



Meeting Your Network and Desktop Management Needs with Systemnet's Managed Network Implementation using Microsoft Technologies

To maximise the productivity of small to medium sized organisations, Systemnet strives to anticipate and meet end user needs and corporate management goals in a way that also minimises costs. Systemnet rely on readily available technologies contained within and built around Microsoft's Windows Server 2003. Windows Server 2003 includes a set of change and configuration management features that enable us to help you meet your organisation's desktop management needs. Systemnet will also introduce Microsoft's Windows Server Update Services to allow for timely and efficient deployment of critical updates and patches to workstations. This document aims to provide you with an outline as to how Systemnet and these technologies could make a difference to your organisation productivity levels and lower total cost of ownership.

Overview of Change and Configuration Management

Windows Server 2003 offers change and configuration management features that respond to users' needs for reliable operating environments, and enable a more highly managed infrastructure. With today's enterprise computing, workers often collaborate on complex projects. The traditional corporate model of desktops or terminals as productivity stations is being replaced by the *distributed office*.

Within the distributed office, users need a consistent, reliable computing experience, including a well-configured operating system, up-to-date applications, and data that is consistently available — no matter where they are working. The challenge for an organisation's IT department or an organisation's IT partner such as Systemnet, is to meet the needs of a variety of users on a corporate network, and to meet those needs cost-effectively.

Many organisations today are moving toward a highly managed computing environment in order to reduce their total cost of ownership (TCO). The change and configuration management features Systemnet harnesses in Windows Server 2003 help do that in a variety of ways. The implementation of these features will help an organisation accomplish the following:

Lower TCO by:

- Reducing downtime and costs associated with disaster recovery
- Reducing labour costs associated with client installation and configuration
- Reducing data loss due to hardware failure

Increase productivity by:

- Providing data availability even when network resources are unavailable
- Allowing needed applications to be remotely installed and upgraded
- Having users' applications, data, and settings available to them regardless of where they work

The change and configuration management features in Windows Server 2003 include IntelliMirror and Remote Installation Services.

IntelliMirror

The IntelliMirror management features in Windows Server 2003 include a set of powerful technologies built into the Windows Server 2003 operating system. IntelliMirror uses features in both Microsoft Windows Server 2003 Server and Microsoft Windows XP Professional to allow users' data, software, and settings to follow them. Users have constant access to all of their information and software, whether or not they are connected to the network, with the assurance that their data is safely maintained and available.

IntelliMirror is made up of these three features:

User Data Management This feature is used to manage files, documents, spreadsheets, workbooks, and other information that people create and use to perform their jobs. We can make users' data follow them by redirecting specific user data folders, such as the My Documents folder, to a network location, and then make this location available to the users for offline use.

User Settings Management This feature is used to centrally define the computing environment for various groups of users and computers. We can also easily restore user settings in case of computer failure. User settings include both personal preferences and centrally defined customisations of the operating system desktop environment and applications. Settings can include language settings, desktop layout, and other user preferences. Users' customised settings can be made available wherever they log on.

Software Installation and Maintenance This feature is used to install, configure, repair, or remove applications, service packs, and software upgrades. We can *assign* or *publish* applications. If we assign an application to a workstation it is deployed to the workstation when it starts up. When we publish an application, the user can install it on their computer through **Add/Remove Programs** in Control Panel). In

either case, applications follow users or computers, making the same applications available at any computer that a user logs on to.

The Active Directory service and Group Policy provide the foundation for implementing IntelliMirror in Windows Server 2003. IntelliMirror provides enterprise-wide desktop change and configuration management through policy-based management. We use Group Policy to meet business requirements and implement company standards centrally for groups of users and computers.

Remote Installation Services

With Remote Installation Services, we can simplify and reduce the cost of installing Windows XP Professional on new or replacement client computers. In addition, we can quickly and remotely restore a system that has failed with both a preconfigured Windows XP Professional operating system and basic applications.

Using this feature, computers without any resident operating system can connect to a networked server during initial startup, and the server performs a local installation of the operating system. It uses Remote Installation Services (RIS) during initial startup before the resident operating system, if any, loads. RIS is useful for clients without an initial operating system and supports failed computers that need to have the operating system restored. With RIS, computer hardware connected through a LAN finds a networked RIS server and requests installation of a new copy of the operating system appropriately configured for the user and computer.

