



Microsoft®  
**Desktop Optimization Pack**  
for Software Assurance

Virtualization and Manageability for the  
Windows Optimized Desktop

**Microsoft**

## Microsoft Desktop Optimization Pack

Managing desktops across an enterprise is often time-consuming, complex, and costly. IT organizations face difficult PC manageability tasks on a daily basis. The Microsoft Desktop Optimization Pack, an essential part of the Windows 7 Optimized Desktop solution, currently includes six technologies that help reduce the total cost of ownership (TCO) of a Windows 7 desktop.

Microsoft Desktop Optimization Pack virtualization technologies enhance application deployment and updates, and resolve application incompatibility. Additional MDOP technologies increase IT responsiveness and user uptime through robust diagnostics and monitoring capabilities, and improve IT control by providing asset tracking and group policy change management.

## Extending the Benefits of Windows 7 Enterprise

### *Make people productive anywhere*

- Give users access to the applications they need at the right time, from any desktop, while maintaining low IT costs for application deployment and life cycle management.
- Enable applications that are not yet supported on Windows 7 by creating a virtual Windows XP environment that is seamlessly integrated into the user desktop.

### *Enhance control*

- Application usage tracking makes it easy to determine which applications are being used so customers can better manage license compliance, as well as prepare for operating system upgrade.
- Control enterprise-wide Group Policy configuration with role-based administration and change process management.

### *Streamline PC manageability: simplify application and desktop lifecycle management*

- Expedite the deployment, update, and deprovisioning of software applications, and reduce application regression testing time, to minimize conflicts between applications.

### *Streamline PC manageability: keep PCs running smoothly*

- Recover unusable PCs and rapidly diagnose the root cause of PC problems so end users get back to work quickly.
- Provide insights into application and operating system failures, and allow helpdesk staff to solve PC problems proactively, before they become major drains on productivity.



## Innovative Technologies



BENEFITS : 2

## Making Windows Desktop Management Easier

Enterprises are facing a number of challenges that make desktop lifecycle management difficult:

- IT staff spend too much time and resources deploying, upgrading, supporting, and retiring applications, which also results in downtime and loss of user productivity.
- Application compatibility with new versions of Windows is delaying upgrade projects
- Group Policy changes have an unpredictably adverse effect on desktops.
- Maintaining an inventory of software assets is time-consuming and complex.
- PC failures impact user productivity, require reinstall of the desktop and result in loss of user data.
- New applications, or changes in network or system settings, unexpectedly inflate help desk calls.

The Microsoft Desktop Optimization Pack for Software Assurance can transform the way you manage these challenges. It will enable you to better control the desktop, accelerate and simplify application deployments and management, and enable IT to provide highly responsive service.

BENEFITS : 3

Microsoft Desktop Optimization Pack is a suite of management, deployment, and virtualization tools. Available as a subscription to our Software Assurance customers, it includes six technologies:

### Microsoft Application Virtualization

**Microsoft Application Virtualization (App-V)** turns applications into centrally managed services that are never installed, never conflict, and are streamed on demand to end users.

### Microsoft Enterprise Desktop Virtualization

**Microsoft Enterprise Desktop Virtualization (MED-V)** enables deployment and management of Microsoft Virtual PC to address key enterprise scenarios, primarily resolving application compatibility with a new version of Windows.

### Microsoft Advanced Group Policy Management

**Microsoft Advanced Group Policy Management (AGPM)** enhances governance and control over Group Policy through robust change management, versioning and role-based administration.

### Microsoft Asset Inventory Service

**Microsoft Asset Inventory Service (AIS)** is a hosted service that collects software inventory data and translates it into actionable business intelligence.

### Microsoft Diagnostics and Recovery Toolset

**Microsoft Diagnostics and Recovery Toolset (DaRT)** reduces downtime by accelerating troubleshooting, repair and data recovery of unbootable Windows-based desktops.

### Microsoft System Center Desktop Error Monitoring

**Microsoft System Center Desktop Error Monitoring (DEM)** provides insights into application and operating system failures, allowing helpdesk to be more proactive in managing PC problems, without installing an agent to the endpoint.

## How Microsoft Desktop Optimization Pack Helps Customers Cut Costs

IT has always been tasked with operating as cost-effectively as possible while providing responsive, quality service. And with PCs and their supporting infrastructure representing 30 to 45 percent of an organization's IT budget—often costing \$230 to \$1,320 per PC every year, according to IDC—the pressure to reduce costs and streamline labor-intensive processes is greater than ever.

By using the Microsoft Desktop Optimization Pack (MDOP) to reduce the effort involved in managing desktops and adopting best practices, you can realize substantial, tangible savings.

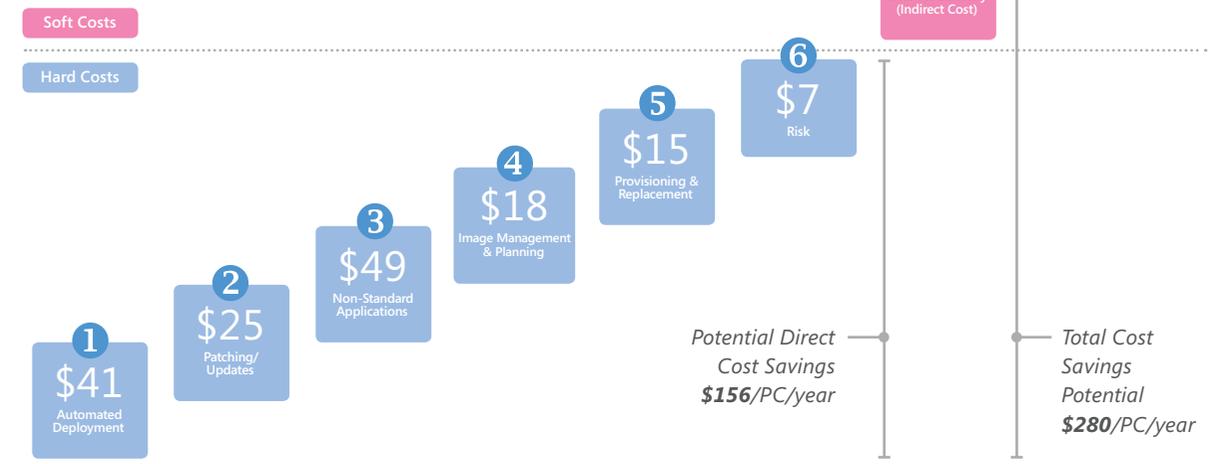
MDOP technologies reduce the cost to implement and sustain the following best practices and services, helping IT meet its total cost of ownership (TCO) goals. Using MDOP for Standard Desktop Strategy, Single System Management Tool and Automated Software Distribution will move organizations from the Basic to the Standardized maturity level, resulting in a 213 percent return on investment (ROI)—which is equivalent to \$235 per PC annual savings. MDOP customers can move from Standardized to Rationalized maturity by adhering to Centrally Managed PC Settings and Configurations and Comprehensive PC Security best practices, realizing a 226 percent ROI or \$215 annual savings per PC.

