



**STORAGECRAFT**<sup>™</sup>  
Technology Corporation

*Leading the Way to Safer Computing*

**KEY CRITERIA WHEN SELECTING  
BACKUP AND RESTORE TECHNOLOGY  
FOR WINDOWS SYSTEMS**

***How do you test to determine which backup and restore technology best suits your business needs?***

*Real-Time Recovery delivers the ability for organisations of all sizes to eliminate backup windows, reduce recovery times of production Windows systems and substantially improve data availability through a single, integrated and affordable solution*

## Real-Time Recovery

### Determining the Best Data Protection and Disaster Recovery Technology for your Organisation

#### Overview

Businesses today have become brutally aware of the need for rapid backup and disaster recovery. No matter their size, whether a small business, mid-market company or large enterprise, most organisations know they need to restore their critical systems and data rapidly, in a matter of minutes, in order to minimise the impact of lost productivity. Disk-based, real-time data protection and disaster recovery addresses these concerns and enables businesses to recover from a catastrophic failure in minutes, rather than days.

#### A Few Quick Tests

So, which data protection and disaster recovery solution suits your business?

To understand the differences between the various backup technologies available for Windows systems, StorageCraft has formulated a few quick tests that you can perform to assist in determining the solution that best fits your business structure and internal / external service level agreements.

#### Testing Maximum Data Protection

##### Reduce data / database loss to 15 minutes instead of hours or days

Install the software, including all agents and options where required. Create a weekly backup schedule that performs a full backup every Saturday at 9pm and incremental backups every 15 minutes between 8am and 7pm to provide maximum data, database and Exchange protection.

#### Questions:

1. How easy was it to configure the schedule(s)?
2. How much disk space is required?
3. How long do the incremental backups take after 5 - 15 days of use on a production server (especially a database / Exchange server)?
4. What is the impact on your production systems whilst these incremental backups are taking place?

#### Notes:

1. ShadowProtect includes I/O disk throttling and CPU throttling as standard. The CPU throttling is automatic. If a server is in production, ShadowProtect reduces the amount of CPU used to help ensure minimal impact on production systems.

#### Testing Image Integrity

##### For a backup to have any value, it must have integrity

Using the above schedule, delete the last incremental image and create a new incremental image. Explore the new incremental Image and restore a single file.

#### Questions:

1. Were you able to restore a file from the last incremental image?
2. Does this raise a concern about the integrity of your backup process?

#### Notes:

2. Using the weekly schedule in ShadowProtect, StorageCraft provide an enterprise technology called 'Self-Healing' incremental backups. If the previous incremental is not available (eg has been deleted), ShadowProtect automatically creates a new differential backup to help ensure maximum image integrity.

## Testing Enterprise Capability

### The ability to modify schedules

Using the above schedule, change the time that the base and incremental schedules occur.

#### Question:

1. How easy was it to change the schedule for the base image(s) and incremental backups?

## Ease of Restore to different hardware

### Domain Controller or SBS Server

Restore a Domain Controller or SBS server to different / disparate hardware and connect to a **production network**.

#### Questions:

1. Did the restoration and connection to the network corrupt Active Directory?
2. What level of support did you receive when you called the backup software vendor to resolve the issue?

#### Notes:

1. StorageCraft have a published Knowledge Base article on how to resolve the IP address issue. Without reassigning the original IP address by removing the old Network Adapter, the Domain Controller or the SBS Server could corrupt Active Directory if the server even starts.
2. StorageCraft have Technical Support based in Sydney, Australia to support our customers and partners and help maximise your investment in ShadowProtect.

## Testing Exchange Mailbox restores

### With Microsoft approved methodology

Key to most organisations is the ability to restore Exchange and more specifically a single mailbox quickly and easily. The challenge is making sure that the restore technology uses Microsoft approved methodology.

#### Questions:

1. Was the Exchange mailbox restore technology used approved by Microsoft?
2. There are some restore technologies that use a Web-based search and restore technology, ask if they are approved by Microsoft and if a restore of a mailbox will be supported by Microsoft if this technology is used?
3. Are you willing to risk that Microsoft will not support you if you use non-approved Microsoft restore technologies?
4. What was the quality of support and assistance that you received when phoning the vendor for technical support?

#### Notes:

1. Restoring a mailbox with ShadowProtect uses Microsoft approved methodology.
2. With ShadowProtect, see the Exchange Mailbox Restore Knowledge Base article.

## Real-Time Recovery Market – Delivering True Business Continuity

**Real-Time Recovery (RTR)** is a new market segment that has evolved due to the cost, complexity and reliability of traditional tape based backup and recovery products. Most traditional backup and recovery products focus on the backup process and not what is important to a customer – which is the recovery process. Traditional tape-based solutions fail to meet the Service Level Agreements (SLAs) that organisations of all sizes now require. In addition, ever increasing mandatory regulations for information compliance adds yet another layer of complexity to maintaining the confidentiality, integrity and availability of your data. After all, the only reason we backup our data is to be able to restore it at some stage in the future. Data is the lifeblood of your organisation – without it, the business ceases to exist.