Determining Your Desktop Management Needs

The first step toward identifying how Systemnet could assist you to meet the desktop management needs of your organisation is to perform an assessment. Examine how you currently perform your desktop management tasks to identify the areas where IntelliMirror and Remote Installation Services can provide the most benefit for your organisation.

For example, how are common desktop management situations that occur at any organisation handled, such as:

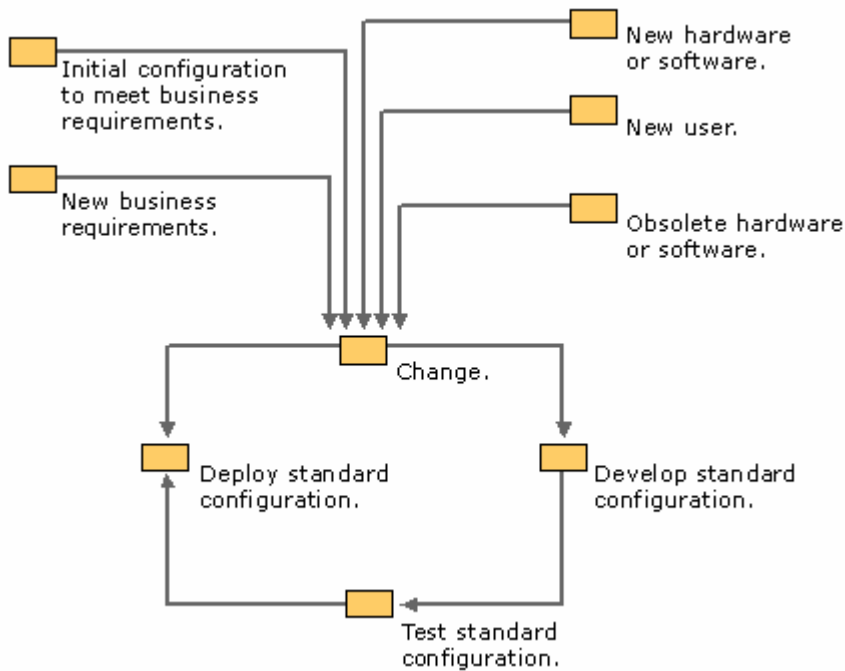
- New applications that need to be made available to employees as quickly as possible.
- Employees who move from one location to another and have to retain access to their key applications and data even on a different computer.
- Employees who travel frequently and have intermittent network access, sometimes over slow links.
- New hires who cannot be productive until they have a newly configured computer that includes all of the applications they need.
- Users who receive new computers and need to have an operating system installed, along with their applications and data.

To help you start assessing your desktop management needs, look at Figure 1.1, which presents the lifecycle of desktop configuration as follows:

- IT (internal or IT partner such as Systemnet) develops an initial desktop configuration that meets present business needs
- New business requirements necessitate changes to the initial configuration
- New hardware or software is introduced
- Other hardware or software becomes obsolete
- New users require services

Each time change is required, IT has to update, test, and deploy the new standard configuration.

Figure 1.1 A Desktop Change and Configuration Management Process



Use this process as a starting point to define the tasks your organisation performs for desktop management. You need to determine:

1. How your organisation currently manages the tasks associated with change
2. How your organisation currently manages desktops

Once you have concretely identified both of these, you can create a flowchart or table to identify the most common and frequently occurring desktop management tasks your company performs. Then, as you read the rest of this guide, you can identify where and how Systemnet using IntelliMirror and Remote Installation Services can help you with these tasks.

Identifying IntelliMirror and Remote Installation Services Features That Meet Your Desktop Management Needs

The following sections provide an overview of how Systemnet’s implementation of these technologies can improve your desktop management processes, including:

- Improving user data management
- Improving user settings management
- Simplifying software management
- Streamlining the computer setup process

Improving User Data Management

Data availability is a leading concern for most organisations. What happens to user data when a hard disk fails? Who ensures that users back up their files on a timely basis? Too often, user data backups are not performed, and important files are lost if the user’s hard disk fails.