- Standard Desktop Strategy: MDOP saves \$5 - \$10 per PC per year on an ongoing basis.
- Centrally Managed PC Settings and Configurations: saves \$35 per PC per year annually.
- Comprehensive PC Security: reduces cost by \$20 per PC annually.
- Single System Management Tool: cuts annual costs by \$5 to \$15 per PC.
- Automated Software Distribution: saves \$35 per PC annually.
- Service Desk: saves \$10 per PC annually by reducing resolution time by approximately 50%.

Clearly, adopting MDOP can save you money. Taking an even closer look at Microsoft Application Virtualization, you can see the dramatic savings that just one of the MDOP technologies can have on your organization. The Microsoft Application Virtualization Cost Reduction Study details savings of \$156/PC/year in direct costs (11.6% of PC TCO) plus \$125/PC/year in user productivity gains. These savings are based on six customer cost studies, 45 case studies, industry analyst research, and the PC Lifecycle Cost Study (Optimized Desktop). The sources of direct savings generated by Microsoft Application Virtualization are detailed across the seven areas depicted to the right.

## Components of Cost Savings

"Typical\*" Annual Enterprise PC Savings Potential  
based on a TCO of \$1,346\* and 80% Application Virtualization



\* Direct cost TCO excluding LOB apps - source "The Enterprise PC Lifecycle," Microsoft (2008)

For more information about the MDOP ROI analysis by Wipro, view the report on our website at:  
<http://www.microsoft.com/presspass/events/teched/docs/MDOPWiProWP.pdf>

For more information about the Microsoft Application Virtualization Cost Reduction Study, view the full report at:  
<http://www.microsoft.com/virtualization/resources/default.mspx>



↳ The Technologies  
in Action

## Microsoft® Application Virtualization

*Centrally manage applications and make them available instantly, anywhere*

Today's business desktop is awash in applications. Each installed application requires lengthy regression testing and deployment processes before it reaches production. Because applications are only available where they are installed, users are tied to their computers.

Microsoft Application Virtualization (App-V) changes that. It significantly simplifies the lifecycle of deploying, updating and deprovisioning applications, removing many of the time-consuming steps in the process for both IT and end users.

Microsoft Application Virtualization transforms applications into centrally managed virtual services that are never installed and, because each application executes inside its own virtual space, it does not conflict with other applications.

### Application Virtualization: Advantages

With Application Virtualization desktop administration becomes a simpler, automated process for enterprise IT organizations. Moreover, when you need to re-deploy your applications as part of a Windows 7 upgrade, you can benefit even more by using Microsoft Application Virtualization to:

**Reduce the costs of application deployment and increase user productivity** by eliminating installations and application conflicts, reducing application regression testing, and streaming applications on demand over the network to desktops, terminal servers, and laptops. Deployment is accelerated, and roaming between PCs is much easier, as applications can follow the user to any desktop he logs into.

**Reduce base image footprint and accelerate new PC provisioning time** by separating the applications from the image, and minimizing the number of applications installed after image is deployed. Once delivered, applications are available instantly without having to wait additional time for installations to complete.

**Lessen end user impacts typically associated with application upgrades, patching, and deprovisioning.** No reboots are required to update an application – the administrator just delivers the updated application package and it's instantly available – so there is no waiting for applications to install and no need to uninstall when retiring applications.

**Take advantage of Windows 7 capabilities.** App-V is the only application virtualization technology on the market that benefits from Windows 7 capabilities such as the new User Interface, AppLocker, BitLocker ToGo, and BranchCache, enabling faster delivery, better user experience, improved manageability, and increased control over access to applications.

- Maintain Windows 7 user experience and productivity as virtual applications behave just as regularly installed applications. For instance, users can pin applications to the taskbar and leverage jumplists to navigate.
- Enforce compliance of virtual applications with AppLocker policies, regardless of how they are delivered, and provide consistent policy management for all application types.
- Virtual applications traverse the WAN only once and are available to users faster through local BranchCache points, eliminating the need for an IIS Server in every branch.

- IT administrators can confidently and securely deliver virtual applications on a USB drive, as the associated licenses are protected against unauthorized use. Only authorized users have access to the applications, including remote users who may not have connectivity to corporate network.

**End-to-end PC lifecycle management with Microsoft System Center Configuration Manager.** App-V and System Center Configuration Manager 2007 R2 integration brings full PC lifecycle management to enterprise customers by providing the ability to manage and deploy physical and virtual applications with one solution. The combined solution includes seamless integration with System Center Configuration Manager software distribution to both users and machines. System Center Configuration Manager lets you centrally manage the entire lifecycle of your desktops, enabling you to deploy operating systems, applications, software, and hardware updates to desktop and laptop computers independent of location.

### Application Virtualization: Customer Impact

*"Using App-V and Windows 7 will give our sales staff tremendous flexibility. With them, staff can segregate business files from the main operating system and demonstrate applications in a pristine environment, which minimizes the risk of operating system issues."*

CDW

# Heidelberg Druckmaschinen AG, Germany

Microsoft Application Virtualization



*"With Application Virtualization we dramatically reduced packaging time, optimized application delivery and management processes, and cut the total cost of ownership for our client environment."*

AXEL JUNGHANS GLOBAL CLIENT MANAGER, HEIDELBERG

## The Challenge:

The world's leading manufacturer of sheet-fed offset printing press systems—with a market share of more than 40 percent, and 18,000 employees in 170 countries—Heidelberg relies on thousands of personal computers to help its employees to work as productively as possible. As part of a companywide "Heidelberg Client" initiative to unify, manage, and regularly update its desktop environment, Heidelberg needed to ease a planned migration to the Windows Vista® operating system, manage computers more efficiently, and reduce the cost and time associated with application delivery and management.

