

White paper

## Automating deployment of Microsoft Windows

▶ Vista, Server 2003, XP, 2000



How policy-based management with ManageSoft Windows Deployment provides the fastest and most reliable way to deploy Microsoft Windows, and delivers ongoing desktop management savings.



[www.managesoft.com](http://www.managesoft.com)

# Why are companies migrating to Windows Vista, Server 2003, Windows XP, and 2000?

***Operating system migration projects deliver a 'clean' IT environment that is easier and cheaper to manage than the pre-migration environment.***

Organizations worldwide are now making the decision to migrate legacy operating systems to Microsoft Windows Vista, Server 2003, XP, or 2000. There is a range of business drivers contributing to this widespread adoption of the latest Microsoft operating systems, including:

- Cost reduction
- Business change
- Adopting new technology to achieve or maintain competitive advantage
- Security concerns
- Moving to role-based management.

## **Cost reduction**

The primary business motivation for the deployment of new operating systems is cost reduction. IT management costs tend to increase over time with increasing IT diversity and obsolescence of legacy systems. Operating system migration projects provide an opportunity to dramatically reduce IT support costs by simplifying the end-user environment, reducing the number of operating system platforms that need to be supported, and reducing application delivery and support costs. Operating system migration projects deliver a 'clean' IT environment that is easier and cheaper to manage than the pre-migration environment. The significant savings possible through better management of this 'clean' post-migration IT environment far outweigh the costs of the initial migration project.

## **Business change**

External market changes are also driving adoption of Microsoft Windows Vista, Server 2003, XP, or 2000. Every organization's IT environment is inevitably affected at some stage by external changes beyond the control of IT managers. These external changes can adversely affect the stability of even the most carefully managed IT infrastructure.

- **Business mergers and acquisitions** — Mergers and acquisitions are often driven by sound strategic factors, but rarely are the IT outcomes of M&A activity the subject of detailed consideration. As a result, IT administrators often inherit poorly-maintained IT infrastructure, which inflates IT management costs and creates a need to rationalize to a known standard to enable ongoing manageability and true business synergies.
- **Software vendor operating system support** — Microsoft relentlessly rolls out new operating system releases. The obsolescence of old releases forces software vendors to continually develop new application releases to support the new platforms. This diversity increases support costs for software vendors. In an effort to reduce these support costs, software vendors phase out support for older operating systems, which eventually forces business customers to migrate to the newer operating systems.
- **Operating system obsolescence** — Hardware vendors also stop developing drivers for older unsupported operating systems, which again forces customers to move to the new operating system in order to add new hardware to the organization. The fact that security updates and patches are no longer being developed for the legacy operating systems adds an increasingly high risk which organizations are eventually unwilling to carry.
- **Active Directory** — Microsoft has clearly indicated its interest in 'owning' business operational data and processes. Active Directory is a key element in this Microsoft strategy, and is fast becoming the industry-standard directory for desktop, laptop, and server management. Active Directory enables organizations to manage and share information centrally on network resources and users while acting as the central authority for network security. Many organizations are looking to consolidate operational management with

implementation of Active Directory as part of a migration to Windows Vista, Server 2003, XP, or 2000. Many of the desktop management advantages of Active Directory can only be obtained when the desktop platform is migrated to these new Microsoft operating systems.

- **Hardware refresh cycles** — Simple hardware refresh cycles create an ongoing need to deploy new operating systems at a minimal "business as usual" pace. For many organizations this refresh can cause up to one third of the desktop and laptop fleet to be replaced each year. Hardware refresh processes and associated labor often cost organizations hundreds of dollars per desktop. This can add up to a significant hidden cost for an organization with thousands of computers.

## **Adopting new technology to achieve or maintain competitive advantage**

Enterprises often adopt new technology to achieve or maintain competitive advantage. As more and better applications are released that run only on Vista, this will drive the upgrade of significant numbers of desktops and laptops.

### **Security**

As support, including security patches, is wound down for older Windows operating systems, enterprises are faced with the fact that they are unable to keep older computers secure. With current volumes of vulnerabilities and exploits, the need to migrate to ensure ongoing security can almost justify an OS deployment project in itself.

### **Moving to role-based management**

Many IT organizations moving to Service Level Agreements with the business are recognizing the need to move to a 'role-based' or 'user-centric' model of operations management. Role-based approaches move the focus of IT operations away from dealing with hardware (a commodity) to focus instead on users or job roles, since this is the area of greatest value to a business. Role-based approaches introduce added complexity by rejecting traditional one-size-fits-all approaches and instead focusing on delivering what people need to perform their particular job role, and delivering it when they need it. By its nature, role-based or user-centric management requires a powerful directory service like Active Directory, a standardized operating system platform, support for roaming profiles as users move between different desktops, and comprehensive mobile management and remote management capabilities as users move between offices, hotel rooms, and customer sites.

## **The challenge of operating system deployment**

Enterprise operating system deployment projects can be large and challenging. But few enterprises can avoid the necessary upgrade process. As operating systems evolve, vendors gradually phase out their technical support for older operating system releases — and no enterprise can afford to run mission-critical or productivity applications on an unsupported operating system.

While migrating to the new operating system provides users with greater stability, reliability, and compatibility as well as access to new classes of sophisticated applications, it can also consume thousands of IT hours (and associated costs) to plan, execute, and support — work that is largely clerical and non-strategic to the enterprise's mission. The challenges of operating system deployment can be significant. Consider some of the common challenges.

*Many organizations are looking to consolidate operational management with implementation of Active Directory as part of a migration to Windows Vista, Server 2003, XP, or 2000.*

For an example operating system deployment project to 10,000 computers, some of the common challenges include:

- Understanding your current environment
- Hardware and software diversity
- Software compatibility and testing
- Lack of resources
- Logistical nightmare
- Budget constraints
- Project management complexity.

## **Understanding your current environment**

*You need to be able to assess the current state of all PCs (desktops and laptops) that are currently in your live environment.*

As an IT administrator approaching a new Windows deployment project, you need to be able to assess the current state of all PCs (desktops and laptops) that are currently in your live environment. This assessment must include not only local computers, but also all relevant computers at remote offices, and mobile computers that may only ever log-on remotely. To properly understand your current environment, you need answers to a range of questions about existing computers. For example: Do they have the processor speed, RAM, and disk space to run the new operating system? What peripherals — keyboards, mice, printers, external storage, or other devices — do they use and are there supporting drivers available either in the operating system itself or from the peripheral makers? Which computers are OK now to upgrade to the new operating system, which computers could be OK with a memory upgrade, and which computers clearly need to be replaced? What software is installed on each user's computer, and which of this software will be migrated, upgraded, consolidated, or made redundant? Just getting these answers could involve hundreds of hours, surveys, office visits, reports, and analyses for a 10,000-computer Windows deployment project. However, this information is vital for project planning and it is essential for accurate budgeting.

## **Hardware and software diversity**

For a 10,000-computer Windows deployment project, hardware and software diversity also present significant challenges. As an IT administrator planning an operating system deployment, you need to define what hardware and software combinations, and what precise configurations, will be required on each user's PC. Sales reps need support for mobile printers and presentation software. Factory managers need specialized peripherals and enterprise resource planning (ERP) applications. Financial analysts need special business intelligence and spreadsheet software.

Windows deployment projects involve far more than installation of the new operating system. It is just as vital, and particularly challenging in a 10,000-computer deployment, to make sure all of these diverse software and hardware combinations are installed for the right users, and that it all works flawlessly.

## **Software compatibility and testing**

Another aspect that many organizations overlook or underestimate in large scale Windows deployment projects is the need to ensure that applications currently being used on the legacy platforms will operate as intended on the new operating system. This is particularly true when migrating to Vista, as the application-compatibility matrix is complex and changes frequently as more applications are certified to run under Vista.

To ensure the success of a 10,000-computer operating system deployment, it is imperative that adequate packaging and testing time be devoted to ensuring application compatibility. The risk of migrating a desktop, laptop, or server to the new operating system and only then

discovering a business-critical application will not function on the new platform is far too great to ignore.

## **Lack of resources**

By their very nature, operating system deployment projects present significant resource challenges. Operating system deployment projects occur infrequently in any given organization. This means that the skills developed during the last project tend to have been lost or are unavailable for the current project. In addition, operating system deployment projects are highly logistical in nature. That is, much of the project involves dealing with the movement of large volumes of equipment and people to remote locations, with precision timing to minimize impact on the business. This means that the routine administrative or systems developmental skill-sets of the organization's IT department are often not appropriate for the task at hand.

*By their very nature, operating system deployment projects present significant resource challenges.*

## **Logistical nightmare**

The logistical nature of operating system deployment projects generates huge volumes of data. Continuing the example of a rollout to 10,000 desktops and laptops: each desktop and laptop contains software and hardware components, typically 50 items per computer. That's before you migrate to the new operating system. You also need to plan and track components after the operating system deployment, which doubles the number of items to be tracked. For 10,000 computers the total can easily reach one million items that need to be managed during the migration process.

## **Budget constraints**

Operating system deployment projects are also notorious for budget constraints. This is because the new operating system provides simplification and cost reduction for the organization as a whole—but the immediate benefits of this tend only to be visible to the IT organization, and are not immediately apparent in the bottom line for other areas of the organizations. For this reason, operating system deployment projects are often harder to justify than projects (such as application development) that provide obvious direct business value to other areas of the organization.