Other data availability concerns include whether or not users have access to their data if they move to a different computer on the network, or are only intermittently connected to the network. With IntelliMirror User Data Management features, Systemnet can ensure that users can access their data from any

computer wherever they log on, whether online or offline. We can back up user data centrally, and provide fast computer replacement in disaster recovery situations.

Using Data Management

When Systemnet implement IntelliMirror User Data Management, users can access their data from any Windows XP Professional-based computer on the corporate network. In addition, if a user takes network-based resources offline, any changes made while offline are synchronised when the user reconnects to the network.

With User Data Management, we can ensure that users' data is always available to them in the following ways:

- Systemnet can provide improved protection of user data by ensuring that local data is also redirected or copied to a network share, providing a central location for administrator-managed backups. This capability helps to enforce corporate directives such as to place all important data on servers.
- Systemnet can ensure that the most up-to-date versions of a user's data resides on both the local computer and on the server. Local caching maintains data on the local computer even when it is disconnected from the network so that data is readily available to the user, even when working offline. Systemnet employs this method specifically with laptop users.
- Data can follow a person when the person roams to another computer on the network. This provides increased accessibility because people can use any computer on the network to access their data.

To implement the various capabilities of User Data Management, Systemnet use the following Windows Server 2003 technologies:

- Active Directory
- Group Policy
- Roaming User Profiles
- Folder Redirection
- Offline Folders
- Synchronization Manager
- Disk Quotas

The user's data follows the user because the data is stored in specified network locations. Systemnet can manually configure which files and folders are available, but mostly we configure them through Group Policy.

With laptops, the network files that a user works with when online are automatically cached on that user's computer, and available when the user is offline. The master version of the file is stored on a server. The best method to make users' data follow them is to redirect specific user data folders, such as the My Documents folder, to a network location through Group Policy. We then make this location available to the users for offline use. When a user saves a file to the My Documents folder, the file is actually saved on the network location, and the local computer is synchronised with the network copy. Synchronisation, which can be transparent to the user, ensures that users have access to the same files whether they are working online or offline.

Identifying User Data Management Needs

In order to identify the potential benefits of the User Data Management features in Windows Server 2003 for your organisation, Systemnet will review your organisation's needs in these areas:

- Your organisation's existing backup procedures for user data.
- The consistency with which your organisation's backup procedures for user data are performed.
- The types of employees who regularly use more than one computer, and how improved data access would enhance their job performance.

- The amount of time and money spent recovering and recreating data when hardware or software problems cause a computer failure.
- The potential amount of lost revenue to the organisation if a catastrophic loss of user data occurs.
- The need for users to take server-based data with them to work away from the office.

Once Systemnet have identified your needs, we can determine which User Data Management features are most useful for your organisation.

Improving User Settings Management

In most organisations, new users and existing employees who change computers, often need help from their internal IT department or an IT partner such as Systemnet to initially configure their computers. With IntelliMirror User Settings Management, Systemnet can centrally define computing environments for groups of users and computers so that users automatically get the correct configurations for their jobs. Also, Systemnet can restore user settings if a computer fails and can ensure that a user's desktop settings follow the person if they roam to another computer.

Using Settings Management

With User Settings Management, we can:

- Reduce support calls by providing a preconfigured desktop environment appropriate for the user's job.
- Save time and costs for computer replacement.
- Help users be more efficient by automatically providing their desktop environment, no matter where they work.

The settings we can manage include:

- Desktop configurations
- Security settings
- Language settings
- Application settings
- Scripts (for computer startup and shutdown, and user logon and logoff)

These configurations and settings make up a user's *profile*. This information is stored on every local computer for each user that has logged on to that computer. We can also redirect any of the special folders in a user profile to a network share. Then the same user profiles are available wherever a user logs on.

Systemnet use the following technologies to implement User Settings Management:

- Active Directory
- Group Policy
- Offline Folders
- Synchronization Manager
- Folder Redirection
- Roaming User Profiles

User settings, like user data, can follow the user, regardless of where that user logs on. Systemnet use settings to customise and control users' computing environments and to grant or deny the users the ability to customise their own computing environments. These settings can be applied to both users and computers. When users have permission, they often customise the style and default settings of their computing environment to suit their needs and work habits. Settings contain three basic types of information: user and administrative information, temporary information, and data specific to the local computer.