## The Solution:

The company implemented Microsoft Application Virtualization (App-V) as part of its Heidelberg Client refresh and update initiative. Using Systems Management Server 2003, it deployed the App-V agent to 15,000 computers in more than 70 countries. Heidelberg quickly virtualized approximately 90 applications, 50 percent of its globally-used, standard programs. Ultimately, it expects to virtualize at least 80 percent of its applications. Heidelberg plans to upgrade from Systems Management Server 2003 to Microsoft System Center Configuration Manager 2007 R2, and integrate the product with App-V, which will help it further streamline virtualized application delivery and management.

## The Results:

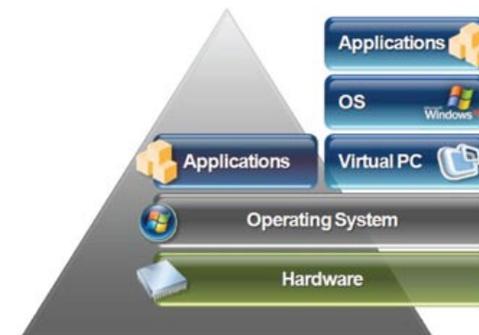
- 40 Percent Cost Savings:** Not only is Heidelberg packaging global applications faster, it is doing so with less dedicated packaging staff in corporate IT. "In the past we needed 2.5 full-time staff to handle packaging, but now we only need 1.5 full-time people," says Jorg Manske, Software Packaging and Delivery, Global Desktop Management, Heidelberg. Heidelberg estimates that it saves more than U.S.\$65,000 (Euro €50,000) annually in packaging costs. This represents a 40 percent savings over traditional MSI-based packaging.
- 50 Percent Time Savings:** It took Heidelberg IT an average of five days to package an application with MSI. Using App-V, IT can accomplish the same task in just two days, a time savings of more than 50 percent. Much of this is due to the elimination of lengthy quality assurance testing. "We don't have to do any integration tests because virtualized applications have no impact on other applications," says Junghans.
- Empowered Local IT Staff:** Heidelberg is also empowering IT staff in regional offices to virtualize applications for local employees. "The knowledge you need to create a virtualized package is 10 times less than what you need to create an MSI package," says Manske. "Local employees who weren't able to package applications in MSI can sequence virtual applications after receiving less than one day of training."
- Accelerated Application Repair:** Heidelberg hasn't experienced any errors during installation and has built a highly stable and reliable application virtualization environment. "It's really astounding since it's a new technology for us. In the last six months, I have received only one helpdesk ticket related to this technology," says Manske. "In the past, deploying a complex package could result in about 100 tickets." If the company does experience problems with virtualized applications, it resolves them easily and quickly. Instead of taking two weeks to find and fix a problem on all the affected clients, it can take just two hours with virtualized applications.

# Microsoft® Enterprise Desktop Virtualization

## Enabling deployment of Virtual PCs in enterprise environments

When facing an upgrade to a new version of Windows, IT is required to map and test all its line of business applications on the new operating system. While Microsoft offers a variety of methods and tools to address applications that are not working properly, in every organization there will be a subset of applications that are not yet officially supported by their vendor, or might not work at all despite all efforts. This whole process—testing, fixing the application, upgrading to a new version that supports Windows 7, or finding an alternative application—is time-consuming. Meanwhile, users are unable to take advantage of the operating system's new capabilities and enhancements, and IT departments have to delay their upgrade plans.

Microsoft Enterprise Desktop Virtualization (MED-V) removes the barriers to Windows upgrades by resolving application incompatibility with Windows Vista or Windows 7. MED-V delivers applications in a Virtual PC that runs a previous version of the operating system (for example, Windows XP). And it does so in a way that is completely seamless and transparent to the user. Applications appear and operate as if they were installed on the desktop, so that users can even pin them to the task bar. For IT administrators, MED-V helps deploy, provision, control, and support the virtual environments.



## Enterprise Desktop Virtualization: Advantages

### Enable incompatible applications

- Accelerate the upgrade path to Windows 7.
- Incompatible or unsupported applications continue to run in a virtual environment with a previous operating system version, seamlessly integrated into the Windows 7 desktop.

### Deploy and provision

- Deploy IT-managed virtual XP environment to end users.
- Enable customization in heterogeneous desktop environments.
  - Automate first-time Virtual PC setup (i.e., initial network setup, computer name, domain join).
  - Adjust Virtual PC memory allocation based on available RAM on host.
- Application provisioning based on Microsoft Active Directory® users/groups.
  - Assign a virtual image and define which applications are available to the user.
- Redirect web requests that require IE6 to the virtual XP environment.

### Control and Monitor

- Centrally define usage permissions, and Virtual PC settings.
- Centrally monitor endpoint clients.
- Provide helpdesk tools to diagnose and troubleshoot virtual PCs.

## Enterprise Desktop Virtualization: Customer Impact

*"We found that MED-V really solved our application compatibility problems. It allowed us to deploy the applications, where third-party vendors were not providing a supported version. Where we used to have hundreds of images, we were able to move to one [Windows] Vista image, and use MED-V to deploy [legacy] applications on top of that."*

BELFAST HEALTH AND SOCIAL CARE TRUST

## TÜV NORD Group, Germany

Microsoft Enterprise Desktop Virtualization and  
Microsoft Application Virtualization

*“MED-V will be very beneficial as we upgrade more machines to Vista and, eventually, Windows 7, since we can run legacy applications that require a previous OS in Virtual PC images on the new desktops.”*

FRANK BOERGER HEAD OF CLIENT MANAGEMENT, TÜV NORD

### The Challenges:

TÜV NORD is one of the world’s leading technical service organizations. To do their jobs, the company’s 8,000 users—who are mostly scientists and engineers—must have reliable computing environments. Its IT team faced formidable challenges in application and desktop management.

**Lengthy packaging and testing of physical applications:** TÜV NORD created application packages using MSI, deployed those applications to appropriate servers, and used Microsoft System Center Configuration Manager 2007 to deliver them to clients, where they would be installed. Application testing, which was needed to ensure applications wouldn’t conflict once installed, could easily take one month.