In addition, operating system deployment projects are dominated by labor rather than capital costs and the costs of obtaining the right skills are high. This means that the IT department has less opportunity to amortize project costs over time.

## **Project management complexity**

Large-scale Windows deployment projects also present an unusually high level of project management complexity. Counter to what might be expected, at the commencement of an operating system deployment project the cost of managing the IT environment actually increases. Why? Because while the deployment project is underway, there are two infrastructures to manage concurrently: the existing legacy environment and the new platform. This means that administrative costs increase, application deployment costs increase, and support costs increase during the life of the project. This can present significant budget management challenges for operating system deployment projects. Significant benefits only accrue when the operating system deployment project is completed and the last of the legacy platforms is removed.

At the same time, once an operating system deployment project has commenced, any in-house application development projects that the organization may have underway suddenly begin to rely on the anticipated project outcomes. This reliance is easy to understand because reducing the number of supported operating systems in the live environment dramatically

reduces the cost of application development. This dependency creates external time-line pressures on the migration project, which can create project management challenges where resources are not available to accelerate the operating system deployment.

In addition, political issues often plague all sorts of projects, but since operating system deployments projects impact so many parts of a business (from senior executives to front-line employees in multiple business units), dealing with the large numbers of project stakeholders can be a nightmare.

And finally, the sheer logistical scale of operating system deployment projects necessitates large, diverse teams, often with newly seconded employees or consultants recruited specifically for the project. Many organizations are not equipped to deal with the large-scale, inter-disciplinary project management issues raised by this sort of project.

## A best practice approach to Windows deployment

**Policy-based automation avoids the costs and time delays associated with alternative labor-intensive task-based systems.**

ManageSoft Windows Deployment is specifically designed to reduce the costs of operating system deployment projects by simplifying and thereby speeding up the overall deployment project. ManageSoft Windows Deployment is an end-to-end operating system deployment solution enabling fast and reliable enterprise-wide migration from legacy platforms to Windows Vista, Server 2003, XP, or 2000.

ManageSoft Windows Deployment provides dramatic cost and time savings for large organizations, and enables touch-of-a-button operating system migration for hundreds or thousands of computers at once, with automatic backup and restoration of end-users' data and application settings. This end-to-end operating system deployment solution provides policy-based central control throughout every phase of a Windows rollout project. Policy-based automation avoids the costs and time delays associated with alternative labor-intensive task-based systems. With the ManageSoft Windows Deployment patented smart-agent architecture, IT administrators can simply specify which groups of users and computers should receive a Windows upgrade, what software should be installed on the new platform, and when that policy should be applied. Managed desktops, laptops, and servers automatically download and install any differences required to comply with the centrally defined software policy—without requiring human intervention. The ManageSoft set-and-forget policy-based approach and client-centric architecture provide unequalled reliability by transforming computers into self-configuring and self-healing managed devices. The benefits of this unique smart-agent architecture continue long after initial deployment of the new operating system.

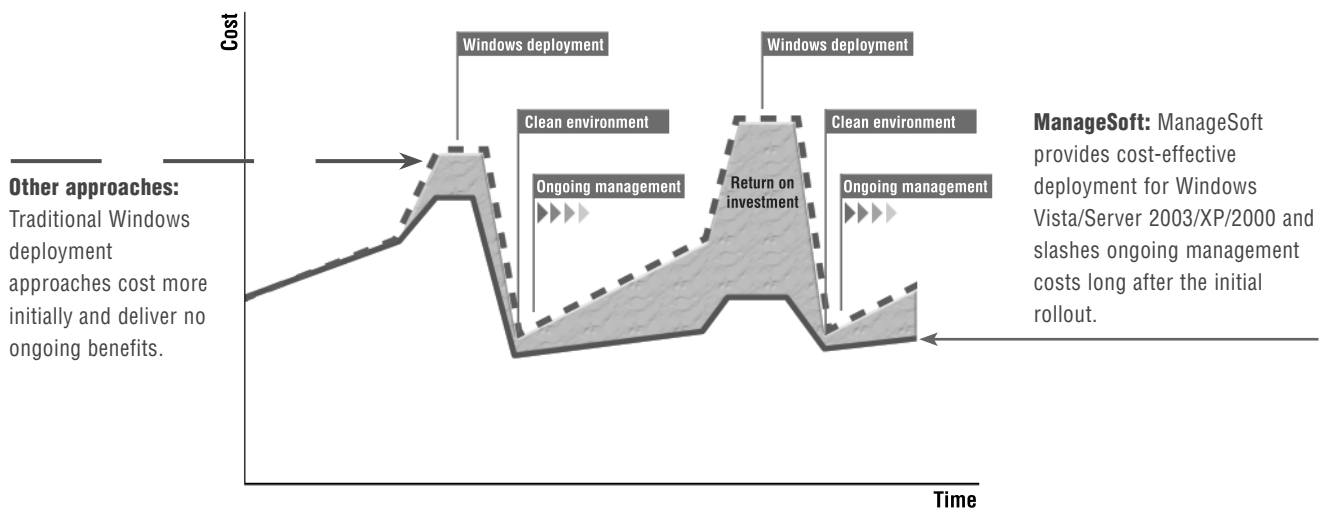


Figure 1: ManageSoft provides rapid cost-effective deployment for Windows Vista, Server 2003, XP, and 2000, and slashes ongoing management costs with policy-based automation

ManageSoft Corporation specializes in enterprise software management solutions for medium to large organizations. With over a decade of experience working with and supporting blue chip customers, ManageSoft has had extensive opportunities to study and understand the nature of complex operating system deployment projects. Based on this experience, and consideration of a vast variety of operating system migration approaches, ManageSoft has simplified operating system deployment into five phases:

- Discover
- Plan
- Prepare
- Rollout
- Manage.

ManageSoft Windows Deployment provides an end-to-end operating system deployment solution, with industry-leading automation and cost-saving throughout each of these five phases.

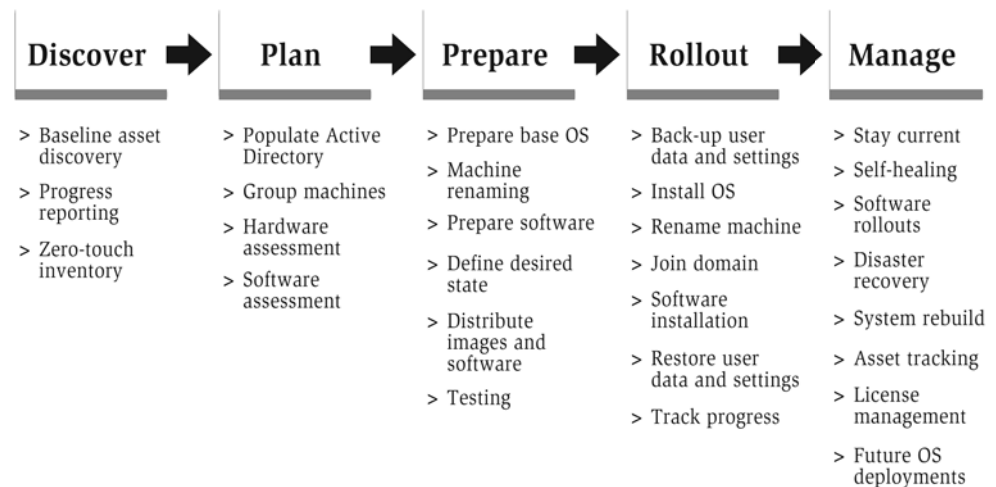


Figure 2. ManageSoft Windows Deployment provides an end-to-end operating system deployment solution

## Phase 1: Discover

The first phase in an operating system deployment project involves discovering what hardware and software is already deployed in the organization's live environment. An accurate baseline benchmark is essential for effective planning and efficient implementation. You need to understand exactly what software and hardware assets have already been deployed in order to know what new IT assets will be required and how to avoid potential disruptions to the operating system deployment project. For many companies, maintaining a complete and accurate inventory of all hardware and software assets is a low-priority, labor-intensive project that never gets completed. Even for organizations that do have a rudimentary inventory, it rarely includes the details necessary to plan accurately for a new OS deployment.

There are three essential requirements for the discovery phase of an operating system deployment project:

- Base-line asset discovery
- Accurate software and hardware inventory
- Progress reporting.