For example:

- User settings include items such as Microsoft Internet Explorer favorites, quick links, cookies or background bitmap.
- Temporary information includes items such as the user's personal Internet Explorer cache.
- Local computer settings include items such as the folders and files marked for offline use.

Temporary and local computer information typically should not roam with a user;- this can cause unnecessary overhead, and differences between computers could disrupt the roaming function. When Systemnet use Roaming User Profiles to manage user settings, Group Policy ensures that only vital user and administrative settings information is retained, while temporary and local computer settings are dynamically and appropriately regenerated as required. This minimises the amount of information that must be stored and transferred across the network, while still allowing users to have a similar experience on any computer that they log on to.

Identifying User Settings Management Needs

Systemnet will evaluate the following information for your organisation:

- The number of new users who join the organisation on a monthly basis.
- The most common user interface-related support calls handled by your internal IT department or by an IT partner such as Systemnet.
- The key links and configuration options (such as scripts, language settings, and user interface specifications) that might be useful to new users and therefore reduce support calls.
- The number of users who roam among multiple computers within the organisation.

This information can help Systemnet to outline the business benefits of implementing IntelliMirror User Settings Management.

Simplifying Software Management

There are a number of challenges in providing software to users. Some of these include:

Users need a wide variety of applications to perform their jobs. Different users require different applications. As a result, many organisations support hundreds of software applications. IT must efficiently deploy these applications to the users who need them.

An organisation's software application needs evolve over time. New applications and new versions of applications become available that offer features and functionality that were not available before. Enhancements such as new user templates, or service packs that become available between full version upgrades, also must be deployed from time to time.

Users are promoted or change jobs and need several new applications. At the same time, they no longer need some of the applications that were required to do their old jobs. Or users move to a computer in another location and expect to have their key applications available to them. IT has to support and manage these rapidly changing software requirements as well.

User productivity is enhanced when users have all of the software applications that will enable them to perform their jobs efficiently. It is also important that an organisation tracks applications that are no longer being used, or are out of date, and makes sure those are phased out. An organisation has to determine when to stop supporting software that is no longer useful. An organisation can ask users to stop using certain applications and remove applications that are outdated. In some cases, the best solution is to remove the obsolete application rather than incur the compatibility issues and other problems that can result from its continued use.

All of these application management tasks can be extremely labour intensive, which is why many organisations want to automate them for large groups or even for all client computers at one time.

Using Software Installation and Maintenance

Systemnet use the Software Installation and Maintenance feature of IntelliMirror to install software applications at computer startup, user logon, or on demand. We also use this feature to upgrade deployed applications, remove earlier applications that are no longer required, and deploy service packs and operating system upgrades. Systemnet also ensures that a person cannot install any software from local media, such as a CD-ROM or disk, unless approval given.

This feature also provides for the following situations:

- If a user inadvertently deletes files from an application it will repair itself.
- If a user moves from one computer to another their software will always be available to them.
- If a user does not have an application installed on their computer and they try to open a document associated with that application, the application will automatically be installed and the document will open.

When Systemnet implements Software Installation and Maintenance, we use the following Windows Server 2003 technologies:

- Active Directory
- Group Policy
- Windows Installer
- Add/Remove Programs (Windows XP clients only)
- Distributed File System (Dfs)

Systemnet use Group Policy to define software installation options that specify which applications are to be deployed, upgraded, or removed from a computer. We can apply software installation policies to groups of users or to groups of computers, depending on your organisation's needs. There are two methods by which we can install applications on users' computers: assigning and publishing.

Assigning Applications When we assign applications to a *computer* using Group Policy, the application is automatically installed the next time the computer is started. When we assign applications to a *user* with Group Policy, the user's computer is set up with a Start menu shortcut, and the appropriate file associations are created in the registry. To the user, it looks and feels as if the application is already present. However, the application is not fully installed until the user needs the application. When the user attempts to open the application or a file associated with that application, a background Windows service called the Windows Installer checks to make sure that all the files and parameters of the application are present for the application to properly execute. If they are not present, Windows Installer retrieves and installs them from a predetermined distribution point. Once in place, the application opens.

Assigning applications makes them resilient — they are available no matter what the user does; for example, if the user removes an application, it will automatically be reinstalled on-demand.

