Could this be the END of Backup as we know it??

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PSM™
from **Columbia Data Products**

COULD THIS BE THE END OF BACKUP AS WE KNOW IT?

Backup, as we know it today is a Spare Tire…
A "spare" to get you going after the failure of
a primary system.

When did you last have a flat?

Flat tires are a rare occurrence these days. I
personally have been driving my car with 2
nails in the tire for weeks. Its not loosing an
appreciable amount of air – and in reality the
construction of tires today is such that you can
drive one them with extremely low pressure
without fear of tire sidewall failure. Unless of
course they are Firestone tires.

Backup as a Spare Tire

- **When did you last have a flat?**
  - They Don't Include Spares Anymore
- **Why?**
  - Spares not Needed for Reliable Systems

- **Backup was a Patch for Unreliable Hardware**

Automobile manufacturers don't include spares anymore. Why? The primary systems in automobile over the past 20 years have improved significantly. It was not uncommon for cautious drivers in the 40's and 50's to keep spare hoses in the car. When was the last time that you saw a car on the side of the road with steam billowing from under the hood? I wonder how many of the younger drivers of today have the slightest inkling of how to change a hose, or even that there are hoses under there

Reliable systems do not needed spares.

Backup was a patch for unreliable hardware.

"Return with me to yesteryear" – Mysterious data corruption on floppies was an all to common occurrence, corruption on hard rives was not uncommon and Mr. Norton become wealthy. How many of you remember the IBM-AT? The early model were recalled – the hard drives would simply "LOOSE" data. It would be there but for some reason you could not see it. Just as an aside does anyone remember what happened to those early AT drives? They are now a home for fish – they were part of the mass used to create an artificial reef off the East Coast of Florida.

Now that I have offended the hardware manufacturers lets address the software developers. Database programs who would loose indexes. How often do you have to tell an operator to relink the database in today's computing environment? How many projects have you invested multiple hours, or days for that mater, only to have the word processor treat the file like a food processor instead of a word processor. File unreadable – and no utility – now you understand why the kid at the computer store was pushing Mr. Norton.

What's changed?

From the small entrepreneurial venture with three to five employees to worldwide fortune 5 enterprises – we now rely on our systems.

This zero tolerance for downtime has existed in some islands throughout the large enterprise computing world but it have been fine tuned in the Internet / E-commerce space where downtime is more than an inconvenience – there it can be between hundreds of thousands of dollars per minute to even millions of dollars per minute. (And I thought my therapist was expensive)
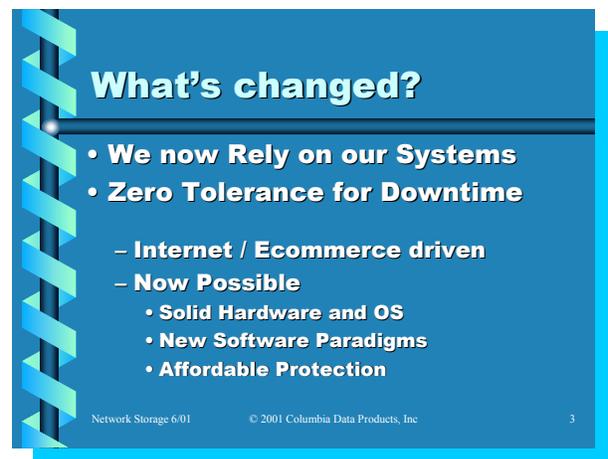
What's changed?

- **We now Rely on our Systems**
- **Zero Tolerance for Downtime**
  - Internet / Ecommerce driven
  - Now Possible
    - Solid Hardware and OS
    - New Software Paradigms
    - Affordable Protection

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What ever you want to call it – this same level of performance / reliability / availability is now becoming possible at all levels.

Today we have Solid Hardware from a very wide range of vendors and our Operating Systems are more solid. Shall we reminisce on the problems with Windows 95. Microsoft is not alone – Apple had their share of operating system faults and IBM – anyone remember the System 34 – the patch for it was the System 36.

Today there are new software paradigms. While we are reminiscing how many can remember having no idea what a paradigm was – not knowing how to pronounce it or spell it – and for that matter not even caring. This industry has been wonderful at littering our daily lexicon with a plethora of robust words. I've met my quota of "in" jargon I'll go back to English – soon.

Not only is it true that this protection and reliability is available – is available at affordable prices.