**Recovery Time Objective (RTO)** is the time it takes to restore a server back to a full production state. Reducing the RTO reduces downtime in an organisation. Today's SLAs dictate that a restore solution should provide the ability to bring a crashed server up on the same, different or even a virtual environment quickly and easily. ShadowProtect provides the ability to rebuild a server O/S (for example, a 10GB System Volume) typically in less than 12 minutes, to the ExactState™ it was 15 minutes ago.

**Recovery Point Objective (RPO)** is how far back in time do you need to go to restore a clean data set. With traditional tape solutions, you need to go back to the last 'working' tape – all data created, stored or modified between that last backup and the point of failure is lost. For example, a server crashing at 16:05 will typically result in eight hours of data loss PER USER. Using ShadowProtect, data and databases can be restored back to their ExactState as of 15 minutes ago, substantially reducing data loss.

**Real-Time Recovery (RTR)** delivers next generation proven, reliable and affordable, real-time data protection and real-time recovery of systems (OS), applications, settings, preferences and databases (eg Exchange and SQL).

For a solution to be considered a **RTR** solution, it must fulfil the following criteria:

1. Protect data at the sector level using Microsoft VSS technology at frequencies down to every 15 minutes throughout the day with minimal impact on the server, network or users.
2. Provide the ability to rebuild a Windows server (includes SBS, Exchange, SQL, etc) for example a 10GB System Volume in typically less than 12 minutes to the same hardware, different hardware or even to a virtual environment.
3. It must allow users to restore their own files with minimal to zero IT involvement by mounting incremental images and creating a virtual 'read only' volume that can be shared amongst users as either a drive letter (e.g.: R for Restore) or a custom name (e.g.: Monday's Backup). It must retain all NTFS passwords, permissions and settings to ensure privacy of information.
4. It must be a single integrated technology, built from the ground up to deliver a complete solution without adding any additional options, agents or modules to the solution.
5. The RTR solution must substantially reduce cost and complexity whilst helping to ensure compliance when providing real-time data protection and recovery.

## What to look for in a Backup and Disaster Recovery Solution

### The Importance of Image Integrity Key Considerations

Backup (Image) Integrity is paramount when protecting data. ShadowProtect uses ExactState imaging to ensure that the ExactState of the **entire volume** is backed up and files or folders are able to be restored quickly and simply. Older style products that enable you to select which file types, folders or directories you want to backup (or exclude) should be used with extreme caution as they focus on the backup process, not the recovery process. These products can potentially cause catastrophic problems during a restore.

- Example: You de-select a 'non critical' partition or folder, but an application (or user) saves a .DLL (or files) to that volume / folder. During the restore process, as that volume / folder has not been backed up, you are not able to restore the target volume as it has dependencies that have been saved to the un-protected folder.
- Example: You exclude a certain file type (eg MP3s), but your CEO records a conversation and saves it to disk in a folder. But because you have selected not to backup MP3 files (at a previous time), that voice recording is not backed up.
- The only reason to exclude folders or file types is to reduce the amount of data being backed up. Using intelligent ExactState imaging, which is sector based, only the sectors that have changed are backed up, therefore minimising the amount of data being backed up. A better strategy, rather than trying to reduce the backup window, is to implement an 'intelligent' imaging solution that helps to ensure backup integrity.
- If you have not backed up certain file types or excluded files, and you need to prove that some files did not exist in the future, will you be able to do that? Would these products meet your legal and fiduciary requirements to maintain server backup integrity for seven year? Would be you be able to restore your entire server at some point during those seven years?
  - StorageCraft ShadowProtect uses ExactState volume based imaging and enables users to leverage Microsoft VSS Sector-based imaging to provide real-time data and database protection every 15 minutes with minimal impact on production systems. This means that users should not lose more than 15 minutes of data after a system crash, corruption or virus.
  - StorageCraft ShadowProtect is the world leading Real-Time Recovery solution with more than one million installations of their Real-Time Recovery engine, Volume Snapshot Manager™ which is the core engine in ShadowProtect.

### File vs. Sector based Imaging The way to protect data in real-time

Not all backup products are created equal. In order to efficiently and effectively protect data in real-time, it is critical that the solution uses SECTOR based imaging (as opposed to file or block based) imaging. Sectors are the smallest possible unit of measure on disk systems. Protecting data and databases at the sector level help to minimise the amount of data moved across the network. When working at the sector level it is critical that the solution is a Microsoft VSS Provider (as opposed to VSS aware or VSS enabled). This helps to ensure conformance to Microsoft standards and integrity of images.