In most typical standardised network environments, Systemnet will assign software to computers only.

Publishing Applications When you publish an application, it appears in **Add/Remove Programs** in Control Panel. Installation of published applications is at the user's discretion. Installation can also be configured to occur when a user attempts to open a file that requires a specific published application.

Ideally, published applications should be authored to install using the Windows Installer service; however, Group Policy-based publishing also supports applications written using the traditional Setup.exe installation method. We publish applications when the software is not absolutely necessary for a user to perform his or her job.

Application repair follows the same logic as on-demand installation. Whenever an application authored by Windows Installer is invoked, the Windows Installer service checks to ensure that the appropriate files are available; if required, files or settings are repaired automatically. For example, if a user deletes a .dll or .exe file needed to run an application, and then opens the application, Windows Installer automatically reinstalls the deleted files from the predetermined distribution point so that the application functions properly.

Identifying Software Installation and Management Needs

To identify the potential benefits of the Software Installation and Maintenance feature of IntelliMirror for your organisation, Systemnet will identify your organisation's specific needs, such as:

- How users find the applications they need to do their jobs.
- How many applications are used in your organisation.
- How applications in your organisation are installed.
- How applications in your organisation are upgraded.
- How applications in your organisation are removed.
- How often you internal IT resource or an IT partner such as Systemnet has to install, upgrade, or remove applications.
- How long it typically takes for your internal IT resource or and IT partner such as Systemnet has to help the user repair their broken applications.

With this information, Systemnet can begin to document the ways in which Microsoft's IntelliMirror can improve your organisation's application installation processes.

Streamlining the Computer Setup Process

When a user needs a new computer — whether the person is new to the organisation, the existing computer has failed, or it is simply time for a hardware upgrade — your internal IT resource or IT partner such as Systemnet historically has had to spend a great deal of time preparing and installing the operating system and basic applications.

To support the computer setup process, we need a way to:

- Return users to productive work more quickly.
- Significantly reduce the frequency and length of related support calls, or even eliminate these service calls altogether.

Systemnet's implementation of Remote Installation Services helps you significantly reduce the amount of labour (and associated support costs) required to deploy a new operating system on a computer. The entire process is policy-based and can be accomplished without on-site technical support.

Using Remote Installation Services

Systemnet use the Remote Installation Services feature of Windows Server 2003 to perform a new installation of Windows XP Professional on Preboot Execution Environment (PXE) remote boot-enabled client computers throughout your organisation. (Most new workstations include network cards that support this feature.) Your internal IT administrator or Systemnet does not have to visit the new computer to install a new operating system and core applications. Systemnet can provide a customised, fully automated installation process from a remote source. When the computer is turned on, the user presses F12 to initiate the process. The computer then starts from a network server that supports the Remote Installation Service (RIS). After the user logs on, RIS can install either of the following:

- The network equivalent of a CD-based installation of Windows XP Professional.
- A preconfigured Remote Installation Preparation (RIPrep) desktop image that can include applications such as word processing and e-mail.

Systemnet use the following technologies to implement Remote Installation Services:

- Active Directory
- Group Policy
- Domain Name System (DNS)
- Dynamic Host Configuration Protocol (DHCP)
- Remote Installation Service (RIS)

Identifying Remote Installation Services Needs

To identify your organisation's needs, Systemnet will evaluate:

- The number of new OS installations performed on a daily, weekly, or monthly basis.
- The amount of time currently required for a manual installation.
- The amount of time currently required if the installation process is partly automated.
- The amount of time required if Remote Installation Services is used.
- The cost of downtime to your users.

With this information, Systemnet can begin to establish the productivity benefits for support staff and end users provided by Remote Installation Services.

Implementing IntelliMirror and Remote Installation Services

The examples that follow use some typical events at any organisation to illustrate how Systemnet's implementation of the change and configuration management features in Windows Server 2003 impacts the computing environment. With each situation, the features and technologies used to address the desktop management needs are discussed.

The New Employee

One of the most critical and time consuming IT tasks is setting up a new employee with a computer. In an organisation that is using IntelliMirror, the new person logs on to a new computer and finds documents and shortcuts already on the desktop. These shortcuts link to common files, data, and URLs that are useful to all employees. Some examples of documents and shortcuts are the employee handbook, a shortcut to the intranet (Sharepoint), and a shortcut to the user's departmental guidelines and procedures.

