False? SMS installation has been combined with Microsoft SQL Server™ installation to obtain the highest optimization possible to dramatically ease the setup required for SMS. Without removing any of the flexibility*





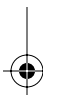
## 20 Chapter 1 • What Is Systems Management Server?

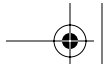
*of choosing where to install SQL Server, the setup options intelligently install and configure SQL Server in preparation for SMS. Further, SMS can now be hosted on any Microsoft Windows NT® operating system-based Member Server, removing the previous PDC/BDC requirement.*

- 8. True or False?** Types of site servers are domain servers.

### ▲ Multiple Choice

- 1. SMS 2.0 delivers a status system that provides a common reporting mechanism for all components. This results in the following except:**
  - A. Messages representing activity flow in the system, such as packages and advertisements
  - B. Windows NT 4.0 Event conversion into CIM events
  - C. Automated consolidation of status messages
  - D. Powerful filtering for storage and forwarding
  - E. Windows NT 4.0 Event conversion into SMS events
- 2. SMS adds a status system node that provides a common reporting mechanism for all components. This results in the following except:**
  - A. Messages representing activity flow in the system, such as packages and advertisements
  - B. Automated consolidation of status messages
  - C. Complex filtering for storage and forwarding
  - D. Windows 98 conversion to SMS events
  - E. Windows NT 4.0 Event conversion to SMS events
- 3. Persistent Status Summaries are provided in conjunction with Crystal Reports. Summaries are available for the following except:**
  - A. Site
  - B. Component
  - C. Package
  - D. Advertisement
  - E. Data
- 4. Which of the following is a Server Role minimum requirement:**
  - A. Windows 2000
  - B. Windows NT version 4.0, Service Pack 4
  - C. SQL Server 6.5





- D. Windows NT 4.0 Primary/Backup Domain Controller
- E. Windows 95 and 98
- 5. *The following are clients that are supported by SMS 2.0 except:*
  - A. Windows NT Server 4.0
  - B. Windows 95 and Windows 98
  - C. Windows 3.1
  - D. Windows for Workgroups 3.11
  - E. Windows NT Workstation 3.51 and 4.0
- 6. *The following are network operating systems that are supported by SMS 2.0 except:*
  - A. Windows NT Server 4.0
  - B. LAN Manager
  - C. Crystal Reports Server
  - D. Novell 4.x NetWare Directory Services
  - E. Novell NetWare 3.x Bindery

▲ Open Ended

1. What are the five primary functions of SMS?