**Difficulty running multiple versions of applications:** Many users write their own macros and programs, which have version dependencies. This caused compatibility challenges. This issue was also problematic when re-inspecting nuclear plants and other technical systems. According to German law, they must use the same software versions originally used on inspections so they can accurately confirm results from original tests, which likely took place years earlier. Finding those applications and getting them to run on computers that might have newer versions installed was challenging.

**Need to support legacy PCs and multiple desktops per user:** To run older applications, which require older operating systems, TÜV NORD needed to keep legacy PCs. “In many cases, users had two or three machines. Maintaining the old hardware also takes a lot of effort and can be costly,” says Boerger.

**Downtime during repairs:** When a user experienced problems because of conflicts, IT staff would have to re-install the full machine. It often took a full day before users could get their machines back.

**Difficulty supporting India subsidiary:** The subsidiary used a different application than central IT to enter data from their inspections. “In order for our certifications to be compliant, we need all of the company’s SAP data to be consistent—and that meant using the same SAP. However, because a different IT department manages the India network, we couldn’t install our infrastructure there,” Boerger says.

TÜV NORD was planning to upgrade its enterprise-wide clients to Microsoft Vista, and eventually Windows 7, and Office 2007, and needed to ensure a smooth migration while improving the way it managed applications and minimizing user downtime. It also needed a cost-efficient way to run legacy applications on new computers, and to simplify reporting of inspections from its India office.

### The Solution:

TÜV NORD turned to Microsoft Application Virtualization for its application isolation and compatibility capabilities. It has since successfully virtualized 200 applications for 8,000 clients. And it integrated Microsoft Application Virtualization with its upgraded Microsoft System Center Configuration Manager 2007 R2 to enable a single, uniform infrastructure for distributing virtualized and physical applications.

TÜV NORD uses Microsoft Enterprise Desktop Virtualization to help solve its legacy application and operating system support issues, and streamline integration with its India office.

### The Results:

#### MED-V Benefits: Support Legacy Applications and Multiple Environments, Simplify Upgrades

Employees that need to run older software for inspections and certifications can do so without having to use multiple computers. “Using MED-V, we can provide users with one physical machine that has separate virtual images for different applications, when needed. This will make it much easier for employees to perform their jobs, and much simpler for IT to support,” says Boerger. It will also vastly simplify upgrades to new operating systems, since legacy applications can run in separate OS in Virtual PC images on the user’s desktop.

#### Lower Costs

Without MED-V, in order to access corporate IT’s SAP software, TÜV NORD’s India employees would have had to connect to company’s Terminal Services system in Germany, which would have required significantly more bandwidth (4MB instead of 500KB) at an annual cost of approximately \$U.S. 585,000 more than it was currently spending.

“It’s much cheaper to install a MED-V image on a client than to give an inspector [in India] a separate PC and internet connection,” Boerger explains. “Moving forward, we anticipate that offices in some countries won’t need complete, local IT infrastructures. MED-V will enable us to provide what they need at a fraction of the cost.”

#### Simplify IT Management and Processes

Boerger says, “If we have one installation server in India, and an inspector on the other side of the country had a problem, he had to fly three hours to access the server and reinstall his computer. But now, he’ll be able to download a virtual image via the internet and quickly resolve his problem, wherever he is.”

By enabling its India employees to run SAP in a Virtual PC, TÜV NORD can standardize reporting for all of its inspections, which speeds the certification process.



### App-V Benefits:

#### Streamline migrations and ease project management

TÜV NORD users can run different versions of the same software on the same client. This not only helped streamline its migration to the new Windows operating system and Office 2007, it makes it easy for users to run applications that are required for particular projects, even if newer versions of the applications are running in the standard client image.

#### Enable applications to follow users

“Whenever a user logs onto the network, he gets his particular applications, independent of the machine he’s using. If other people who aren’t authorized for those applications use that machine, the software won’t run for them,” says Arne Bertgen, IT administrator, TÜV NORD. “This is important because many applications are licensed to one person, and we must ensure only that person can use the application.”

#### Enhance business continuity, reducing downtime to minutes

In the event of a disaster, users can access their virtualized applications on-demand from other clients without major interruptions to their work. Users simply receive notification that new programs are available, see the icons on the desktop, and click on them to launch the applications. Because there is no installation process, it takes just a few minutes.

#### Simplify post-acquisition client management

TÜV NORD recently completed the acquisition of three companies, and expects to be involved in more in the future. After a merger, TÜV NORD has to support additional clients, but because those clients aren’t running the company’s standard image, IT staff doesn’t know how they will behave. This can make it extremely difficult to support those clients—and the users. Umland notes that, “With Microsoft Application Virtualization, we can make those clients operate independently of their original configurations. This makes it much easier to support new employees after an acquisition.”

## Microsoft® Advanced Group Policy Management

### Enhance Group Policy through change management

Group Policy objects (GPOs) play a powerful role in how your network is managed and secured. They enable IT staff to manage user and desktop settings on many computers at once. This means that every change to Group Policy usually affects multiple users and computers on the network. There is a risk associated with this degree of flexibility. Without a change control system, when IT teams alter GPOs, those changes can start affecting computers before they have been tested. If there's a problem with the updates, it can be difficult to quickly reverse them.

Additionally, although Group Policy provides a delegation model, the editor role has full permissions to deploy changes to the live environment. With the possibility of multiple editors per GPO, there is no way to detect who has made which changes, or to accept or reject changes before they are put into effect.

Microsoft Advanced Group Policy Management (AGPM) enhances governance and control over Group Policy through robust change management and role-based administration. By centrally managing PC and application settings through Windows 7 Group Policy and AGPM, IT organizations can easily keep enterprise-wide desktop configurations up to date, enabling greater control, less downtime, and reduced total cost of ownership (TCO).

### Advanced Group Policy Management: Advantages

#### Increase control of your Group Policies

Microsoft Advanced Group Policy Management provides a more secure archive for controlling changes to GPOs by letting IT develop, review, and modify GPOs without affecting employee desktops. You can manage Group Policies across different domain forests by copying GPOs from one domain forest to another, easily creating a new controlled GPO or replacing an existing one. Advanced search and filter capabilities make GPO tracking much easier. By acting as an extension to the Active Directory management console and providing granular administration, AGPM enables your staff

to have much greater control over how edits are made and applied, resulting in a much richer level of PC manageability.