Also, if your computers come to you without an operating system at all Systemnet can completely automate the installation of the client operating system for the new hire using Remote Installation Services. No technician is required to visit the computer. In many case it is preferable to deploy the operating system via RIS even if your new computer shipped with a preloaded operating system to ensure consistency with your standard operating environment.

First Logon

A new employee logs on for the first time and sees that needed software, such as Microsoft Word, is already present in the Start menu. When the new employee selects Word from the Start menu, or double-clicks on a Word document such as an employee handbook, Word is installed on demand.

Software Installation and Maintenance is implemented primarily through the use of Group Policy and the Windows Installer service. Based on the user's Active Directory location and the Group Policy object applied, the user is assigned Word.

When the user starts an application or opens a document, the Windows Installer service does the rest of the work. In this way, IntelliMirror ensures that the necessary and correct items assigned to the user appear in the Start menu. Using Group Policy, the administrator can assign or publish differently configured versions of the same application to different groups of users. When the user in this example launches Word or opens an employee handbook in Word for the first time, the Windows Installer service checks to see if the application is installed on the local computer. If it is not, the Windows Installer downloads and installs the necessary files for Word to run and sets up the necessary local user and computer settings. Although Windows Installer continues to check each time the application is invoked, it does not attempt to reinstall or repair the application unless necessary files are found to be missing.

Taking a Laptop on the Road

A laptop user working at the office creates a number of documents and saves them to My Documents. After saving the documents, the user logs off, unplugs from the network, and takes the laptop on a trip. While on the trip and off the network, the user continues to edit the documents saved earlier in My Documents.

In this situation, when the user saves the documents they are saved to a network location and cached to the local computer at the same time in a process that is transparent to the user. This action takes place because the network folder is set up to be available offline. This configuration creates a copy of the network folder's contents on the local computer. In this manner, the user can access the data when offline. By combining Offline Files with Folder Redirection we can keep user data files backed up and secure on a centrally managed server. If a folder is both redirected and set to offline, that folder receives the benefits of being secure on a server drive, accessible by any computer the user logs on to, and is also available on the user's computer in case of network inaccessibility.

Returning to the Corporate Network

The laptop user in the previous situation returns to the office and logs on to the network. Since some changes were made to files while the user was offline, a status box appears showing that the changed files are being synchronised with the network files. In this situation, IntelliMirror technology identifies that the data in My Documents has changed, and automatically updates the version held on the network.

Various User Data and Settings Management technologies come into play to allow workers to work on files offline and automatically update network versions of those files when they later reconnect to the network. Offline Files allows users to work on network files while not actually connected to the network. The Synchronization Manager coordinates synchronisation of any changes between the offline version of a file and the network version.

Synchronization Manager can help manage the multi-user use of network files. If multiple users modify the same network file, IntelliMirror notifies the users about the conflict and offers several resolution methods. The users can save the network version, their local version, or both versions. If both are to be kept, the user is asked for a new file name to store one of the versions so that uniqueness is maintained.

Self Repairing Software

A user decides to remove files that the user thinks are unnecessary. The user deletes .dll files, help files, and other files that are crucial to Microsoft Office. Later, when the user opens a document in Word, Office automatically repairs itself and works normally.

The Windows Installer service provides much more than the capability to install applications. It also protects the integrity of the application against inadvertent mishaps with local files. In this example, when the user attempted to open Word, the Windows Installer service identified that some essential files were missing. They were then immediately reinstalled from the network source specified to the Windows Installer when the application was first installed. The user briefly saw a dialog box with a progress bar, and then Word opened as if nothing were wrong.

Research shows that a fair amount of user down time is caused by inadvertent configuration changes to the local computer. In a conventional environment, the user is often unproductive while the problem is diagnosed, a technician dispatched, and the software is reinstalled. In this example, neither the support desk nor the user's time is wasted on a support call because the Windows Installer repairs the software automatically and with minimal file copies.