**The very first step of a Windows deployment project is to build an accurate baseline of the existing live environment, to use as a benchmark throughout the project.**

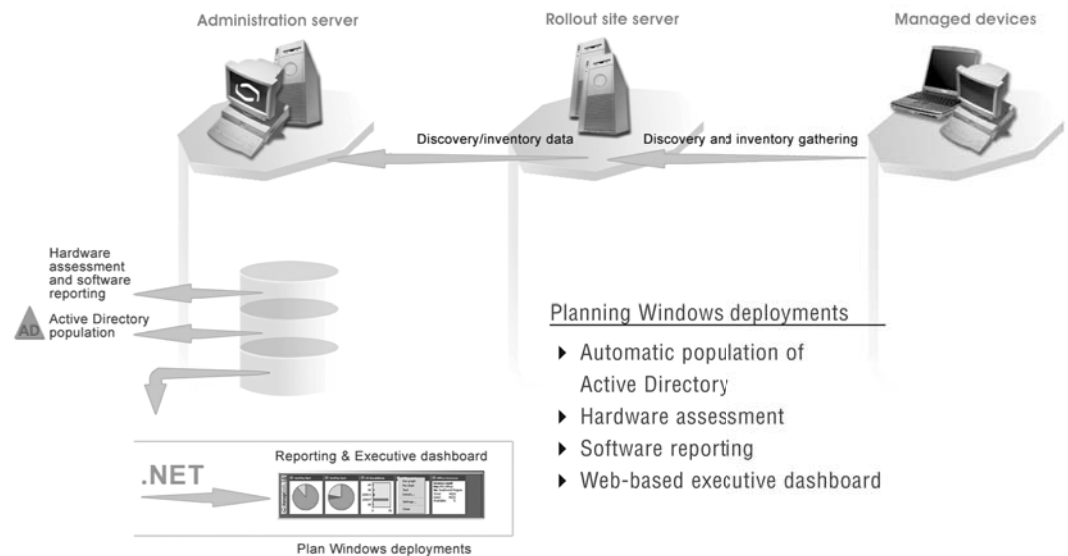


Figure 3: Discovery, inventory, and reporting with ManageSoft Windows Deployment

## Base-line asset discovery

The very first step of a Windows deployment project is to build an accurate baseline of the existing live environment, to use as a benchmark throughout the project. Many alternative operating system deployment and migration products overlook this vital asset discovery step. Some solutions overlook asset discovery and inventory altogether, others skip straight to an inventory process. The problem with such approaches is that without accurate baseline asset discovery data, project managers have no way of knowing the total number of computers to be migrated, and therefore cannot accurately measure progress and success throughout the operating system deployment project. For a range of reasons, inventory gathering tools often only reach ~80% of desktops and laptops in the live environment. Accurate baseline asset discovery data enables IT administrators to monitor subsequent processes against this baseline total, and to take corrective action for any computers identified through asset discovery, but not picked up for whatever reason during subsequent inventory gathering processes.

Asset discovery is a key differentiator of the ManageSoft solution. Using the discovery capabilities of ManageSoft Deployment Manager establishes the base-line asset data required for a successful Windows deployment project.

## Zero-touch inventory

Having determined which devices are in use in the organization's live environment, it is then crucial to find out accurate hardware and software inventory details for those devices — what is installed where, and how it is configured. This is critically important to the success of a Windows deployment project, as accurate inventory data is required to understand what software and hardware assets are already in use, which hardware and software requires upgrading or replacement, and which hardware and software is ready to migrate to the new operating system. Accurate initial assessment of these considerations based on accurate inventory data is vital to avoid potential disruptions later in the operating system deployment project.

ManageSoft addresses this important step with a transparent, innovative 'zero-touch' inventory gathering process. Unlike other solutions that require a preliminary rollout of scanning software onto every target computer (which can be a major exercise in itself), questionnaires, hands-on probing, or other inefficient task-based methods, ManageSoft uses smart agents hosted on servers to detect and automate the capture of all relevant

**Accurate software and hardware inventory data enables effective Windows deployment planning.**

hardware and software configuration information from desktops and laptops throughout the organization — processor/speed, RAM, disk space, peripherals, software installed, and much more. This information is critical to understanding the scope of the Windows deployment project, including compatibility issues, upgrade requirements, new purchasing requirements, and associated time and budget impacts.

ManageSoft obtains this inventory data when managed devices connect to networked servers. In rare instances where a computer identified through earlier asset discovery isn't accessible during inventory gathering, an email alert can be sent with a click-through link to trigger the inventory gathering process for that computer.

ManageSoft Windows Deployment also overcomes one of the significant drawbacks of other zero-touch inventory tools: reliance on Microsoft Windows Management Interface (WMI). WMI provides a common interface for tools to query information about hardware and software on a computer. It is a very detailed and effective inventory tool, and where it is installed on a computer, ManageSoft makes full use of the available WMI inventory data. But ManageSoft does not **require** WMI on the target computer, which means that inventory can also be gathered from computers running unmodified older operating systems, including Windows 9x and Windows NT 4.0 which do not have WMI installed by default.

ManageSoft provides a solution that enables key hardware and software information to be gathered from the device without requiring installation of an agent on the device, without requiring WMI to be installed on the device (but leveraging WMI if it is available), and without requiring elevated privileges on the device. This unique zero-touch approach provides increased accuracy and significantly reduces the time required to gather an accurate hardware and software inventory for computers affected by the Windows deployment project.

**Accurate and timely progress reporting is critical to the efficient management of a large-scale Windows deployment project.**

## Progress reporting

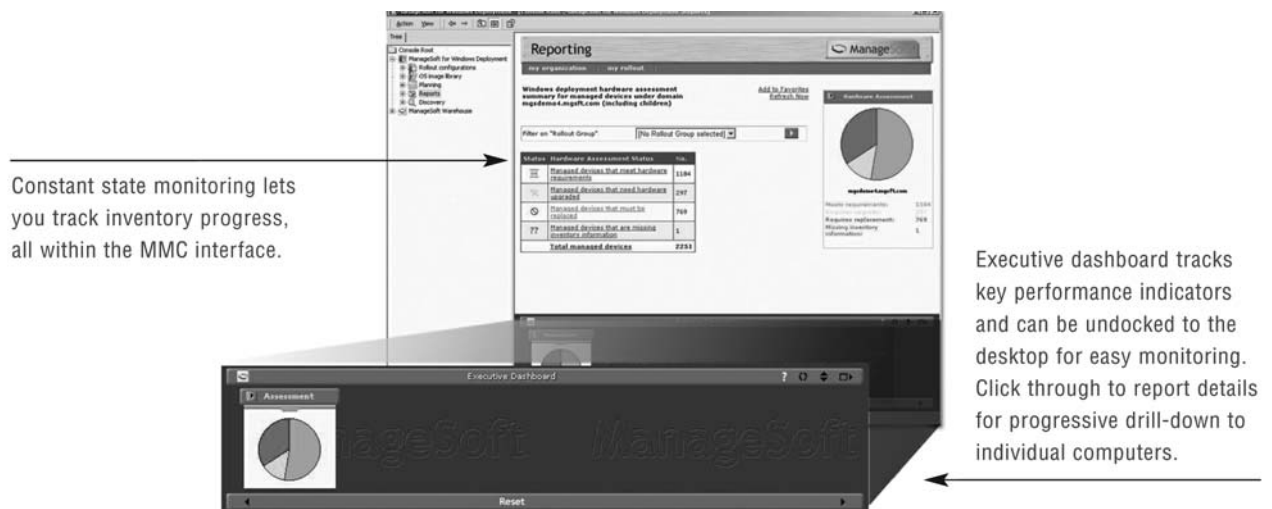


Figure 4: ManageSoft Windows Deployment provides detailed web-based reporting to track inventory gathering progress against the baseline obtained through asset discovery

Accurate and timely progress reporting is critical to the efficient management of a large-scale Windows deployment project. ManageSoft Windows Deployment provides detailed web-based progress reporting to enable IT administrators to track inventory gathering progress against the baseline obtained through asset discovery. (For example, if asset discovery revealed 10,000 computers in the live environment, but the latest inventory report only includes inventory for 8,000 computers, the inventory gathering process is only 80% complete.) ManageSoft web-based progress reporting is accessible through a customizable executive dashboard. The executive dashboard provides up-to-the-minute graphical summary reports with click-through access to drill down to increasing levels of detail. The executive dashboard can also be undocked from the ManageSoft console and floated on project managers' desktops for minute-

by-minute monitoring. This level of progress reporting is invaluable for project managers in large operating system deployment projects, and is impossible with alternative products that have no baseline data to compare progress against because they overlook the critical first step of initial asset discovery.

## Phase 2: Plan

**Based on sound and reliable data, IT administrators can confidently schedule the Windows rollout.**

The initial discovery phase provides the information required to begin accurately planning the operating system deployment project. This careful planning involves assessing the configuration of all existing hardware and software assets throughout the enterprise, analyzing the results and potential impact, and deciding what level of commitment your organization will make to Microsoft Active Directory. Based on sound and reliable data, IT administrators can plan necessary changes, and confidently schedule the Windows rollout across various target groups. ManageSoft Windows Deployment provides comprehensive assistance throughout this planning phase, including:

- Deciding the level of commitment to Active Directory
- Grouping computers and users — automatic population of Active Directory
- Hardware and software assessment reporting.