#### Reduce downtime to keep users productive

Avoid the downtime that can result from improperly configured or conflicting GPOs. Its offline editing and workflow delegation capabilities allow IT to configure, test, and approve changes before they go live, and quickly roll back changes if needed. It also helps IT recover deleted GPOs and repair live GPOs, reducing the risk of widespread failures.

#### Improve TCO with reduced support costs

Robust difference reporting and audit logging help your IT staff quickly diagnose and prevent problems with Group Policies. This enhanced diagnostics capability translates to fewer helpdesk calls and labor costs. It also increases both end user and IT productivity, improving overall desktop TCO.



Group Policy object control with change management

### Advanced Group Policy Management: Customer Impact

*"Advanced Group Policy Management has been like a magic bullet for us. Its automated change management and workflow-enabled delegation capabilities are impressive. I wouldn't be able to manage GPOs without it."*

FORSYTH COUNTY

## London Borough of Camden, London

Microsoft Advanced Group Policy Management



*"Advanced Group Policy Management is helping us to control the desktop, accelerate and simplify desktop deployment and management, and create a more dynamic infrastructure. We have increased control of Group Policy Objects (GPOs) and cut downtime previously linked to improperly configured GPOs."*

SIMON BOXALL ACTIVE DIRECTORY INFRASTRUCTURE ENGINEER,  
LONDON BOROUGH OF CAMDEN

### The Challenges:

London Borough of Camden delivers local authority services in central London and is rated excellent by the government. It needed to improve controls over its desktop estate as part of a major IT transformation program designed to save millions of pounds over five years. There were inconsistent approaches to controlling the desktop estate of around 6,000 computers. It was clear that Camden needed to implement central management of the desktops. It also needed to limit the number of people and teams that could make changes to desktop policy settings and who could carry out software deployments. It lacked a consistent approach to the release of software updates, anti-virus releases, and application installs. In addition, deployment and error rectification were time consuming for IT technicians.

### The Solution:

Camden implemented Microsoft Advanced Group Policy Management to increase employee productivity and save time. Advanced Group Policy Management helps delegate authority over who can perform actions on GPOs to ensure better reliability and less downtime due to human error. Distinctions can be made between administrators who can alter GPOs and those who can actually deploy them.

### The Results:

- **Problem resolution cut from days to minutes:** According to Boxall, tasks that once took IT technicians a considerable amount of time now take just minutes.
- **Desktop team control GPOs:** The tighter management of GPOs has resulted in better control of the desktop estate.
- **Standardization will benefit future migrations:** The work done to standardize GPOs for the desktop will benefit the council in providing a robust environment for any future operating system migration.
- **Rationalization decreases administrative costs:** Camden has reduced IT support costs. For example, error rectification is managed centrally with less need for engineers to carry out site visits.
- **Audit trail for changes to desktops:** Boxall says, "Advanced Group Policy Management also provides the auditing capacity to track changes and a rollback feature to undo changes that went wrong."
- **Improved reliability and security:** The new tool optimizes the use of GPOs and delivers the right security settings to each desktop.
- **Reduced risk of widespread failures and downtime:** The system for GPOs allows offline editing of policies, recovery of a deleted policy, and repair of live GPOs.

## Microsoft\* Asset Inventory Service

### Translating software inventory into business intelligence

Among the most challenging tasks facing enterprise IT managers is maintaining accurate information about all the software installed on desktops throughout the organization. This information is critical for everything from license compliance and policy management to migration and true-up planning.

Microsoft Asset Inventory Service (AIS) is a hosted service that provides a comprehensive view of your enterprise's desktop software environment. It helps reduce TCO and improve license compliance through advanced software inventory scanning and by translating inventory data into actionable intelligence.

### Asset Inventory Service: Advantages

#### Ensure compliance to reduce risk

By getting the most complete view of the software installed on enterprise PCs, you can determine whether licenses have been deployed. You can also tell whether all software is compliant with license agreements. By identifying applications that are out of date or that don't comply with license agreements, Microsoft Asset Inventory Service can help IT staff find unapproved applications that may be causing conflicts.

#### Improve forecasting and budgeting

Data can be gathered on all software assets in a single query—it takes just seconds per system and doesn't interrupt people using their computers. Microsoft Asset Inventory Service captures a comprehensive list of all the applications installed on each machine. Then the inventory data is reconciled against the AIS Application Knowledgebase, which contains many software titles, to create a detailed inventory of the software that is in use in your organization. This infor-

mation can be transformed into browser-based reports that help your IT staff manage software assets and forecast future needs. The service also analyzes how Microsoft Volume License agreements are deployed to help you more easily manage true-ups, renewals, and license reallocation.

#### Implement easily, cost-effectively, and more securely

Microsoft Asset Inventory Service was designed for ease of use. It can be set up in just a few hours. And because it is offered as a service, inventory data is securely hosted by Microsoft, so there are no servers for you to maintain. Microsoft helps ensure that the data gathered in this hosted service is secure and remains confidential to your organization, and these privacy claims have been attested by a third-party auditing organization (Jefferson Wells). [http://www.jeffersonwells.com/DefaultFilePile/ClientAuditReports/Microsoft\\_Asset\\_Inventory\\_Service\\_Privacy\\_Assessment\\_Report.pdf](http://www.jeffersonwells.com/DefaultFilePile/ClientAuditReports/Microsoft_Asset_Inventory_Service_Privacy_Assessment_Report.pdf)

#### Facilitate Windows 7 upgrade process

Before rolling out a new operating system, you need to know what software is currently installed. AIS can help in your Windows 7 planning process by enabling you to easily and accurately determine what applications are running in your environment.

### Asset Inventory Service: Customer Impact

*"We have a much better view of software being used that is not supposed to be on the network. This enables us to immediately take action to get rid of it, which keeps our network safer."*

GETRONICS

## Universal Management Solutions, Washington

Microsoft Asset Inventory Service



*"Microsoft Asset Inventory Service is a simple yet comprehensive solution for managing software assets from all publishers. And with the licensing component for Microsoft products, it provides an easy, quick way to assess compliance with Microsoft programs."*

JASON MCGHEE REGIONAL MANAGER FOR UMS

### The Challenges:

Universal Management Solutions (UMS), an IT consultancy, is often called upon to help organizations rectify situations that stem from not having effective software asset management (SAM) solutions in place. Some companies try to track software and licensing with spreadsheets, but find that this quickly gets too complicated to manage. Others, typically those with at least 500 computers, often have a SAM tool in place, but because these programs don't focus on software, they provide an overwhelming amount of information that's simply not useful. In addition, companies that don't manage software assets properly are at risk for audit exposure from organizations like the Business Software Alliance, and can be liable for millions of dollars in fines and hits to shareholder value. Finally, not knowing what software is installed on what machines can lead to significant IT support and upgrade problems.

