



SHADOWSTOR™

Leading the Way to Safer Computing.

SHADOWUSER™
SHADOW

The ultimate solution for maintaining your PC.



WHITE PAPER

Introduction

Business continuity is essential in order to compete in today's global market. Keeping servers, desktops, and laptops online directly contributes to a company's revenue and downtime can be very costly and potentially devastating. Increasing numbers of new applications and solutions create enormously complex IT infrastructures.

IT organizations are burdened with the challenges of growing complexity in their infrastructure, reducing budgets to manage and maintain the growing complexity, and the need for improving service levels for end users and customers.

There is also the added burden of new virus and worm outbreaks, an onslaught of patches and updates that must be implemented and the requirement to keep all systems online at all times.

ShadowStor Solutions

ShadowStor offers solutions to help minimize the cost of downtime and reduce the Total Cost of Ownership (TCO) for maintaining servers and desktops in today's complex working environments. Leveraging intelligent technologies such as snapshot and system protection methods, ShadowStor solutions ensure system and data availability from the enterprise server and desktop environment to the home user's PC.

SHADOWSERVER™

Your server's first line of defense.

Corporations, OEMs and home offices can't afford the costs associated with server downtime. ShadowStor's ShadowServer provides non-restrictive, easy to use server protection for Windows NT, 2000 and 2003 servers. ShadowServer is the best way to prevent unwanted or deliberate changes from being made to a server. ShadowServer is your first line of defense, reducing the time and cost associated with reinstalling the operating system, restoring from an image or recovering from a tape backup. At anytime, authorized users can save changes to the system, save selected files and folders or simply return the system to its pre-ShadowMode state. ShadowMode bullet proofs your servers.

SHADOWUSER™

The ultimate solution for maintaining your PC.

Your PC and data are too valuable not to protect. Keep your PC online and running at its best at all times. ShadowUser provides non-restrictive, easy to use PC security and protection for Windows operating systems. ShadowUser is the best way to prevent unwanted or deliberate changes from being made to a PC. ShadowUser can restore the

PC no matter what has happened to it. At anytime, a user can save changes to the PC, save selected files and folders or simply return the system to its pre-Shadow Mode state. ShadowMode provides a safe computing environment by creating a virtual twin of your PC.

ShadowStor Product Features

ShadowStor™ ShadowUser™ and ShadowServer™ are the solutions to help enterprise IT organizations accomplish the task of keeping all systems online at all times. ShadowStor's unique solutions help enterprise IT organizations provide high availability for servers and PCs so that downtime and the associated costs are held to a minimum. ShadowStor solutions minimize downtime for corporate IT organizations, OEMs and home users as fast as it takes to reboot the system. ShadowStor's solutions provide the following features:

- **Optimal State** – Configure your server and PC exactly the way you want it ONCE and run in that optimal state at all times. No need to defrag the disk over and over or spend the time removing unwanted files or trouble shooting and eliminating unwanted server and PC changes.
- **System Recovery** - Reduce the Total Cost of Ownership (TCO) for managing and maintaining your servers and PCs by simply rolling the system back to an optimal state. Create a scheduled task and avoid touching the servers and PCs for system recovery.
- **System Security** - Surf the internet without a trace of unwanted cookies, internet history, temporary files, spam applications or spy ware.
- **Virus Protection** - Prevent downtime and system damage due to virus and worm outbreaks. Prevent the virus from ever being written to disk.
- **Change Management** - Maximize system uptime by instantly undoing accidental or malicious system changes.
- **Patch Management** - Safely test system updates, patches and applications before permanently saving changes to your servers and PCs.
- **Software Test Optimization** - Quickly run various configurations on one system for software test scenarios. No need to reinstall or re-image a system to restore it to its original state.

ShadowUser and ShadowServer are perfect solutions for:

- Enterprise Environments
- Computer Labs
- Training Centers
- Help Desks
- Libraries and Public Kiosks
- Home Offices or a Single PC

ShadowUser and ShadowServer Benefits

Minimize Downtime and Total Cost of Ownership (TCO)

Security is a growing problem for enterprise IT organizations, OEMs and home users. With the daily advent of new viruses and worms, organizations are constantly fighting against the havoc and destruction these viruses cause to their systems. Virus attacks slow down the business and can have a huge impact to worker productivity and even loss of mission critical data. Corporations cannot afford to have systems offline. Applications such as critical databases, email applications, and web enabled systems must not be affected for long periods of time during virus attacks. ShadowStor solutions provide the quickest and most efficient way to get these affected systems back online, saving corporations time, money and minimizing lost business opportunities. ShadowMode protects servers and PCs while allowing systems to be rolled back to an optimal state with a simple reboot. In minutes servers and PCs can be back online clean from viruses or worms. ShadowStor solutions are the first line of defense against downtime. ShadowStor solutions compliment tape backup, image, and disaster recovery solutions.