Replacing a Computer

The computer that a user is working on suddenly has a complete hardware failure. You call Systemnet helpdesk, and before long a new computer arrives. Without waiting for technical assistance, the user plugs in the new computer, connects it to the network, starts it up with assistance from Systemnet. The user initiates this process by pressing a function key during computer startup. (For older computers that do not support this function but that do support a Peripheral Component Interconnect (PCI) bus, Microsoft provides a start-up disk containing the necessary software for a range of network interface cards.) If a service boot is requested, the computer establishes a network connection and makes a request for any nearby Remote Installation Services (RIS)-enabled Windows Server 2003 Server to host the service boot request.

Once this initial start-up sequence and connection with a Windows Server 2003 Server is established, the user selects the configuration of choice and waits while the system automatically loads the appropriately configured version of Windows XP Professional. RIS installs the operating system and then IntelliMirror takes over. IntelliMirror assists in getting the user back up and running in the shortest possible time and with a minimum of support because data and settings are stored independently of any specific computer. Through the use of Folder Redirection, Roaming User Profiles and Group Policy, the user's data, settings, and applications are available wherever the user logs on to the network. In this example, the solution is not limited to getting the user a new computer. Instead, the user could have also moved to another computer in the office since all of the data, settings, and environment are mirrored on the network.

The user finds that the desktop has taken on the same configuration as the computer it replaced, the same colour scheme, screensaver, and all the application icons, shortcuts, and favourites are present. Even more importantly, all the user's data files have been restored.

The whole process can take as little as 30 minutes!

The benefits to your organisation

Using the change and configuration management features and technologies in Windows Server 2003, Systemnet can dramatically lower your organisation's desktop management costs. Some of the ways we do this are:

- Costs associated with change and configuration management are reduced through the use of Group Policy. Group Policy allows management control over groups of computers and users through single settings.
- Technologies included in the Windows Installer service allow installation, repair, updating, and removal of applications to occur when needed and wanted. This reduces the support burden and increases availability of the user's computer.
- With User Data Management features, data can be automatically stored in locations that follow the user, as well as be highly resistant to failure. The cost associated with managing user data is significantly decreased.

Financial Benefits

When Systemnet proposes changes to your organisation's IT infrastructure, we appreciate that you would like to know the potential cost. Some of the costs we identify as part of our proposal will include:

- Planning the deployment of new technologies
- Testing and piloting new technologies
- Implementing the new technologies
- Training IT personnel and/or end users

Systemnet will compare these costs to the value of implementing the technologies previously discussed. A number of benefits that will likely outweigh the costs associated with deployment are:

- Reduced support calls
- Centralised and remote management of your computers
- Fewer number of technicians and administrators required to visit computers
- New software deployed in a more rapid, controlled way
- Data backed up automatically

Also, consider that many organisations typically upgrade their server and client computers every two to three years, so costs associated with your desktop management improvements may be included with a larger computer upgrade project.

The benefits of all ongoing and planned projects need to be assessed together to understand their full impact on costs and return on investment (ROI). One of the most important benefits in any deployment is manageability and the ability to control change. In this context, Systemnet’s implementation of these technologies as part of an overall network upgrade can have a positive impact on TCO and ROI.

This guide does not present specific ROI and TCO analyses because every organisation's situation is different. You can however use the following tables as a starting point for identifying the potential financial benefits of allowing Systemnet to introduce IntelliMirror and Remote Installation Services to your organisation. Table following table focuses on overall business value by feature.

Feature	Increases Revenue By	Reduces Costs By	Avoids Costs By
User Data Management	Increasing productivity because users can access their data at any computer in the organisation, whether or not they are connected to the network.	Storing user data and document files on a network server, which allows users to stop doing manual desktop backups.	Protecting users from losing critical documents and data.
User Settings Management	Ensuring users can be equally productive at any computer in the organisation by providing them with a familiar environment.	Enabling Systemnet to preconfigure desktops, thereby allowing users to become productive in a timely manner.	Reducing problems with users modifying configuration settings.
Software Installation and Maintenance	Ensuring users have all the applications they need to maximise productivity.	Relieving the user of having to spend time locating and installing software and avoiding the cost of an onsite technician.	Reducing problems with installing unsupported software.
Remote Installation Services	Reducing users' downtime, which enables them to be more productive.	Not requiring an onsite technician, and removing from users the responsibility of managing and configuring their own operating system installations.	Preventing users from damaging their systems by making uninformed choices during the OS installation process.