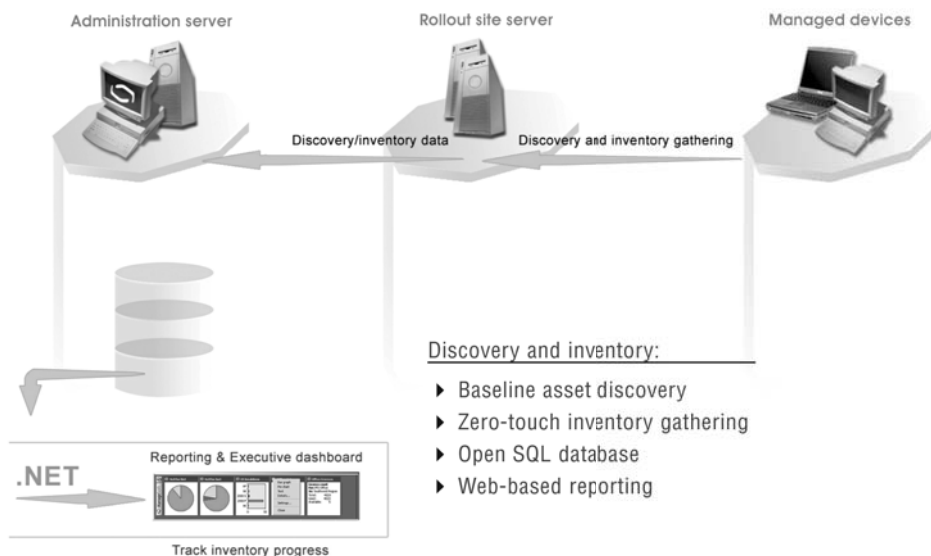


Figure 5: Accurate planning with ManageSoft Windows Deployment

### Deciding the level of commitment to Active Directory

Microsoft Windows Vista, Server 2003, XP, and 2000 provide a range of enterprise management technologies to enable cost-effective management of Microsoft Windows-based desktops, laptops, and server applications. Key among these technologies is Active Directory, which has become the industry standard for corporate directory services. Active Directory enables organizations to manage and share information centrally on network resources and users while acting as the central authority for network security.

Your Windows deployment project requires a decision as to the appropriate level of Active Directory implementation for the organization. Some organizations choose to install Windows Vista or XP on desktops and laptops throughout the organization without ever taking advantage of the powerful directory service that Active Directory provides. This is not an approach that ManageSoft recommends (why wouldn't you take full advantage of the available features?). However ManageSoft Windows Deployment does accommodate individual organizational preferences by providing a range of Active Directory options.

**ManageSoft Windows  
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Active Directory.**

ManageSoft Windows Deployment provides native integration with Active Directory. ManageSoft Windows Deployment targets operating system deployment and software distribution through the site, domain, and organization unit (SDOU) structure, security groups, and group policy extensions that are native to Active Directory. Through this tight integration with core Windows technologies, ManageSoft supports three distinct models relating Windows deployment to Active Directory rollout:

- **Deploy Active Directory now** — Roll out the entire Active Directory infrastructure first, and use that foundation to migrate end-user software to Windows Vista, Server 2003, XP, or 2000. Unlike other products that link to Active Directory only for server-side storage, ManageSoft smart agents can apply software policies directly from Active Directory domain controllers. There is no need for duplicate policy servers (and, importantly, no Active Directory schema changes). At the same time, ManageSoft provides enhancements such as scheduling, inventory, license management, and powerful reporting, and reaches beyond the firewall for a scalable, inter-enterprise solution.

OR

- **Deploy Active Directory later** — Migrate computers to Windows Vista, Server 2003, XP, or 2000 now, but implement Active Directory more slowly. Since ManageSoft smart agents do not require Active Directory infrastructure on local domain controllers or distribution servers or managed devices, this model provides a safe way to test and refine Active Directory design, without 'resetting' the entire enterprise.

OR

- **No Active Directory implementation** — Migrate end-user devices only, without ever implementing Active Directory. In this model, ManageSoft Windows Deployment provides a solution where central smart agents utilize a single local Active Directory server.

### **Grouping computers and users — population of Active Directory**

Whether IT administrators decide to implement Active Directory throughout the organization now, later, or never, a highly accurate directory is vital to the success of a large-scale operating system deployment project. To be useful, the mass of discovery and inventory data collected in Phase 1 of the deployment project needs to be organized into meaningful groups for management purposes. Active Directory is the ideal tool for this. Using Active Directory, users and computers can be grouped into organizational units, sites, security groups, and groups. This enables careful planning, targeting, and reporting for subsequent processes in the operating system deployment project. ManageSoft Windows Deployment provides detailed progress reporting by Active Directory organizational units which can represent sites, business units, or other meaningful groups.

The first step though, is to populate Active Directory. Some organizations already have a functioning directory service before commencing planning for Windows deployment. But if you don't, ManageSoft Windows Deployment can automatically populate Active Directory, using the discovery and inventory data obtained in phase one of the Windows deployment project. This is a great help for enterprises establishing Active Directory, because it dramatically reduces the time, project risk, and cost of new Active Directory implementations.

By default, ManageSoft populates Active Directory by sites, but the population script can be customized to suit your organization's business logic (for example to build the structure around business units instead of sites).

Modifying an operational Active Directory is an exercise that requires careful planning and execution. However, since ManageSoft Windows Deployment does not rely on the Active Directory structure being rolled out to desktops, IT administrators can change the central Active Directory structure as often as needed until design tests are satisfactory. ManageSoft Windows Deployment provides a safe environment for designing and testing Active Directory designs. Even during pilot iterations, the experimental Active Directory structure provides a workable reference structure for managing the operating system rollout.

Once populated, Active Directory enables ManageSoft to provide detailed progress reporting throughout the Windows deployment project. The Active Directory structure is leveraged to enable detailed reporting by site or business unit or any other meaningful grouping IT administrators define in Active Directory.

## Hardware assessment and software reporting

***See, at a glance, which target computers are adequate for the new operating system, which need hardware upgrades, and which need replacement.***

ManageSoft Windows Deployment stores software and hardware inventory data in a standard SQL database with a published schema. This database forms the foundation of even richer, ongoing IT asset tracking and inventory management. ManageSoft Windows Deployment uses this inventory data to provide powerful, web-based inventory reporting. In addition to standard reports, ManageSoft Windows Deployment also provides a graphical executive dashboard — a fully configurable collection of graphical reports that summarize key performance indicators. ManageSoft Windows Deployment includes a range of out-of-the-box pre-migration inventory reports including:

- **Hardware assessment** — See, at a glance, which target computers are adequate for the new operating system, which need hardware upgrades, and which need replacement. Use this information to accurately plan purchasing requirements, budgets, and implementation of required hardware upgrades.
- **Installed software** — See every software package installed on every user's computer. Determine which applications should be preserved during the migration to the new operating system, which applications need to be upgraded. Assess opportunities to consolidate and standardize supported software versions across different groups of users to reduce licensing costs (for duplicated application capabilities) and to reduce support costs (by standardizing on a single version of a supported application).
- **License management** — With so many applications being upgraded, a Windows migration project is often an opportunity to also get software licenses under control. Analysts estimate inefficient license management means many corporations overspend on software licenses by an average of 15%. ManageSoft Windows Deployment enables enterprises to wipe out those costs — permanently. ManageSoft provides a complete solution for license management, software metering, and usage tracking. The unique, patented ManageSoft smart-agent architecture provides a rapid enterprise-wide software license audit, ongoing automated compliance tracking across any network, license management across multiple business units, and flexible web-based reporting. IT administrators can allocate, and reallocate, available licenses across multiple cost centers and organizational units. The combination of inventory and license agents in ManageSoft Windows Deployment ensures that all computers on the new operating system start out with, and continue to have, valid licenses.

The fact that ManageSoft Windows Deployment provides native integration with Active Directory means that all of this information on hardware assessment, installed software, and license management can be reported by Active Directory organizational units which can represent sites, business units, or other meaningful groups.

This means that a single directory structure provides meaningful management of the entire enterprise. If you modify your Active Directory (for example adding a user or computer to an organizational unit), the software, hardware, and license reports automatically update to include inventory for that user or computer.

This enables detailed project planning based on up-to-the-minute reporting on the status of any given business unit or site. No other solution provides this level of native use of Active Directory and progress reporting against baseline discovery and inventory data.

*A hardware-portable and job role-independent operating system image saves considerable time and management costs.*

## Phase 3: Prepare

Having prepared an accurate inventory of the organization's live environment, and planned the operating system deployment using that information, the next phase of the Windows deployment project is to prepare for the rollout itself. This preparation phase involves several steps including:

- Base operating system preparation
- Specifying machine renaming and domain joining
- Software packaging and testing
- Specifying what user data and which application settings to migrate
- Policy definition—defining desired states for users and computers
- Distributing OS images and software packages.

### Base operating system preparation

Windows Unattended Setup, traditional disk imaging, and Windows System Preparation Tool (Sysprep) are commonly used methods to deploy new operating system versions in large organizations.

- **Unattended Setup** is a Microsoft process for setting up Windows 2000 or later versions on multiple computers by running the standard Windows Setup from the command line using a customized script ('answer file') to automatically answer standard Setup questions. This method enables installation of the new operating system, but used in isolation does not manage the myriad of other migration challenges including, for example, the installation of software applications, and migration of user data and application settings.
- **Windows System Preparation Tool (Sysprep)** is provided as part of Windows 2000 and later operating systems, and enables IT administrators to deploy the operating system and applications together through an image method. Sysprep includes improvements to the Unattended Setup process, application installation, and management enhancements, but used in isolation is not ideal for role-based allocation of new and updated software in large-scale Windows deployment projects.
- **Disk imaging** using tools like WIM imaging technology or Symantec Ghost provides rapid installation of a new operating system and all software for the new platform. However, traditional imaging approaches can require hundreds of different operating system images to accommodate different combinations of hardware and job role-specific software requirements throughout the organization. This creates complexity and inflates costs.