### The Solution:

To help avoid these kinds of issues and build a foundation for effective software asset management, UMS turned to Microsoft Asset Inventory Service. "Asset Inventory Service is very easy for organizations to implement and deploy, it provides results immediately, and the cost is minimal," McGhee says.

### The Results:

#### Meaningful results in as little as one day

"The most excitement comes from taking normalized data and putting it into a program that doesn't provide this type of in-

formation. With the Microsoft service, you can pull data into your program and ignore all the superfluous data from the SAM application that just isn't helpful or needed," McGhee says. UMS has worked with companies that have several thousand computers and, within just one day, they can both deploy the service and get meaningful results back in easy to read reports.

#### Easy software license management

By getting a complete view of the software installed on their PCs, customers can ensure that licenses they've paid for have been deployed and are being used—and that all software within the enterprise is compliant with their license agreements.

#### Reduced time managing software assets

To keep track of software assets, some companies devote teams of employees to the task. But with Asset Inventory Service, that manpower simply isn't needed because the tool does all the work.

#### Enhanced compliance

UMS finds that most companies are 30% out of compliance—they have many fewer licenses than they need. Not only does Asset Inventory Service let you monitor assets continually, it makes the process extremely easy and fast, so companies can get, and stay, in compliance with publisher licensing agreements and with corporate policies.

#### Intelligent upgrades

McGhee cites one of UMS' customers that wanted to upgrade to the latest Windows operating system but didn't have sufficient enough information to know whether it would work on all their computers. "The project was delayed because they had no way to gather the information short of visiting every single computer. Then they decided to implement Asset Inventory Service. We deployed it in a single day and within a few hours they received information that enabled them to assess which computers could be migrated, and which needed hardware upgrades or replacements."

## Microsoft® Diagnostics and Recovery Toolset

### Powerful tools that accelerate desktop repair

Many IT departments take a proactive approach to backing up network data, but tend to be reactive in planning for desktop system failures because they have no tools or processes in place that enable them to be prepared. The most common solution is to reimage the machine, but that can result in loss of user settings, personalization, and data.

Microsoft Diagnostics and Recovery Toolset can help you save time and reduce the challenges associated with troubleshooting and repairing system failures on Windows-based desktops. Administrators can easily recover PCs that have become unusable, rapidly diagnose probable causes of issues, and quickly repair unbootable or locked-out systems, all faster than the average time it takes to reimage the machine. When necessary, you can also quickly restore critical lost files. This helps IT teams make PCs safer to use, keeps employees productive, and enables desktops that are easier and less expensive to manage.

### Diagnostics and Recovery Toolset: Advantages

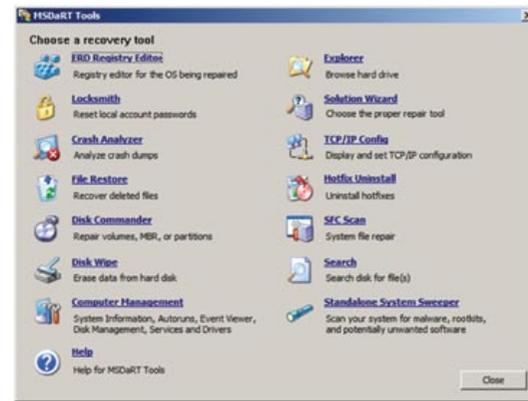
#### Cost savings through reduced downtime

Using the toolset helps your IT staff work more quickly and simplifies helpdesk support, reducing your overall support costs as well as lost productivity caused by downtime.

#### Rapid recovery for greater user productivity

The 14 admin, system and network tools in the toolset provide many options for recovery, even when Windows Safe Mode or normal boot will not function. The easy-to-use, offline boot environment helps IT teams quickly restart computers. They can recover deleted files and remove malware from infected systems while the computer is offline. Comprehensive on-demand antivirus and antispyware scanning capabilities are especially effective at removing malware that tries to avoid detection by utilizing rootkits. By scanning the infected OS while it is inactive, they ensure that malware is

not loaded into the computer's memory and, therefore, cannot remain hidden. This helps protect other computers on the network and reduces the amount of time the computer is unavailable.



#### Accelerate IT responsiveness and streamline PC manageability

The toolset helps IT professionals quickly respond to and resolve user issues. Key capabilities include Emergency Repair Disk (ERD) Commander, which boots unresponsive systems into a familiar Windows-like repair environment; Crash Analyzer, which helps determine the most likely cause of a crash; and System Restore, which lets IT staff safely remove changes that could be causing the system to malfunction.

### Diagnostics and Recovery Toolset: Customer Impact

Aurobindo Pharma can manage the operating system and applications in its desktop computer environment more effectively, thereby saving time and reducing the challenges associated with troubleshooting and repairing system failures.

## Aurobindo Pharma, India

Microsoft Diagnostics and Recovery Toolset



*"The cost of not having an effective diagnostics and recovery plan in place was devastating. All of this has been resolved and we reduced overall costs by 10 percent by using a unified tool suite."*

RAM REDDY P, MANAGER OF IT AT AUROBINDO PHARMA

### The Challenges:

Aurobindo Pharma is among the largest pharmaceutical companies in India. The company's IT employees faced difficulties in managing issues related to the applications and desktops that they supported across its 10 sites. Aurobindo Pharma had no standard way to resolve desktop system failures, which resulted in increased downtimes, decreased productivity, and even data loss. Laborious deployments and extremely time-consuming upgrades required restarts, causing downtime for users.

### The Solution:

"We were looking for a cost-effective and flexible Windows desktop management solution," says Mahesh Kumar Pinna-maneni, CIO at Aurobindo Pharma. "Microsoft Diagnostics and Recovery Toolset was the right choice. It provided powerful tools to accelerate desktop repair."

### The Results:

#### Gained Rapid Recovery for Increased User Productivity

IT administrators now have many options for recovery, even when Windows Safe Mode or normal startup will not func-

tion. With the easy-to-use, offline startup environment, the IT team can quickly restart computers, recover deleted files, and remove malware from infected systems while the computer is offline. This helps protect other computers on the network and reduces the amount of time the computer is unavailable.