The following table focuses on value generated for your organisation’s internal IT resource or an IT partner such as Systemnet.

Feature	Increases Revenue By	Reduces Costs By	Avoids Costs By
User Data Management	Enables Systemnet to take on higher value-added tasks rather than performing manual backups or helping users to retrieve lost data and documents.	Automating data backup.	Reducing the likelihood that user data and documents will have to be recreated.
User Settings Management	Enables Systemnet to take on higher value-added tasks rather than troubleshooting desktop configurations problems.	Enabling Systemnet or your internal IT resource to define standard configurations so less time is spent on customisation.	Defining standard configurations and reducing the likelihood that users will require IT support.
Software Installation and Maintenance	Allowing Systemnet to deploy and maintain software more efficiently.	Enabling Systemnet to install applications on secured workstations without an onsite technician.	Preventing users from using unapproved applications.
Remote Installation Services	Allowing Systemnet to take on higher value-added tasks rather than manually installing operating systems on workstations.	Reducing the number of desktop visits and the amount of prestaging and installation work by Systemnet or your internal IT resource.	Reducing the chances that the end user will encounter problems that require Systemnet support.

TCO Analysis of Windows Server 2003 Management Services

Since the release of Windows 2000 and the Windows Server 2003, Systemnet has introduced the managed network technologies discussed in this guide to many organisations. Based on our experiences and analysis we have become specialists in understanding both the technologies and how to evaluate their impact in organisations.

Our clients have noticed significant savings in workstation installation, disaster recovery, and centralised administration that were made possible by using Remote Installation Services and IntelliMirror.

Savings in Client Installation Costs

Systemnet engineers saved an average of four hours each time they used Remote Installation Services and IntelliMirror software installation to configure new client computers running Windows XP Professional. This reduction in time had a direct cost implication for our clients. The average cost reduction was 63 percent.

This estimate does not include the savings made possible by enabling end users to install and configure Windows XP Professional and their applications without direct support from a systems engineer. In addition, it does not include the potential cost savings of enabling users to move from computer to computer within the organisation and still be able to access their desktop preferences, job-specific applications, and data.

Savings from Improved Disaster Recovery

Recovering from partial or complete computer failures were historically extremely time consuming, both for Systemnet and for end users. Systemnet looked at two key criteria for disaster recovery:

- The frequency of partial or complete failures
- The amount of time needed to recover a computer after a partial or complete failure

The number of partial failures declined by 33 percent and complete failures declined 60 percent after organisations started to deploy Windows XP Professional (which is the most stable Microsoft desktop operating system to date.)

The organisations that used IntelliMirror and Remote Installation Services were able to reduce recovery times by 51 percent.

Benefits from Centralised Administration

Systemnet clients that are using Group Policy and Active Directory to set security, and desktop and data management settings expect to reduce the amount of time needed to perform partial or complete customisations by between 56 percent and 63 percent. In addition, these organisations use centralised management to reduce the amount of time needed to set, distribute, and enforce security and access rights by up to 50 percent. Additionally, the full benefits of centralised administration will be realised over the next few years.

Windows Server Update Services

An often overlooked, yet extremely crucial part of any network implementation is patch management. With so many viruses, Trojans and other malware programs doing the round these days it is imperative to ensure that all workstations and servers on your network is patched with the latest critical updates.

Update management is a pain point for organisations of all sizes. Systemnet use Update Services, the update management component of Windows Server, which addresses this issue by helping to automate the update management process reducing the amount of time, effort, cost, and risk associated with the process.

Update Services helps organisations to:

- Increase efficiency and control over the update management process
- Minimise network bandwidth usage and impact of network issues on the update process
- Easily determine key system health and update deployment metrics
- Optimise the end user experience by minimising disruption to productivity

In Summary

Systemnet can help your organisation achieve a robust, easily administered network that is utilised to its fullest potential with a proven lowered cost of ownership. Systemnet is a specialist within this field and have helped numerous organisations throughout the Asia Pacific region to achieve this goal. Furthermore, all the technologies described in this guide are either free or included within the core Windows Server 2003 product meaning no additional outlay to your organisation.