The strategies for Data Protection are evolving – new technologies – new economic realities are both factors in the changing fabric of Data Protection

Lets take a look at the shifting roles for:
   –Tape Backup
   –RAID
   –Clustering
   –Remote Replication
   –Snapshots

My first slide said *"Could this be the end of backup as we know it"*. The tape folks started murmuring "what do you mean is the end of tape" "… are you crazy we're growing at 25% a year"…

Hold on folks – look at the slide. I never mentioned tape AND I never said it was end of any product or technology. The inference is that status quo is ending. Backup strategies are evolving based on the economic and technologic migratory factors.

For all but the largest mission critical enterprise installations tape has been the primary system for data protection.
We see that tape has recently migrated to an Archive ONLY function. It is simply a matter of math, or physics – the time required to move data exceeds the acceptable time to restore the data.

Hard Drive Capacity is up significantly. A garden variety desktop has hard rives approaching 100GB. Small departmental servers have hundreds of Gigabytes to Terabytes. The acceptable time to move all data is down (need an example of time I think)

> 1986 = 20 Mb backup = 0.25 hr
>
> 2001 = 65 gig backup = 6.00 hr
> (@ 100KB sec - 3MB /sec = 24x slower)

RAID / Clustering / Replication

We have progressed to a place that support for a variety of RAID solutions, clustering and Replication are expected from Vendors who are playing in the High Availability arena.

While these technologies each separately and when used in unison increase availability and reliability they can only protect against hardware failure

Study after study have found that somewhere between 40% and 75% of all instances of Data Loss were human error. I have repeatedly heard system administrators use numbers upwards of 90% - and there was that one system administrator who insisted that his user community were responsible for over 150% of the data loss. Someone should introduce him to Decaf coffee.

RAID, Clustering and Replication provide no data protection for software or user Protection

Snapshots

Now we are getting to what is near and dear to my heart. Snapshots

What are they? Disk images, we call them TrueImages because PSM is operating at the block level as opposed to the file level.

Initially Snapshots, including our implementation of our Open Transaction Manager, which Veritas sells with Backup Exec and other programs, was only used for Backup. In reality only used as an aid to present a stable state to the tape backup software, it would backup the image – while the system remained busy.

PSM Snapshots Are:
True Images of Volume – a complete image of the data on the image.

Hundreds of Points-in-Time Images – Each TrueImage represents a specific point in time, each image is created in an instant – eliminating the "backup window"

Always Online and Accessible – When they are needed to replace lost or corrupt data, Persistent Images are available online in a directory structure and security rights identical to the original point in time.

Instant "recovery" from online Images – Files or Volumes. The time delay of restoring one Terrabyte from tape – could be a week long process or reverting to a Persistent Image instantly could be the difference between in business or out of business.

Are Snapshots the Answer?

Yes!

The Only Logical Answer

Snapshots represent the only continuous online data protection strategy that instantly presents data for use with virtually no latency.

Persistent Storage Manager delivers the ability to create and manage hundreds of Persistent Images – an order of magnitude greater than Network Appliance.

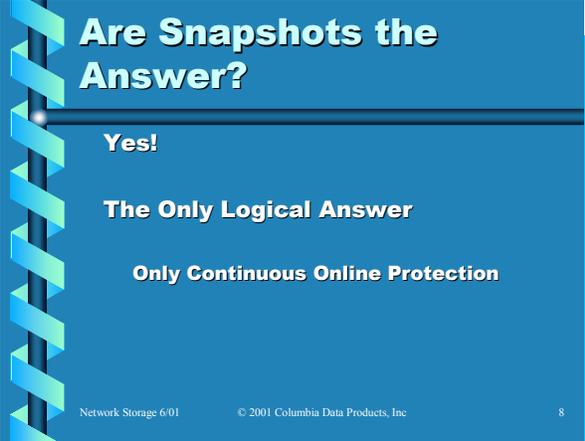We call them Persistent Images because they service reboots crashes and our own revert.

Snapshots ARE NOT NEW!

Enter the world of the Enterprise "Glass House" and this technology has been in use. Little upstart companies like IBM have used them in their storage arrays. Much to IBM's chagrin EMC has done quite well encroaching on IBM's space providing solutions based around the concepts of snapshots.

Top Internet sites in Internet Data Centers Worldwide have relied on snapshots from Network Appliance Filers as the hits just keep on coming and coming and coming…

IBM storage systems were attached to Main Frame systems and cost in the millions of dollars. EMS's systems start at the Hundreds of thousands of dollars and the most common NetApps Filer costs between fifty and one hundred thousand dollars.