For Windows Vista, ManageSoft Windows Deployment supports WIM imaging technologies. For Windows XP, Server 2003, or 2000, ManageSoft Windows Deployment supports disk imaging, Sysprep installation, and Unattended Setup. For these older operating systems, ManageSoft Windows Deployment also provides an innovative approach that involves the preparation of a hardware-portable and job role-independent operating system foundation. ManageSoft Windows Deployment provides an easy-to-use operating system image preparation agent, a central image library, seamless integration with Symantec Ghost, and byte-level differencing for remote image distribution, to make creation, customization, and distribution of images fast and easy. This combination of rapid image creation, easy image customization, and best-practice management of images in a central image library saves considerable time and management costs for operating system deployment projects, because operating system image creation can be a time-consuming and complex process.

The resulting image contains the drivers and other optional elements that the operating system installer may dynamically call during tailoring to suit each individual computer configuration. The use of a hardware-portable and job role-independent image (with separate policy-based distribution of job role-specific applications) overcomes the usual difficulty

with image-based installations: preparing and managing an exponentially growing number of images.

At the same time, this hardware-portable and job role-independent image solution allows for complete automation and centralized control. With ManageSoft Windows Deployment, IT administrators can simply specify which groups of users and computers should receive a Windows upgrade, what software should be installed on the new platform, and when that policy should be applied. ManageSoft smart agents provide set-and-forget policy-based reliability by transforming each computer into a self-managing smart device that completes per-machine setup in line with centrally-defined software policies. Smart agents on each managed device automatically determine, download, and install any differences required to comply with the centrally-defined software policy — without requiring human intervention, and without requiring hundreds of different operating system images.

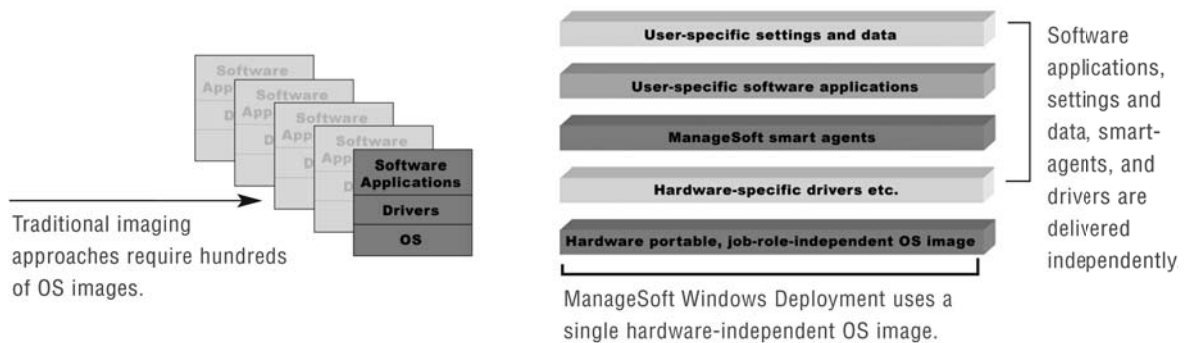


Figure 6. Minimize the number of images you need to create, deploy, and manage by using a hardware-portable and job role-independent operating system image that automatically configures to specific hardware environments and job role requirements

## Specifying machine renaming and domain joining

Large-scale Windows deployment projects provide an opportunity to rationalize computer naming conventions to simplify ongoing management and streamline IT support. However machine renaming and changing domains present significant challenges for many Windows deployment solutions. ManageSoft Windows Deployment provides the most intelligent machine renaming and domain joining solution, with automated support for the full range of common practical scenarios including:

- Initial deployment to a new "bare-metal" computer
- Migration of an existing computer to the new operating system, with or without machine renaming and/or changing domains — with automatic restoration of user data and application settings
- Migration from an existing computer to a new or upgraded computer — with automatic migration of user data and application settings
- Migration from an existing desktop to a new laptop, or the reverse — with automatic migration of user data and application settings
- Computer naming convention changes to automatically incorporate, for example, asset number, hardware serial numbers, MAC address, or sequential machine numbering schemes (such as Marketing001, Marketing002 and so on), to streamline IT support and asset management in the post-migration environment.

During this Preparation phase of the Windows deployment project, ManageSoft Windows Deployment makes it easy for IT administrators to map pre-migration machine names and domains to desired post-migration machine names and domains, for automatic implementation during the subsequent Rollout phase. This mapping in ManageSoft Windows Deployment is done through a powerful user interface using an open SQL schema, and

**ManageSoft Windows Deployment provides the most intelligent machine renaming and domain joining solution.**

documentation is provided to enable easy customization of out-of-the-box scripts for any complex machine renaming requirement. Even if an end-user changes hardware, domain, and computer name during a Windows migration project, ManageSoft Windows Deployment ensures that the end-user's data and application settings are automatically restored on the new computer.

## Software packaging and testing

*Even if an end-user changes hardware, domain, and computer name, ManageSoft Windows Deployment restores the end-user's data and application settings.*

Every existing application to be retained, and every new application to be installed, during the operating system deployment project, needs to be tested on the new operating system. Many shrink-wrapped applications will need to be upgraded. Applications that were developed in-house may not support Vista/Server 2003/XP/2000 and may also require upgrading. Other applications may have been purchased from vendors that are no longer operating, creating a need for alternatives. To ensure the success of the operating system deployment, you need to be confident that every application, whatever the source, will function as intended on the new platform.

Having decided on the required applications for the new platform (and purchased any necessary upgrades), you then need to package the applications in a format suitable for automated distribution and installation. Application packaging can be complex and expensive — and it's inextricably linked to any operating system deployment project. That's why ManageSoft includes the industry's most complete, flexible, and straight-forward application packaging facilities.

ManageSoft smart agents and wizards make preparing packages fast and reliable. ManageSoft supports MSI (Windows Installer) packages, as well as existing third-party packages from InstallShield, WISE, and more. ManageSoft also provides a powerful and flexible native package format for non-standard or exceptional instances that eliminates manual software installations during operating system deployment projects. Facilities like a snapshot wizard, a plain-text package format, and scripting make difficult installations simple and fast.

ManageSoft also embodies industry best-practice packaging and release management processes, as documented in the IT Infrastructure Library (ITIL) and the Microsoft Operations Framework (MOF). In keeping with ITIL recommendations, ManageSoft stores software packages in a central Definitive Software Library. This is an inviolable archive of every version of every application distributed to the enterprise by ManageSoft.

## Specifying what user data and which application settings to migrate

A key requirement of any Windows deployment project is to ensure minimal disruption to the business. In order to ensure business continuity, each user's data files and application settings (often referred collectively to as the user's 'personality') must be available after the deployment of the new operating system. Email software is a prime example. End-users are now strongly dependent on email as a productivity tool. It is therefore essential that mail folders and settings be restored rapidly and reliably to avoid productivity losses and costs to the business.

The ManageSoft Windows Deployment personality agent provides complete automation of user data and application settings migration. During the Preparation phase of the Windows deployment project, ManageSoft Windows Deployment makes it easy for IT administrators to define data templates specifying which data and settings to automatically capture from a computer prior to migration, and where to restore user data and settings after rollout of the new operating system.

- **Operating system settings migration** — Migration of general operating system settings is provided out-of-the-box. These default options include accessibility options, desktop

wallpaper, internationalization settings, keyboard settings, mouse settings, screen saver, mapped network drivers, and Internet Explorer settings.

- **User data migration**—In addition to the general settings above, files and registry entries can also be specified for migration. For example, IT administrators can specify that particular folder names, or all Microsoft Word documents (.doc files), on a user's computer automatically be backed up prior to operation system installation, and automatically restored on the new platform.
- **Application settings migration**—Application-specific data and settings can also be automatically migrated. For example, an administrator-defined data template for Microsoft Outlook could specify to automatically capture and restore all Outlook mail folders (.pst files).

## **Policy definition—defining desired states for users and computers**

Once the base operating system image has been prepared, and software applications have been packaged and tested, the next step is to specify which groups of users and/or computers should receive what software applications on the new operating system platform. This provides an opportunity to move to a 'role-based' or 'user-centric' model of IT operations management. By definition, a role-based approach necessitates rejecting traditional one-size-fits-all standard operating environments, and instead focusing on delivering what people need to perform their particular job role, and delivering it when they need it.

ManageSoft Windows Deployment provides unequalled reliability and control for role-based software deployment with true policy-based management. Policy-based automation avoids the costs and time delays associated with alternative labor-intensive task-based systems. With ManageSoft Windows Deployment, IT administrators can define software policies specifying which groups of users and computers should receive what software—the 'desired state' for each computer.

The desired state is a fundamental design principle of the ManageSoft policy-based, client-centric architecture. This unique patented smart-agent architecture transforms managed computers into self-configuring, and self-healing devices. Once the new operating system is installed, managed desktops, servers, and mobile devices automatically compare their current state with the desired state described in centrally-defined software policies, and automatically download and install any differences required to achieve the desired state—without requiring human intervention. The desired state for each computer can be defined in one or more software deployment policies relating to groups of users and/or computers. ManageSoft automatically resolves a set of applicable policies to determine the resultant policy for a given computer. Policies can target installations by business unit (Active Directory Group Policy Objects), by cross-divisional user types (Active Directory security groups), or even by individual user or computer. These central policies give you the flexibility to assign software based on business functional groupings, including groups that cut across your organization chart. You can allocate software to any meaningful group of users and/or computers defined in Active Directory.