## Virtual Tape Libraries vs. Real-Time Recovery

Virtual Tape Libraries (VTLs) are an attempt to reduce the backup problems in medium-to-large organisations. In reality, all they do is move the pain points to another area on the network without solving the fundamental problem of providing maximum data real-time protection, and fast restores of data, O/S and databases.

## Tape vs. Disk for Backup

Today, how would you describe your current backup status? Do the words slow, cumbersome, untested, complex, difficult, expensive and unreliable sound familiar? StorageCraft believe backups should be fast, easy, reliable and non intrusive. Backups should be in real-time and disk to disk. Tape is now relegated to an archival medium – off-site, long term retention for worst case scenarios. Many companies are now looking to D2D2T or D2D2D (where the final disk is off-site).

## Testing a Disaster Recovery / Backup Technology

The only way to FULLY test that a backup or disaster recovery strategy is working is to take data off your backup medium and overwrite current data. Are you willing to do that today? Using Real-Time Recovery, you are able to take the ExactState of a production server (including Exchange or SQL) as of 15 minutes ago and bring it up in a virtual (non production) environment - therefore proving that your backup and DR strategy actually works.

## Data Deduplication vs. Real-Time Recovery

One of the buzz words around the storage industry today is data de-duplication. Does data de-duplication solve your backup problems, or again, simply move the pain points? Would you prefer a solution that is designed from the ground up, as a single integrated technology to actually solve the backup, recovery and disaster recovery problems on your production Windows servers?

## Internet Backups

### Backup vs. Real-Time Recovery - what is critical to a business?

One area that is growing rapidly is off-site 'internet backups'. The major challenge with most of these technologies is that they focus on the backup process, not the recovery process – which is what is critical to a business. Imagine trying to bring a 75GB data volume back over the internet!

The real requirement is to have policy based software with a local image repository that holds, for example, 2 – 4 weeks worth of data **locally** (for fast file, system and database restores and/or migrations). Then, in real-time, replicate that data off-site to an (enterprise class) data centre. At this data centre, a separate schedule holds data for a pre-defined time period before it is automatically archived off to tape (or other archival medium). In the event of a problem, crash or corruption, the data, systems, applications and databases are restored in minutes from the local image repository. In the event of a catastrophic failure, the remote data centre is able to take all the systems from, for example, 15 minutes ago, and bring them up in virtual environments, redirect users to the new virtual systems, and in hours, not days or weeks, production is fully restored with minimal data loss or disruption to the business – delivering -- for the first time -- truly affordable backup, recovery, disaster recovery and business continuity. This local capability is provided as standard (free) with ShadowProtect. The remote (data centre) policy software can be separately licensed from StorageCraft resellers or integrators.

## Continuous Incremental Backups

Create one base (full backup) and then only perform incremental backups from that point onwards. Using the StorageCraft policy-based local image repository (which is included free) you are able to set a policy for how long backups are retained before collapsing to a new base backup image.

## Summary

Imagine for a very low investment, easy installation and minimal on-going management you are able to implement a complete, single integrated solution to solve your Windows recovery and disaster recovery problems without having to invest in a myriad of agents, options and add-ons.

Imagine being able to consolidate the number of tape devices (and associated backup software applications) that have to be purchased and managed to fewer, larger, more robust, more reliable autoloaders or tape libraries. What is the savings to your organisation?

Imagine being able to eliminate tape at remote sites, and still be able to restore files or complete systems (including databases) to the same, different or even virtual environments in minutes not hours or days and eliminate the cost and reliability issues once and for all at these your remote sites?.

Imagine being able to eliminate backup windows across all your Windows servers with a single, integrated and affordable technology.

Imagine being able to fully test your backup and disaster recovery plan without risking or disrupting production systems on any protected server, anywhere on your network.

**Welcome to Real-Time Recovery and StorageCraft ShadowProtect.**

***Download an evaluation of ShadowProtect Server Edition™ 3.0 today  
and see for yourself how StorageCraft ShadowProtect and Real-Time Recovery  
will change your backup strategy, once and for all.***

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### Supporting Information / downloads

- ShadowProtect v3.0 Flash Demonstration: [http://www.storagecraft.com/ProductTours/ShadowProtect\\_3.0\\_Demo.swf](http://www.storagecraft.com/ProductTours/ShadowProtect_3.0_Demo.swf)
- StorageCraft Asia Pacific Knowledge Base: <http://www.storagecraft.com/ServiceSupport/APACKnowledgebase/>
- ShadowProtect Data Sheet: <http://www.storagecraft.com/documents/ShadowProtectdsheet.pdf>
- Download the Real-Time Recovery White Paper: <http://www.storagecraft.com/documents/RealTimeRecovery.pdf>