Improve Reliability

With security threats on the rise, more and more patches and application updates need to be deployed. With these new deployments come problems that can create a more complex set of tasks for IT organizations. More often than not, patches or application updates can be the cause of problems for systems. IT organizations need a standard method to test these patches and updates without affecting system uptime in case of failure. ShadowStor solutions are the answer to this problem. With ShadowStor deployed in the environment, IT organizations can test and perform management tasks with the newly deployed patches and updates on a system running in ShadowMode to ensure the stability of the systems before permanently saving the block changes to disk. By using the ShadowMode method, system uptime is increased and the cost of downtime is reduced dramatically.

Maximize System Uptime and Performance

Users today require servers and desktops to be online and available 24X7X365. This creates a challenge for IT organizations to keep these systems up and running with fewer IT staff to assist with the demand. Many problems for end-users happen at off peak times of business where IT staff may not be available. Users need an easy way to get their systems back online and functioning. ShadowStor solutions are extremely powerful and very easy to use. User systems can be back online and the users can be productive after an event that causes system havoc with a simple reboot of the system.

Most servers are implemented with multiple volumes such as a system volume, application volumes and data volumes. Because of the flexibility in ShadowUser and ShadowServer, ShadowMode can be applied to specific volumes. You can configure servers and PCs so that the system and application volumes can always be running in

ShadowMode on the system volume to protect against malicious changes, virus or worm outbreaks, patches and new application installs that fail or disrupt the system.

The data volumes can also be placed in ShadowMode and changes that are desired can be written to disk while unwanted changes can be discarded automatically upon reboot. With ShadowMode, there is no need to specify regions on the disk for backup, or use BIOS functions to reserve space on the hard disk for OS images. ShadowMode is the most efficient and intelligent way to protect servers and PCs from downtime.

Improve Security

IT organizations face the challenge of keeping shared or public PCs online and available to users. There is a huge security risk to ensure users personal data such as bank information, credit card information, or identity data is protected from unauthorized users. Training centers and libraries can be held liable for stolen personal information by users if they are not protecting their systems.

In addition to the security threat, there is the constant battle of users changing the look and feel and configuration settings on public or shared PCs. This creates the additional burden of restoring the systems back to their original clean state. File restore methods and imaging techniques take too much time and are costly to implement and maintain. These types of solutions often are difficult to manage and use requiring higher paid IT staff to manage them.

ShadowStor solutions are the perfect answer to this problem. ShadowStor solutions provide an easy rollback method to get PCs back to the original state. Personal information, identity data, and configuration changes made to the PC are completely wiped away from the system during reboot. ShadowStor solutions reduce the risk involved in managing and maintaining shared and public use systems, and increase the availability of these systems in a lot less time. The scheduling features of ShadowUser and ShadowServer provide "No Touch Recovery" for IT organizations. Set the flexible scheduler so that systems can automatically be reset to their original clean state without ever touching the system. This is a huge cost savings for overburdened IT organizations.

ShadowStor's Unique Technology

ShadowStor implements a unique snapshot method for the benefit of protecting data. When an application opens a file, other applications are still allowed to write to the file. To avoid a mix of old and new data in the application, the data being overwritten is copied to another location on disk. If another application requests this data, the read is handled by the regular Windows file system drivers. When an application opens a file, NTFS (in response to application requests) issues a series of commands to read metadata (the location of the file in the disk) and then issues reads or writes to the logical blocks on which this particular file is stored. A snapshot is simply a consistent point-in-time copy of a volume. Volume snapshots are becoming increasingly popular and are used for various reasons:

- To back up a virtual twin of a volume created with snapshot technology while the original volume continues to be used by applications. This keeps the servers and PCs online and accessible yet provides a clean backup.

- To create a virtual twin of live data for testing a newer version of the application in a "live" environment.
- To create a virtual twin of live data and protect from virus attacks or worms. The unwanted changes made to the data can be discarded.
- To create a virtual twin of live data as part of a disaster recovery operation.

ShadowStor uses a unique method to ensure servers and PCs are protected. ShadowMode is the means by which computers can be protected. By placing a server or PC in ShadowMode, users can feel at ease that the system is going to be protected no matter what happens. ShadowMode activates the snapshot technology where each new write is redirected to another location on the hard drive. These sector changes can be permanently saved to the hard drive, or completely discarded with a simple reboot of the system.

Conclusion

ShadowStor solutions dramatically increase server and PC availability while reducing the cost to manage and maintain them. ShadowStor leverages intelligent snapshot technology, open file management and system protection methods to create powerful but easy to use solutions for enterprise IT organizations, test labs, help desks, libraries, public kiosks, and home users. ShadowStor technology and solutions provide:

- **Mission Critical Data Protection**
- **Complete System Uptime Protection**
- **Exceptional Speed in Recovery**
- **Reduced Total Cost of Ownership**
- **No Touch Recovery Capability**

Next Steps

If you would like to evaluate ShadowUser or ShadowServer you can download a 15-day full-featured trial version or purchase it at www.shadowstor.com. Volume pricing and licensing is available for enterprise, OEM, government, education and non-profit organizations.

ShadowStor is a leading provider of innovative solutions for PC and server security and protection. Please visit us at www.shadowstor.com for more information about ShadowUser, ShadowServer and other available solutions.