In Windows Vista, Server 2003, XP, and 2000, software policies are represented in Group Policy Objects. ManageSoft is the only vendor solution integrated from the ground up with Active Directory Group Policy and related security groups. For corporations that have already rolled out an Active Directory infrastructure, ManageSoft uses the native Active Directory Group Policy to deliver software policies—there is no need for the parallel policy server structure or Active Directory schema extensions that other solutions require for ongoing software management. (For organizations that decide to delay rolling out Active Directory to desktops and laptops, ManageSoft uses a single central Active Directory database and distributes policies to managed devices as lightweight XML files.)

**ManageSoft Windows Deployment provides complete automation of user data and application settings migration.**

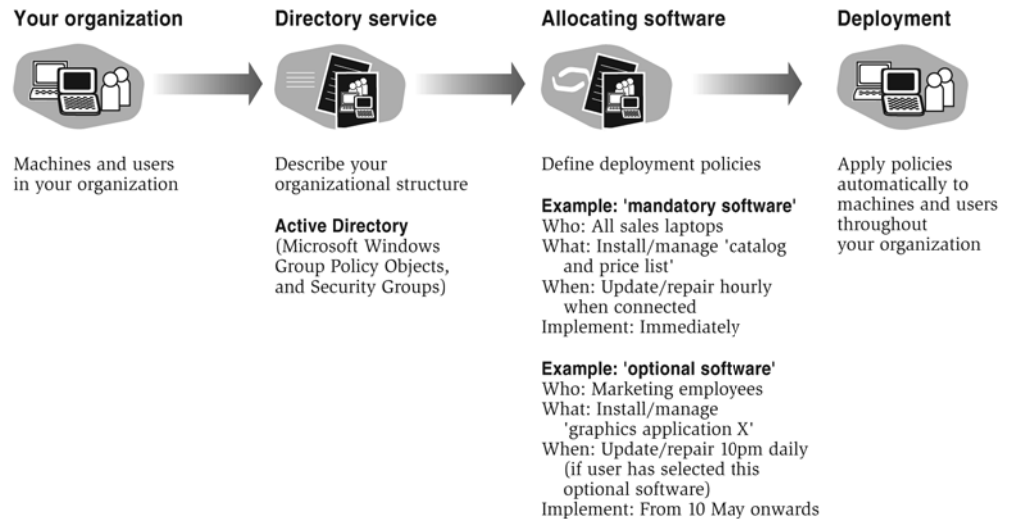


Figure 7: Policy-based management enables role-based allocation of software

## Distributing OS images and software packages

Once the hardware-portable and job role-independent operating system image is complete, machine renaming and domain joining rules have been defined, and all applications have been tested and packaged in an appropriate format, the next step is to distribute all required files and packages to rollout site servers at the target sites. ManageSoft automates this process, either through an intelligent server hierarchy or directly to passive servers. This automated distribution of the operating system image and associated software packages is a distinct time-saver for geographically dispersed organizations that in the past have relied on CD couriers to distribute these extremely large files. ManageSoft makes automated distribution of large image files realistic and highly reliable, with a range of industry-leading mobile and remote deployment features including 'drizzle' distribution to remote sites, job prioritization, bandwidth throttling, distribution time windows, byte-level differencing, and more, to ensure that distribution is reliable, and does not disrupt business. Once distribution to a local rollout site server in a target site is complete, the site is ready to roll out the new operating system.

**Policy-based automation with ManageSoft Windows Deployment provides unequalled reliability and control for role-based software deployment.**

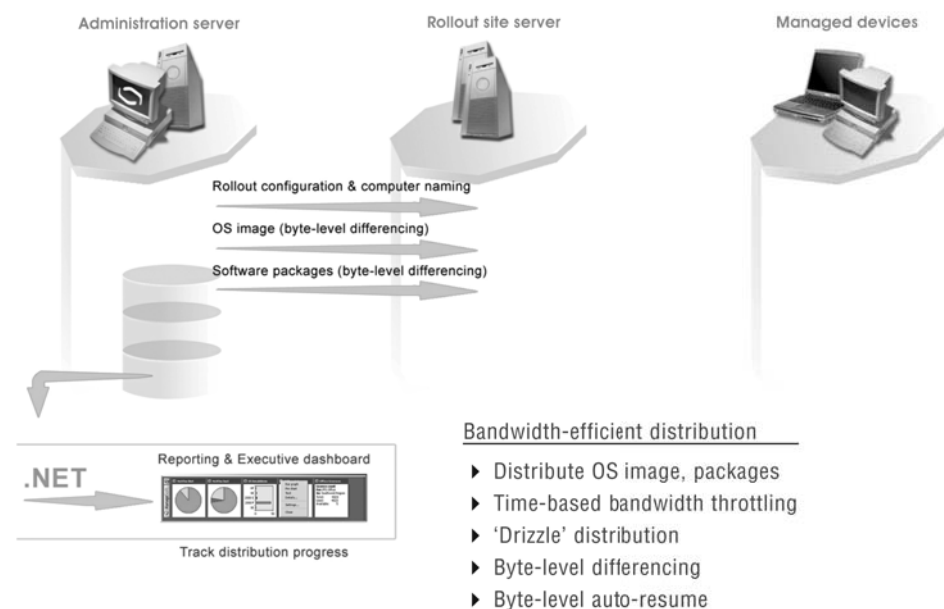


Figure 8: Bandwidth-efficient distribution to local rollout site servers at target sites

## Phase 4: Rollout

In the Rollout phase, with ManageSoft Windows Deployment you can migrate entire groups of PCs (on a floor of a building, or in a business site) at the same time. You can use any group defined in your Active Directory as a target group for the rollout. This rollout can be triggered by a central administrator operating remotely, or by a local site supervisor/administrator.

The rollout phase involves several steps including:

- Backup (optional)
- PC personality and data backup
- Hardware replacement (optional)
- Operating system installation
- Machine renaming and domain joining
- Software installation
- Personality and data restoration
- Tracking the rollout.

### **Backup (optional)**

Before the rollout commences, it is important to first consider how critical it is to the business to have the ability to rollback in the case of disaster. If this is an issue for computers in a particular rollout group, then the first step of the rollout phase is to perform a backup. Your backup procedures will depend on the technology you have chosen to use to perform this task. For example, you can use ManageSoft Deployment Manager remote execution to capture client computers as WIM images.

### **PC personality and data backup**

User settings and all user data files are then automatically captured—data directories, registry settings, file shares, desktop configuration, and virtually all other user-associated unique information—according to the centrally-specified templates defined during the Preparation phase of the project. This "personality data" for each computer is stored on a local file server as an .exe file.

### **Hardware replacement (optional)**

With user data and application settings automatically backed-up, IT administrators can then proceed to upgrade or replace any hardware identified during the Planning phase as requiring changes in order to accommodate the new operating system.

### **Operating system installation**

With all personality data safely backed up, and any necessary hardware changes completed, the operating system is then automatically installed using the method selected during the Preparation phase of the project. First, the hard disk(s) is wiped clean. If required, the disk is automatically reformatted from FAT32 to NTFS format. Then the Windows Vista, Server 2003, XP, or 2000 operating system is installed.

ManageSoft Windows Deployment supports WIM imaging, disk imaging, Sysprep installation, and Windows Unattended Setup. The WIM imaging technologies allow you to prepare a single hardware-independent image to use for Vista deployment. For deployment of operating system releases earlier than Vista, ManageSoft Windows Deployment also provides an innovative approach that involves the preparation of a hardware-portable and job role-

*With ManageSoft Windows Deployment you can migrate entire groups of PCs at the touch of a button.*

independent operating system foundation. Using this recommended approach, ManageSoft Windows Deployment installs the core image of the new operating system, and then tailors the installation to the specific hardware environment and user job role. This unique approach means the same image can be used across desktops and laptops, and across computers from multiple vendors. The image is also job role-independent because ManageSoft Windows Deployment delivers software separately from the OS image.

Once the hardware-portable image is installed, standard Windows plug-and-play driver configuration technology is used to automatically configure the operating system to the specific host hardware (installing appropriate drivers for example).

As the OS installation is completing, ManageSoft Windows Deployment also installs small, transparent smart agents. The updated computer is now a self-configuring smart device able to automatically adapt and self-heal to maintain the desired state described in centrally defined policies. The next step is to rename the computer (if required), join the computer to the appropriate domain, and install the appropriate software applications.

## Machine renaming and domain joining

ManageSoft Windows Deployment then automatically implements the machine name mapping and domain mapping defined during the Preparation phase of the project. ManageSoft Windows Deployment provides the most intelligent machine renaming and domain joining solution, with automated support for a full range of common practical scenarios.

- Unlike other domain joining tools that compromise security by including the domain administrator password in clear text, ManageSoft Windows Deployment maintains security by encrypting the password used to join the domain.
- Unlike Sysprep and other automated domain joining tools that only enable computers to be added to the "Computers OU" within Active Directory, ManageSoft Windows Deployment extends this capability to enable computers to be automatically added to specific organizational units on joining the domain.
- Even if an end-user's hardware, domain, and computer name change during the rollout, ManageSoft Windows Deployment ensures that machine renaming and domain joining is fully automated, and that the end-user's data and application settings are automatically restored on the new computer.