"The toolset helps our IT team make PCs safer to use, keep employees productive, and build desktops that are much easier and less expensive to manage," says Ram Reddy P. "Downtime is also reduced, as the toolset's flexibility results in systems returning to normal function faster."

#### Accelerated Helpdesk Responsiveness

With the features and capabilities in the Diagnostics and Recovery Toolset such as ERD Commander, Crash Analyzer, and System Restore, IT professionals at Aurobindo Pharma can reduce the time and complexity associated with troubleshooting employees' personal computers. If a computer crashes, if a system becomes unresponsive, or if changes to a computer cause the system to malfunction, IT help staff can quickly respond to and resolve user issues.

#### Reduced Costs by 10 Percent

Using the Diagnostics and Recovery Toolset, the IT staff are able to work more quickly and simplify helpdesk support, which reduces overall support costs as well as lost productivity caused by downtime.

## Microsoft® System Center Desktop Error Monitoring

*Track and proactively address application and operating system failures*

Typically, when an application crashes on a Windows desktop, information is sent to Microsoft to evaluate the issue and notify the user of any solutions. In an enterprise environment it is more productive for IT teams to gather this data and take action. Gathering this data inside your organization helps you see trends in helpdesk issues and more effectively correlate them to recent network or system changes.

Microsoft System Center Desktop Error Monitoring enables proactive helpdesk problem management by analyzing and reporting on application and system crashes. It provides insights in application and OS failures that cause PCs to hang or crash by capturing all failures in a central location in your enterprise, and enabling IT teams to track, monitor, and proactively respond to user problems. By managing these issues through a scalable, low-cost deployment solution, IT teams can make desktops more stable and reduce the cost of Windows desktop ownership.

### System Center Desktop Error Monitoring: Advantages

#### Increase end user productivity and keep PCs running smoothly

Microsoft System Center Desktop Error Monitoring identifies the impact, probable cause, and resolution for failures—making Windows desktops more stable and reliable. It reduces downtime throughout an organization by identifying critical errors in real time and providing IT-controlled custom error responses, and by proactively addressing errors in preproduction. This allows helpdesk staff to streamline PC manageability by solving problems before they become major drains on productivity.

#### Easy deployment with agentless monitoring

Microsoft System Center Desktop Error Monitoring is built around an agentless monitoring design. Because the standard Windows error reporting system is used, IT teams can deploy the solution to thousands of PCs with a single Group Policy in Active Directory, saving on IT support costs.

#### Advanced reporting to help reduce resolution time

Microsoft System Center Desktop Error Monitoring provides multiple reports that help IT teams understand which crashes occur most frequently—including top system and application errors, triage patch deployments, and use metrics to monitor post-deployment effects. With automated responses, you will be notified about the latest hotfixes and patches that can help reduce the time it takes to resolve problems.

#### Part of Microsoft System Center Operations Manager

Customers using Microsoft System Center Desktop Error Monitoring who want to expand their helpdesk management solution can upgrade to Microsoft System Center Operations Manager. Doing so preserves your existing desktop monitoring, data, and investments, while enabling complete application, desktop, and server monitoring.

### System Center Desktop Error Monitoring: Customer Impact

By enhancing IT effectiveness and improving desktop stability, Microsoft System Center Desktop Error Monitoring reduces the cost of Windows desktop ownership.

## Johns Hopkins Institutions, Maryland

### System Center Desktop Error Monitoring



*"System Center Operations Manager 2007 R2 gives us an application health view, which allows us to more quickly identify root cause and address incidents before our customers are impacted."*

JOHN TAYLOR IT MANAGER AND SYSTEMS ARCHITECT, SYSTEMS MONITORING AND MANAGEMENT GROUP, JOHNS HOPKINS INSTITUTIONS

#### The Challenges:

As a large research institution, Johns Hopkins has assembled a heterogeneous IT infrastructure to meet the diverse needs of researchers and educators. Over time, the collection grew to include 1,350 servers running the Windows Server® 2003 Enterprise operating system and 150 servers running the Red Hat Linux, UNIX, and other non-Windows operating systems.

Johns Hopkins used Microsoft® Operations Manager 2005 to manage its Windows®-based servers, integrating third-party management packs to manage specific server models and applications. It used additional tools to import information from Linux and Unix-based servers into Operations Manager 2005, but creating those links and maintaining the tools was expensive.

The Systems Monitoring and Management Group at Johns Hopkins also needed more than 50 administrators to manage the organization's 15,000 desktop computers, all of which ran the Windows XP operating system.

As Johns Hopkins's IT infrastructure grew and became more complex, it became more difficult for the staff to provide the service and application-level monitoring that the organization required. "Because we had so many tools providing fragmented views, we couldn't deliver the service levels our customers needed. We were suffering from console sprawl," says Jamie Bakert, Systems Architect, Systems Monitoring and Management Group at Johns Hopkins Institutions.

#### The Solution:

Johns Hopkins deployed the Release Candidate of Microsoft System Center Operations Manager 2007 R2, as a participant in the Microsoft Rapid Deployment Program. When the software is fully deployed, Johns Hopkins will have a single monitoring dashboard from which it can monitor all 1,500 servers and 15,000 desktop computers.

#### The Results:

##### Monitoring Efficiency Doubles

"With System Center Operations Manager 2007 R2, we expect to be able to double our server management efficiency," Taylor says. "We'll reduce the need to hire more people as our infrastructure grows."

Johns Hopkins will also save money by eliminating third-party Linux and UNIX monitoring software.

##### Improved Application Service Levels

With a more holistic view of its systems, Johns Hopkins can greatly improve application service levels.

##### Proactive Desktop Monitoring

About 3,000 of the institution's 15,000 desktop computers are running mission-critical applications that must be up all the time. "We will be able to be more proactive in keeping these systems available," Bakert says. "We can see if a workstation is about to fail and repair it before the user is even aware of a problem."

##### Enhanced Security

The IT staff uses System Center Operations Manager 2007 R2 audit collection services to increase security and better comply with educational and healthcare regulations. "We can now get a great deal of information from our non-Windows computers and report on it in a centralized way," Taylor says. "Now we can react faster to any intrusions."

