



OEM Snapshot Utility for  
Developers of NAS Appliances

Eliminate Back-Up Window

Quick & Easy Data Recovery

Revert to a *Pre-Disaster* Image

Move Back & Forth Through Time

Create / Maintain 250 Images

Users Retrieve their Own Files

Accessed as any Active Volume.

Multiple backups on-line

Runs on Microsoft Windows 2000

Administration thru Microsoft  
Server Appliance Kit (SAK)

# Data Protection for the New Millennium

## PERSISTENT STORAGE MANAGER

A wise man once said "If you want to get a feeling of power, walk out into a busy street and direct traffic in the direction that it is going".

Storage is moving to the Network!

**Network Attached Storage** (NAS) Appliances are the fastest growing segment of the storage industry. As a group they are easier to install and manage. No special client software is required making integration into a large corporate environment effortless.

As more and more CPU manufacturers and storage vendors start shipping NAS appliances there will become a low end and a high end market. The low-end, driven by price and a high-end, driven by functionality.

Performance (speed) and Reliability will be two of the criteria by which the high-end will be judged, but we believe not exclusively.

### **PSM** Improves Network Availability

In the age of the Internet, data is created, shared, transmitted, updated, stored and delivered around the clock. Network *availability* is an absolute must. When talking reliability of NAS Appliances we are really are just talking about the MTBF of the components. The reliability of the NAS is about

**Persistent Storage Manager** on a NAS Appliance dramatically increases data availability and the overall reliability.

**"Data protection is a key feature for OEMs building NAS appliances. By licensing CDP's data protection software for inclusion in the Microsoft Server Appliance Kit, server appliance manufacturers can quickly and easily bring powerful NAS appliance offerings to market."**

**Keith White**  
Director of Marketing  
Embedded and Appliance Platforms Group  
Microsoft Corporation

**Persistent Storage Manager** creates a snapshot of the data on the NAS volume called Persistent True Image (PTI). A Persistent True Image is a complete on-line point-in-time copy of a disk volume. PSM maintains up to 250 of these images per volume.

### Corrupt Data or System files?

With **PSM** just revert to an earlier image, this eliminates the delays of locating and restoring from backup tapes.

This "library" of images can be made accessible to individual users (default is administrator access) for them to recover individual files. Network security that was in place at the time the image was created remains in place.

**PSM** eliminates the "Back-Up Window". The Persistent Image captures all of the system files at a single moment in time - no concerns over files changing during backup!

**"Microsoft's adoption of Persistent Storage Manager marks a very strategic transition in the network age. Continuous access to data is the key to high availability operations. By embedding PSM, Microsoft has embraced an essential and proven element of data center-class operations and enabled all leading server and storage appliance vendors to provide world-class solutions."**

**Michael Peterson**  
President  
Strategic Research Corporation

equal to the reliability of DAS (Direct Attached Storage) so on average there is no improvement of reliability or network availability.

# Persistent Storage Manager Technology

**PSM** creates multiple, point-in-time, Persistent True Images of any or all system and data volumes residing on the Network Attached Storage (NAS) unit. All persistent images will survive a system power loss, or a planned or unplanned re-boot.

Each instance of PSM seamlessly handles 250 concurrent images of 255 independent volumes for an aggregate of 63,750 total independent data images. Any image can be easily managed, through the Microsoft web user interface, and accessed the same as any other active volume. For disaster recovery in case of data corruption or loss, any persistent image can be restored to a prior point-in-time, preventing any system downtime.

The CDP **PSM** system provides complete Persistent True Imaging capability without altering the underlying disk image integrity. The PSM data cache consists of the old data. New data is written to the physical storage device as if the PSM system were not present.

If the PSM system is disabled or damaged, the PTIs could be compromised, but the current data would be undamaged. This provides several distinct advantages to alternative point-in-time imaging systems.

Applications require no specialized access drivers or functions to access PTI or true volume data. Operating system upgrades, misbehaved

programs, or similar unpredictable actions may disable the snapshot system, but the current volume data would remain secure. While custom file systems and proprietary operating systems provide some of the advantages of PTI technology, only CDP provides a solution which integrates with the Windows Server family rather than replacing

it. A **Persistent True Image (PTI)** is a complete on-line point-in-time copy of a disk volume. Users access these images as a folder on the volume it is imaging. Even as users alter the data on the real volume, the PSM provides a read-only image of all the volume files, as they existed when the PTI was created.

The PTI folders are accessed by users the same as the regular volume folders. Shared PTI folders inherit the security rights from the original volume allowing easy administration of the images without special administrator actions. The CDP PSM system provides a complete on-line snapshot data imaging system, fully integrated with the Windows scheduling system.

**PSM** is based on CDP's market leading Open Transaction Manger (OTM) technology. OTM currently is the open file option for products such as VERITAS' NetBackup, NetBackup Professional, and BackupExec.

**Microsoft is licensing CDP's high-availability Persistent Storage Manager (PSM) for use by all OEM's that are offering a Win2000 based server or storage appliance. IBM, NEC and many large system OEMs are releasing new NAS appliances that rely on Microsoft and CDP's tightly integrated high-availability operating environment.**

OTM's image based approach to open file protection affords users the highest level of data integrity, while eliminating the backup window completely. PSM uses the OTM concept but takes it to the next level by adding powerful data protection features that integrate tightly within Microsoft's Win2000 Server Appliance Kit.

Feature	PSM v2
Number of Persistent True Images	Unlimited
Read-only Images	Yes
Maximum volumes per machine	255
Multiple volumes in single Image	63
Read-write Images	Yes
Copy-on-write	Yes
Restoring of volume from Persistent Image	Yes
Reverting requires reboot	Sys vol only
Reverting time is constant to volume size	No
Recover deleted Persistent Images	No
Able to keep Persistent Images after reverted	Yes
Reversible reverting	Yes
Disaster recovery	Yes
Volume real time duplication	No (Version 3)
Defragging	Configurable
Granule Size	64KB
Specific Backup API	Yes
Named Images	Yes
Scheduling based on hourly/nightly/weekly	Yes
Scheduling based on whatever user specifies	Yes
Time to create a Persistent Image	Default 5 sec
Maintains consistency across files	Yes
Waits for quiescent period	Yes
Volume Copy (from Images)	No
HTTP interface	Yes
Command line interface	Yes
COM Object interface	Yes
API to manage snapshots	Yes
.DLL interface	Yes

## NOT ALL NAS ARE CREATED EQUAL



Persistent Storage Manager provides functionality and data protection not available from other NAS Appliances. With a PSM POWERED logo on PSM powered NAS products end users will know which NAS box has the "right stuff"!



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