## Software installation

Once the operating system has been installed, the computer has been renamed and has been joined to the relevant domain, targeted sets of applications need to be installed on each computer. ManageSoft uses Active Directory Group Policies to target software deployment to specific groups of users and computers. The ManageSoft smart agents that were installed with the operating system automatically download relevant software policies from a local server and determine if the managed device is in full compliance with centrally defined policies — the desired state. Smart agents identify missing application packages and download them from the server.

To increase reliability and conserve bandwidth, ManageSoft Windows Deployment ensures that if a previous download attempt was interrupted (for whatever reason), the download automatically resumes from the point at which it was interrupted (instead of starting the download again from the beginning).

This combination of a client-centric architecture and policy-based management provides unequalled reliability and automatic recovery capabilities. Smart agents on each managed device automatically detect if the current state of a device differs from the desired state described in relevant policies. Any differences are automatically downloaded and installed. ManageSoft can also adjust registry settings, both for new installations and to match specific

***ManageSoft Windows Deployment installs the core image of the new operating system, and then tailors the installation to the specific hardware and user job role.***

desired states and install schedules for other management events, such as updating inventory reports or checking for changes in relevant policies.

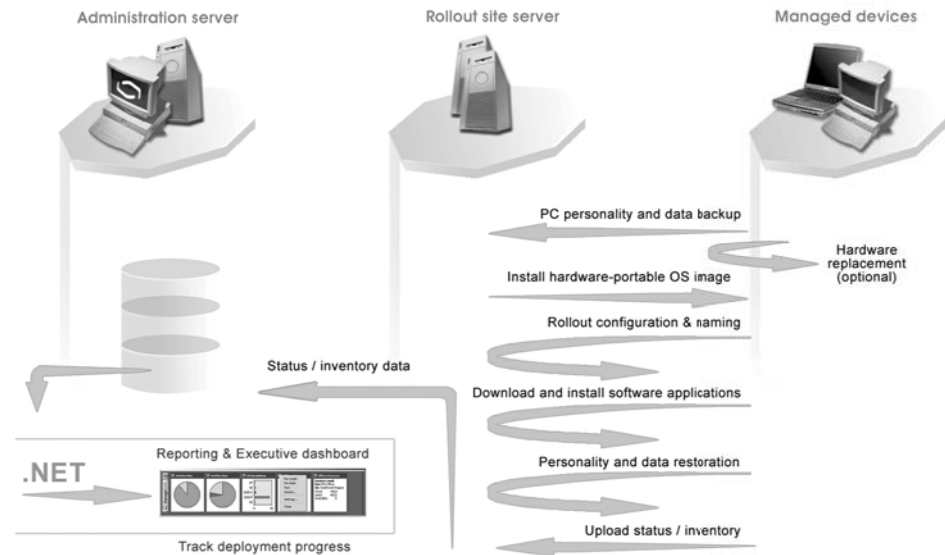


Figure 9: Roll out entire groups of computers at the touch of a button

## Personality and data restoration

Once applications have been installed, the PC's personality information (including user data like spreadsheets and documents) is automatically retrieved and restored. This restores existing user data and applicable settings to the new operating system. The themes, templates, wallpaper, user settings, sounds, and preferences that were in place on the old operating system can be restored to their pre-existing state. All of this means that when end users return to use their computers after the rollout, they can get up and running as quickly as possible, with all of their user-preferences restored as they left them prior to the rollout. At this point, the operating system installation is complete and the personality restored for each computer.

## Tracking the rollout

Throughout the rollout phase ManageSoft provides automated tracking and reporting to track progress and validate success:

- **Operating system installation status**—The rollout site server returns status information for each computer as the operating system installation proceeds. Online status reports provide an auditable record of outcomes.
- **Rollout progress**—Project managers (and other authorized business managers) can monitor rollout progress with a personalized executive dashboard providing up-to-the-minute web-based reporting. Graphical summaries clearly indicate key performance indicators, updating as each computer completes operating system installation, application installation, and personality restoration. The executive dashboard also provides immediate drill-down to exceptions and underlying data for individual applications, users, or computers. Summary reports reflect Active Directory organizational units which can represent sites, business units, or other meaningful groups. You get the information you choose, when you need it, with at-a glance readability.

*The combination of client-centric architecture and policy-based management provides role-based software deployment, unequalled reliability, and automatic self-healing.*



Figure 10: Minute-by-minute migration reporting

At this point the rollout is complete. Depending on the release and edition of Windows being installed, and the hardware on which it is being installed, a manual, CD-driven process of operating system installation, personality migration, and application installations can often take at least 90 minutes per computer. The fully automated process that ManageSoft Windows Deployment provides can reduce this to as little as 20 to 30 minutes, and can be run concurrently on hundreds of computers at a time — delivering significant time savings, and dramatic labor savings.

The fact that ManageSoft Windows Deployment provides such comprehensive assistance in the initial Discover, Plan, and Prepare phases of a Windows Deployment project, enables rapid and reliable large-scale rollout to hundreds of computers at a time during the Rollout phase of the project — at the touch of a button. This is particularly important for organizations that also need to upgrade or replace hardware during the rollout, because any delays to the labor-intensive process of hardware replacement have the potential to significantly inflate costs. ManageSoft Windows Deployment provides a rapid and reliable automated solution.

## Phase 5: Manage

**Throughout the rollout phase ManageSoft Windows Deployment provides automated tracking and reporting to show progress and validate success.**

At this point, many operating system deployment tools provide no further assistance. ManageSoft Windows Deployment is radically different. ManageSoft uses the same infrastructure that was used to deploy the new operating system, to provide ongoing automated management at no incremental cost and with negligible administrative overhead. This provides dramatic ongoing savings, and enables IT administrators to meet the ongoing management challenges of:

- Staying current — operating system patches and service packs
- Software deployment
- System builds/rebuilds
- IT asset tracking
- License management
- Mobile and remote systems management
- Future Windows deployments.

## Staying current — operating system patches and service packs

Operating system deployment projects produce a clean IT environment that delivers significant management saving immediately after the operating system deployment. However, this new 'clean' IT environment needs ongoing management as illustrated below.

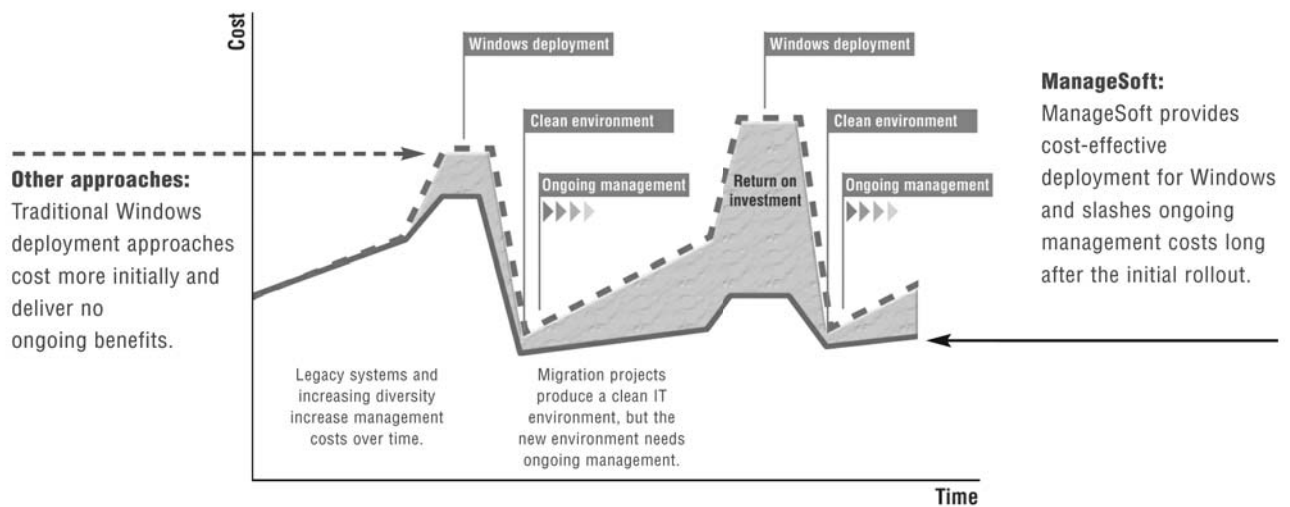


Figure 11: ManageSoft Windows Deployment slashes ongoing management costs with policy-based automation

A common example of the challenges of keeping the new IT environment current is the relentless release of new operating system patches and service packs. Using traditional approaches, an organization that has just completed a 10,000 computer operating system deployment project faces significant challenges if a new operating system service patch is released by Microsoft.

With traditional approaches, a new service pack would require IT administrators to update all of the operating system images to cover all of the various combinations of hardware and software in use throughout the organization. Each computer that had already been migrated to the previous service pack, would then need to be manually upgraded again using the new images. Clearly such an approach is exorbitantly expensive. What you find in reality is that many organizations faced with this situation only install the new service pack on new computers purchased through ongoing hardware refresh cycles. Older computers tend to be left behind because it is perceived as 'just too hard to upgrade'. This patchwork approach means that over time the IT environment becomes more and more diverse — wiping out the management benefits of the initial operating system deployment project. Increased diversity creates higher support costs, which is often why the organization committed to an operating system deployment project in the first place.