Snapshot functionality is now available from companies like IBM's SafeStore Group, Dell Compaq, Maxtor and others for five to ten thousand dollars.
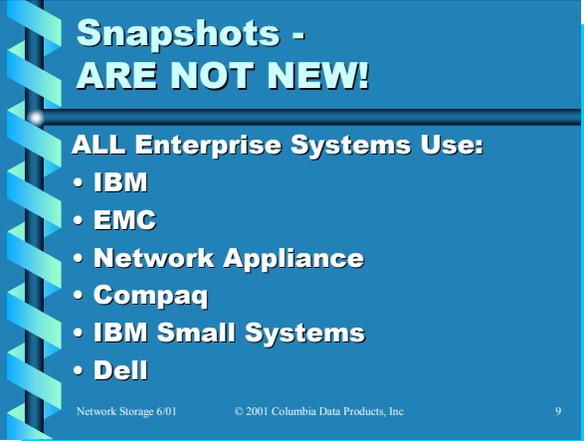
Persistent Storage Manager (PSM)
High-Availability Instant Data Protection for NAS

Users get Instant Data Recovery from Online Persistent Images. Every one is striving for five nine reliability. Five nine system performance means that you have five minutes or less of network down time. If you think about that for less than a minute – you can't reboot in five minutes. With PSM you don't stop to retrieve, and then have to reboot you just start using the snapshot.

Maintain Hundreds of Point-in-Time Persistent Images – each image is an exact representation of a specific point in time – the number of images and the frequency the images are created depends upon the profile of the data being protected.
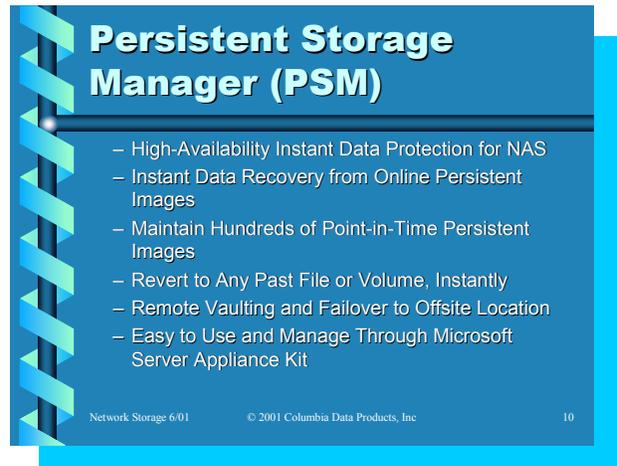
This concept of moving to the Persistent Image, sometimes called reverting is very different from any other data protection technology because you experience only minimal latency. Revert to Any Past File or Volume, Instantly – think about it. You change your reality, if you don't like where you ended up you can change again – and again.

True survivability come from remote Vaulting and Fail over to Offsite Location. Whether it be a natural or un-natural catastrophe you have the same ability to access the data instantly

There is no need to get up close and personal with arcane languages like UNIX to manage or use PSM. Easy to Use and Manage Through Microsoft Server Appliance Kit

Are snapshots the replacement for Tape Backup – not on your life, PSM just resides closer to the live data with Tape as the archive and for the few situations for which snapshots will not work.

I will now lower the bulletproof shield and answer any questions you may have.

About CDP

CDP, the leader in TrueImage™ storage solutions has been enabling OEM customers with high availability solutions since 1988. From the first-ever SCSI device driver suite bundled with the Western Digital WD7000 SCSI controller, to its new PSM offering, CDP prides itself on offering robust yet simple to use storage solutions.

About PSM

PSM creates multiple point-in-time Persistent TrueImages™ of any or all system and data volumes residing on the NAS. TrueImages™ can be read in the same manner as any other storage volume and because they represent a moment in time, in the event of data corruption or loss, any volume can be reverted to a prior time from any persistent image, preventing system downtime. Uniquely PSM gives system administrators the ability to move back and forth through time recreating files and environments. Persistent Images survive system power loss, virus attacks and a planned or unplanned re-boot. Persistent Images™ are easily scheduled and administered through Microsoft's

simple to use web based Server Appliance Kit and with 250 concurrent images of up to 255 independent volumes for a total of 63,750 independent data images System Administrators have tremendous flexibility in structuring data protection strategies. Security remains in place facilitating users retrieving their own files or just rebooting to a "pre-disaster" image – eliminating cumbersome, time-consuming, unreliable tape or other hardware – providing cost savings in hardware, software, and support manpower.

Network Attached Storage is the fastest growing segment of the storage industry. OEMs who are considering entering the very lucrative market need to consider the benefits of a Win2000/PSM solution.

- Performance of Windows 2000 & the Server Appliance Kit
- Scalability & Interoperability
- Based on Industry Standards
- Time to Market – Weeks not Months
- Unparalleled Data Protection provided by Persistent Storage Manager (PSM)

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. OTM's image based approach to open file protection affords users the highest level of data integrity, while eliminating the backup window completely.

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