## Frequently Asked Questions

### Licensing MDOP

#### Q: How can customers purchase MDOP?

A: The Microsoft Desktop Optimization Pack is available as an add-on subscription to customers that have purchased Windows Client SA. Pricing is at approximately \$10/desktop/year for Select Level A.\* Microsoft also offers customers the ability to license MDOP through their platform Enterprise Agreement (EA). There are two EA SKUs that already include MDOP: Professional Desktop with MDOP and Enterprise Desktop with MDOP. Customers have the option to purchase as many subscription licenses, not to exceed the number of desktops covered under their Windows Client SA. Coverage co-terminates as MDOP is a non-perpetual/fixed-term offering. We recommend customers purchase the subscription on the same enrollment as the covered Client EA/SA desktops.

MDOP is available to purchase in the EA, EA subscription, Select, Academic Select, Open Value, Campus Agreement, and School Agreement volume license programs. An additional discount is available off the annualized subscription price for company-wide coverage.

\*actual price may vary

#### Q: Why is MDOP available via a Windows Client SA purchase?

A: The technologies within MDOP are designed to accelerate deployment of the operating system by minimizing application compatibility obstacles, providing the software asset inventory necessary for migration, and reducing the burden of image management by separating the desktop image from the application and operating system layer. Customers that choose Software Assurance are typically among the early adopters of new technologies and place high value on early access to technologies. It's through SA that Microsoft provides customers first access to technologies such MDOP to enable you to most quickly deploy and immediately realize the advantages of Windows 7.

### Comparing MDOP with other Microsoft products

#### Q: What is the difference between the MDOP Asset Inventory Service (AIS) and System Center Configuration Manager inventory capabilities?

A: The Asset Inventory Service offers a service where inventory is stored in a hosted scenario and reports are produced securely over the internet. System Center Configuration Manager is an end-to-end on-premise solution with an inventory component where data is stored on-site at the customer's location.

#### Q: What is the difference between System Center Desktop Error Monitoring and System Center Operations Manager?

A: System Center Desktop Error Monitoring uses agentless exception monitoring to monitor desktops. System Center Operations Manager contains all of the functionality in System Center Desktop Error Monitoring, but also includes agent-based monitoring for desktops and servers, as well as connectors to feed into other systems.

#### Q: What is the difference between Windows XP Mode (available in Windows 7) and Microsoft Enterprise Desktop Virtualization (MED-V)?

A: Windows XP Mode is designed to help small-business users run their Windows XP applications on their Windows 7 desktop. MED-V is designed to help IT Professionals deploy Virtual PCs in organizations with policy-based provisioning, centralized control and monitoring.

#### Q: How does Application Virtualization (App-V) integrate with System Center?

A: Seamless integration with System Center Configuration Manager workflows enables IT administrators to manage physical and virtual applications through a single management experience. IT administrators can follow known processes and workflow for delivering virtual applications to their end users. This approach reduces the learning curve and enables IT to deliver applications more

quickly. IT can continue to realize value from its existing infrastructure by taking advantage of Configurations Manager's scalability and enabling distribution points to stream virtual applications, which eliminates the need for a separate Microsoft Application Virtualization infrastructure. Using Configuration Manager, virtual applications can be delivered to either machines or users. Administrators can inventory virtual applications, meter the virtual application licenses, and deliver virtual applications as part of Operating System Deployment Task Sequences. Together, Microsoft Application Virtualization and System Center Configuration Manager 2007 R2 provide a full PC life cycle management solution for deploying and managing both physical and virtual applications for enterprise customers.

When using System Center Operations Manager, administrators can deploy the App-V Management Pack to enable monitoring of all App-V Server Infrastructure components. This provides a consistent mechanism for managing App-V infrastructure alongside other Microsoft solutions.

#### Q: Can customers use MDOP technologies on servers?

A: Customers should refer to the product use rights for the latest licensing information: <http://www.microsoftvolume.com/userights/>

Customers may install and use the software on the licensed device. Some functionality in the software is designed to manage software on the licensed device. Customers may use that functionality on other devices solely to manage software running on the licensed device. Customers may also use the following components to manage software on servers within their domain, so long as the desktops within that domain are licensed for MDOP:

- Advanced Group Policy Management
- Asset Inventory Service (Use of the AIS on customers' licensed desktops is subject to the Additional Terms section of the Online Services section of the product use rights.)
- Diagnostics and Recovery Toolset

### Next Steps

#### Q: Where can I download MDOP?

A: MDOP subscribers can download the software at Microsoft Volume Licensing Site (MVLS): <http://www.microsoft.com/licensing/>.

#### Q: Can I evaluate MDOP products?

A: Five of the MDOP technologies are available for test and evaluation for MSDN\* and TechNet\*\* subscribers in accordance with MSDN and TechNet agreements (App-V; MED-V; AGPM; AGPM; DART and DEM). Please note that there is no trial available for the Asset Inventory Service.

\* Available to levels: TechNet Plus SA Media; TechNet Plus (retail); TechNet Direct (retail); TechNet Plus (VL); TechNet Plus Direct (VL); TechNet Cert Partner; TechNet Gold Cert Partner; T1.

\*\* Available to levels: VS Pro with MSDN Premium (Empower); Developer AA; MSDN Universal (retail); VSTS Team Suite (VL); VSTS Architecture (VL); VSTS Development (VL); VSTS Test (VL); VS Pro with MSDN Premium (VL); MSDN Universal (VL); VSTS Database (VL); VS Pro with MSDN Premium (retail); VSTS Test (retail); VSTS Development (retail); VSTS Architecture (retail); VSTS Team Suite (retail); VSTS Database (retail); BizSpark Admin; BizSpark.

#### Q: Where can I learn more about MDOP?

- A:
- Visit the MDOP website at <http://www.microsoft.com/mdop>
  - Technical documentation is available at MDOP TechNet site <http://www.microsoft.com/technet/mdop>
  - News and updates are available in MDOP blog at <http://blogs.technet.com/mdop>
  - Read Customer Testimonials on MDOP technologies at <http://www.microsoft.com/casestudies>

Microsoft®

# Desktop Optimization Pack for Software Assurance

Learn more about the Microsoft Desktop Optimization Pack for Software Assurance at <http://www.microsoft.com/mdop> or at <http://www.microsoft.com/technet/mdop>.

Learn more about Windows 7 Enterprise at [www.microsoft.com/windows/enterprise](http://www.microsoft.com/windows/enterprise).