**The same client-centric architecture used to deploy the new operating system also provides ongoing policy-based management.**

ManageSoft solves this challenge by providing ongoing automated management of the post-migration IT environment. To deploy a new service pack, you simply update the relevant deployment policy to describe a new desired state incorporating the new service pack. All computers that have already been migrated as part of the operating system deployment project are now self-managing devices. These managed devices automatically determine any differences between their current state, and the new desired state described in the modified policy. Any differences required to install the new service pack are automatically downloaded and installed on each managed device. ManageSoft also automatically installs the new service pack for any new computers deployed later as part of standard hardware refresh cycles. All of this is done automatically from a single policy change, with byte-level differencing and drizzle distribution ensuring that only the changes are distributed to remote sites (not the entire operating system image again). No need for hundreds of new images, no need for CDs and couriers, and no need for manual upgrades.

*All computers that have been migrated as part of the operating system deployment project are now self-managing devices.*

## Software deployment

This same process also enables rapid and reliable automated software deployment long after the Windows deployment project is completed. Software deployment can be carefully targeted to specific groups of end-users and computers. For example, a finance application could be allocated to finance employees in an individual office (or even an individual floor). Unlike competitive solutions, ManageSoft also enables administrators to specify whether particular software is 'mandatory' or 'optional'. ManageSoft automatically distributes and installs 'mandatory' software for the entire targeted groups (including users connecting across the Internet). 'Optional' software is not installed but is instead added to a personalized list of applications that end-users in the targeted groups can select from. Organizations can also customize the end-user interface to include company-specific software categories — 'sales force software', for example.

Releasing software updates is simply a matter of centrally updating relevant deployment policies and distributing the updated software packages to local servers. Smart agents on each managed device automatically determine any differences between their current state and the new desired state described in the updated deployment policies. Any differences are automatically downloaded from a local server and installed on the managed device.

- Unlike approaches that require the installation and management of expensive dedicated server infrastructure, the ManageSoft client-centric architecture provides cost-effective ongoing scalability because it does not rely on server-side processing. All calculations are performed on the managed device itself.

## System builds and rebuilds

ManageSoft Windows Deployment provides set-and-forget policy-based reliability, with automatic self-healing if a software installation is corrupted for whatever reason. However, there are occasions when IT administrators want to rebuild a system. Similarly, when users or computers change roles and/or physical location within an organization, it can be challenging to IT administrators to determine exactly what needs to be done to ensure the computer is configured properly for the new role/location. Policy-based management with ManageSoft Windows Deployment provides a comprehensive automated solution:

- **Automated new system builds** — Building a new computer for a new user simply involves adding the user and computer to the relevant organizational unit and/or security group in Active Directory. ManageSoft Windows Deployment then automatically determines, downloads, installs, and configures the required OS and job role-specific software appropriate to the particular end-user and computer.
- **Automated system rebuilds** — Unlike other solutions, ManageSoft provides far more than a simple rebuild back to the state when the last operating system image was created. With ManageSoft Windows Deployment you can automatically rebuild a system back to the current desired state described in policy—including not only the operating system deployed during the operating system deployment project, but also all operating system service packs, new applications and configuration changes that have been deployed since. This is only possible with a policy-based management system. Smart agents installed with the operating system automatically determine what's required to rebuild to the desired state described in current policies.
- **Intelligent partial system rebuilds** — ManageSoft Windows Deployment also enables intelligent partial rebuilds when a computer is moved from one organizational group to another. For example, if a computer is moved from Marketing to Sales, ManageSoft smart agents on the computer will automatically reconfigure the device to achieve the desired state described in policies applying to the Sales group. Without needing to build the computer again from scratch, ManageSoft Windows Deployment will automatically remove any Marketing applications that are no longer required (freeing up licenses to be used

elsewhere in the organization), and will automatically download and install any additional Sales applications specified in centrally-defined policies.

## **IT asset tracking**

With ManageSoft Windows Deployment, smart agents on each managed device also continue to provide highly accurate inventory tracking long after the initial Windows deployment. Inventory data is automatically uploaded to a central SQL database for accurate tracking of the status and location of software and hardware assets worldwide. This inventory data is accessible at any time through powerful graphical reporting in the ManageSoft executive dashboard, and summary reports can be structured around any meaningful group defined in Active Directory (site-by-site for example, or business-unit-by-business unit). The executive dashboard provides click-through access to drill down to more detailed inventory information for individual users or computers.

## **License management**

ManageSoft also enables efficient software license management for software deployed during and after the Windows deployment project. The client-centric, policy-based architecture used for the initial Windows deployment provides up-to-the-minute company summaries and individual business unit reports to provide IT administrators with precise inventory data for license negotiations with software vendors. Automatic license breach alerts enable administrators to avoid costly license breaches. Software metering and usage reports enable identification of unused and under-utilized software licenses for possible reallocation. Easy allocation, and reallocation, of existing licenses across multiple business units enables efficient use of existing licenses. It also enables accurate charge-back of license costs to individual business units. This comprehensive license management solution provides clear post-deployment benefits without requiring any additional investments or infrastructure.

*ManageSoft Windows Deployment provides an ongoing solution for future Windows deployments.*

## **Mobile and remote systems management**

Business is increasingly mobile. Computer users roam between desktops, and use laptops to move between customer sites, hotel rooms, and offices inside and outside the firewall. Just like their fixed-desktop colleagues inside the firewall, mobile and remote employees use software and data that embody and enable business-critical processes. However, it is typically more expensive, and particularly challenging, to track and support these mobile and remote IT resources. To effectively manage your newly migrated environment, you need a solution to maintain service levels for these mobile and remote employees, and to ensure responsible IT asset management.

Unlike products that offer separate management systems for computers inside and outside the corporate firewall, ManageSoft reduces complexity and cost by enabling the same software configuration management solution to be used for all managed devices, worldwide. In doing so, ManageSoft effectively removes any significant differences between managing 'internal' and 'external' users on either side of the corporate firewall, without adding additional infrastructure, and without adding additional administration overhead. The unique ManageSoft smart-agent architecture combines client-side intelligence, policy-based management, and industry-leading bandwidth and reliability features to provide set-and-forget reliability, even over the slowest and most unreliable networks.

## **Future Windows deployments**

ManageSoft Windows Deployment provides an ongoing solution for future Windows deployments. Ongoing policy-based software deployment, easy system rebuilds, and automated inventory tracking long after the initial Windows deployment, combine to ensure that when the time comes to migrate to the next Windows operating system in 2–4 years, the

required infrastructure will already be in place. The existing ManageSoft infrastructure can be used for the new Windows deployment, without requiring additional investment, without requiring additional infrastructure, and without requiring new skillsets.

## Conclusion

Operating system deployment projects can be large and challenging — and they frequently incur unexpected costs and delays. You need a migration solution that can be implemented quickly with absolute reliability — an operating system deployment process that is automated and repeatable. That's what ManageSoft Windows Deployment delivers.

ManageSoft Windows Deployment is an end-to-end operating system deployment solution. With its unique smart-agent architecture, ManageSoft simplifies Windows deployment for new and existing computers. ManageSoft provides policy-based control and central reporting for every step of a Windows rollout project, delivering ongoing savings long after initial deployment. It's the fastest and most reliable way to deploy Windows Vista, Server 2003, XP, or 2000.

It's a unique and powerful solution that enables you to:

- **Automate deployment of Windows Vista, Server 2003, XP, or 2000** — ManageSoft Windows Deployment provides unattended OS deployment anywhere in the world, with policy-based central control, and automatic error correction.
- **Plan for success with pre-deployment asset discovery and reporting** — ManageSoft Windows Deployment integrates with best-of-breed IT asset discovery tools, and provides zero-touch inventory, hardware assessment and software reports to enable accurate, cost-effective migration planning. Know what you've got, what you are targeting, and monitor progress reporting against that baseline.
- **Reduce deployment costs with a hardware-portable image** — Unlike approaches that require hundreds of different OS images, ManageSoft Windows Deployment uses a hardware-portable and job role-independent installation base. Smart agents automatically determine what's needed to achieve the desired state on each device, enabling automated download, installation, and self-healing.
- **Automatically restore user data and personality settings** — Unlike processes that wipe everything during migration, ManageSoft Windows Deployment automatically saves and restores user data and application settings so that end-users can start working productively again immediately after a new Windows deployment.
- **Policy-based management for ongoing savings** — ManageSoft smart agents transform desktops and laptops into self-managing smart devices that automatically adapt and self-heal in accordance with centrally-defined policies.

### Find out more

Find out more about how ManageSoft Windows Deployment delivers the fastest and most reliable way to deploy Windows Vista, Server 2003, XP, or 2000, with ongoing desktop management savings.

- Telephone your nearest ManageSoft office to discuss your requirements or request a product demonstration
- Visit [www.managesoft.com](http://www.managesoft.com) for additional resources or to register for a Windows deployment seminar
- Request an in-house proof of concept to see how ManageSoft can meet your particular requirements.



**ManageSoft Windows Deployment is an end-to-end operating system deployment solution. It's the fastest and most reliable way to deploy Windows Vista, Server 2003, XP, or 2000.**

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