



The “Gotchas” of Backup and Recovery

Executive Overview

Today’s web-driven, distributed businesses provide storage administrators with the unique challenge of ensuring the recoverability of backup data from across multiple platforms and locations. There are many considerations—technology, human influence, market pressures—that amount up to many “Gotchas” of backup and recover.

This white paper outlines the “Gotchas” at play in many organizations, and highlights the considerations and potential solutions for storage managers.

White Paper

When facing a recovery situation, five basic concerns trouble most executives:

1. Can I recover?
2. How long will it take?
3. Will I lose any data?
4. Will I have to rerun any work?
5. How much will it cost?

The answers to these questions depend entirely on how well your organization has prepared for recovery. Traditionally, the principal tool for recovery has been the creation of backup copies of all business data. This process has proven over time to be the best means of data protection and really hasn't changed much over the years. At some selected time, usually at the end of a typical day's processing, all data is copied to some form of removable media and stored safely away at a remote facility.

Sounds like a simple process, and it really is, but there are some issues that can severely complicate the backup and recovery process. We call them the "Gotchas," and if you're not prepared to handle them, a minor glitch could become a major business disruption.

Gotcha #1: Runaway Data Expansion

The first Gotcha is your changing environment itself. Backup and recovery procedures may be tested periodically, but your environment is constantly changing. New business applications equate to new datasets. Changes within existing applications may generate new files. Storage management constructs can move data to different media, and "one-time jobs" or special processing submitted by

users may update files. Processing schedules change and the introduction of new technology requires new procedures.

Today's business applications are highly integrated. It's common for one application to update the files of another. From an operational perspective, it's difficult to know which files were updated, when and by which application. Identifying a common sync-point is difficult if not impossible.

And this is the basis for the first Gotcha: You really don't know what needs to be backed up, so you back up everything, an expensive and time consuming solution.

Gotcha #2: Shrinking Backup Windows

The next Gotcha is time constraints. Daily processing cycles that exceed 24 hours are now commonplace. But backup procedures are still scheduled for execution at the completion of the daily cycle. Any delay in the daily cycle processing will affect the start of the next day's cycle. And it's become commonplace to defer backups rather than delay business processing, certainly a risky policy.

The fact is, backup has become a burden to most organizations. Processing requirements have expanded to 24x7 and data stores have increased significantly, some say at an exponential rate. While the time available to complete business processing remains constant, processing workloads continue to expand. And this results in the next Gotcha:

The amount of time required to complete adequate backups is severely affecting your business processing work schedule. To avoid costly business impact, backups are often deferred.

Gotcha #3: Budget Restrictions

Although the economy may be improving, our operating budgets aren't getting much larger, and backups are said to be the most expensive storage management process we perform. The price tag includes the cost of media, vaulting and offsite storage, transportation and handling, and the computer time and technology resources required to complete the backups. And an often overlooked additional cost is the loss of valuable processing time currently consumed by backup operations themselves.

As workloads expand, backup requirements increase accordingly. Expanding data stores demand more resources, media, processing time and possibly, equipment upgrades. But when budgets are tight, funding for backup protection is limited as well.

Shrinking budgets are making it very difficult to keep up with the increasing demands of data protection.

Gotcha #4: Over-reliance on Technology

Many organizations seek out new technology to provide relief. For the most part, these new technologies function as advertised and can provide significant benefits, but they're not necessarily a solution to all problems and may present new challenges as well.

One of the more popular technologies is mirroring or replication. Simply put, this is the process of copying data from one disk to another, thereby creating a redundant copy. Mirroring is a great availability solution, but not necessarily a good recovery solution. Although we may envision catastrophic events such as

fire, flood, severe weather, etc., when we think about recovery, 80% of all recovery situations are caused by people or processing errors. Mirroring creates redundant copies of bad data as well as the good.

Another popular technology is Snap or Flash. Essentially, this is an instant means of freezing data at a point in time so backups can be created on the frozen copy while processing continues. Typically it requires that all processing be ceased until the Snap/Flash procedure is completed, making a logical sync-point difficult to identify.

Gotcha #5: The Human Element

Managing the complexities of today's backup and recovery operations is our next Gotcha, a very labor intensive activity. Just the logistics of handling massive quantities of backup media can become a nightmare for most organizations. In a changing environment, it's difficult to keep up with new requirements. Decisions are often made with limited information. Human resource limitations in this tight economy require organizations to do more with fewer staff and this increases the risk of human error.

But during a crisis, visibility is heightened. A number of critical decisions must be made to regain business processing. Finding and restoring the right backups to return the system to a known, recoverable point in time is critical. A wrong decision can result in costly delays and this is a bad time to discover that your backup or recovery methods weren't adequate.

Backup and recovery operations require intensive human involvement and have become very prone to human error. Decisions during critical events are made without adequate information.

Gotcha #6: Regulatory Compliance

To further complicate the issue, recent regulatory requirements place significant focus on data protection. GLB, HIPAA, Sarbanes-Oxley and Basel II increase the need for adequate backups as well as related controls and procedures. Common to all is the need for comprehensive data protection, effective disaster recovery, adequate audit trail and monitoring, the enforcement of predefined procedures. Compliance will mean increased work, operating cost, internal auditing demands and overall visibility.

The key to dealing with compliance challenges is to fully understand not only the compliance expectations—such as what data to keep for how long and where—but understand the retention process itself. Knowing what applications use the data, how it’s being backed up and how it would be recovered is equally critical—as is the ability to fully audit, track and report on your retention status.

Control the Effects of the Gotchas

Dealing with the Gotchas can be challenging. Knowledge is the key—understand your data and how it’s used, make intelligent decisions based on that knowledge. Streamline the process—backup what needs to be backed up, apply technology where it makes sense. Automate the backup procedure—minimize opportunities for human error. Implement a method to audit backups—insure they’re created when they need to be created, track their disposition and maintain your archive.

About 21st Century Software

21st Century Software delivers Application-Driven Data Management (ADDM) solutions that retain and recover data and files required by critical enterprise applications. 21st Century Software's VFI family of software solutions are used by organizations across many industries and of all sizes to bring intelligence to data protection.

VFI solutions are intelligent, automated, real-time data protection from 21st Century Software. VFI constantly monitors files and data used by enterprise applications to determine which files would be most critical to recover after a disaster, hardware failure, or other calamitous event.

The VFI family of solutions can be critical elements in your enterprise backup and recovery strategies by helping companies address ongoing data management challenges:

- >> *Recovery of Critical Files*: VFI solutions monitor data usage by enterprise applications to ensure the recoverability of critical data required to run the business.
- >> *Regulatory Compliance*: VFI solutions help organizations determine which data and information needs to be retained to comply with governmental and industry regulations.
- >> *Storage Utilization*: By retaining only the most critical files and optimizing data management processes, VFI solutions deliver greater insight into data management processes and help improve storage utilization.



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