

# Branch Office Data Protection

## Is Your Branch Office Data Really Protected?

Regardless of form or fury, disasters can take their toll on any business. In fact, the Department of Homeland Security puts businesses in two categories: those who have already experienced the pain of losing valuable electronic data, and those who will at some point in the future.

Well-prepared businesses know that deploying the right resources, processes and technology to protect key information and minimize downtime at their headquarters is important; but having adequate resources and technology in place to protect invaluable data in branch offices is just as important, though often overlooked.

In a survey conducted in 2005 by the Ad Council, most businesses agreed that emergency preparedness is important, yet only 39% said their company had a plan in place. In companies with distributed branch offices, data protection strategies may not have kept up with the reality that branch or remote offices now contain customer databases, e-mail servers and financial information that are critical to the company's daily operations. The traditional approach – relying on tape backup for branch-office data protection – is costly and risky. For example, in addition to the initial tape backup hardware, software and installation costs for each branch add the continual costs of tape media, maintenance and off-site transport and storage. Many companies also can't afford to have IT staff in branch offices so they incur additional IT support costs for the regular technical maintenance and verification of the branch backups.

For untrained non-technical staff in branch offices, being responsible for consistent, reliable backup can be tough. Backups may fail without the branch staff even noticing. Improper labeling, shortcuts and rotating and removing tapes can result in lost data and slow recovery. Also, if the branch employees have never tested the recovery process, they won't be familiar with how to execute the recovery when a disruption occurs. As a result, in the event of a disaster the branch could be down for a prolonged period of time and often requires the assistance of the central IT staff.

## A Better Approach to Branch Office Data Protection

Companies don't have to rely on this costly and risky approach to branch office data protection. Proven technologies such as Double-Take® Backup from Double-Take Software make it possible to reliably and cost-effectively back up branch office from a central location, in real-time to a disk-based repository. Entire servers or individual pieces of data can then be restored quickly and easily rather than relying on tape media. For longer-term archiving of protected data Double-Take Backup can be used in combination with more traditional backup solutions to satisfy backup retention policies in regulated industries.

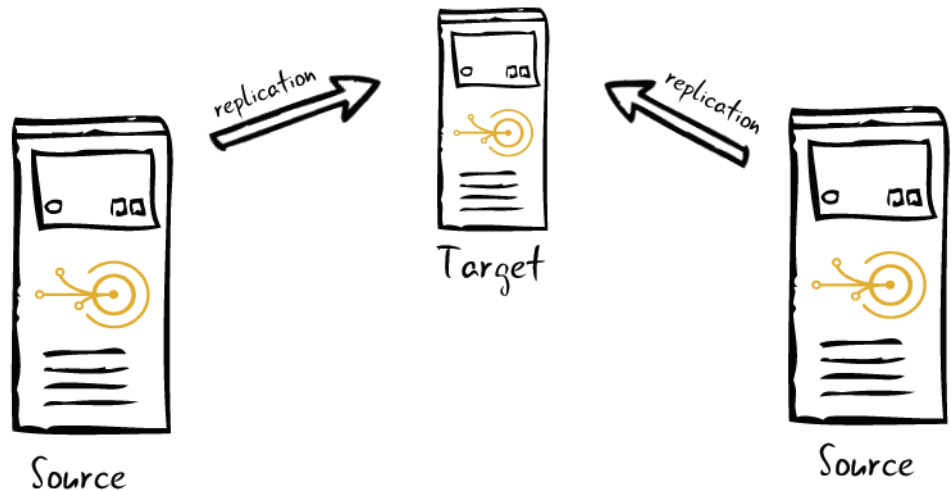
## How Double-Take Backup Works

In the past, centrally backing up remote location data was not feasible for most businesses because the solutions available were hard to manage and cost prohibitive. Double-Take® Backup enables continuous server backup, on-demand restoration and any-point-in-time recovery options that are right for your organization. Double-Take Backup reduces costs by simplifying the protection and recovery of important systems and continuously replicates changes to data, applications and the source server's operating system, protecting the entire server.

Double-Take Backup reduces the window for data loss, is more efficient than tape and less costly than tape or other replication solutions. Because Double-Take Backup replicates data in real time, an up-to-the-second copy of data is always available on the backup server. Double-Take Backup also uses unique compression and bandwidth throttling features that allow an administrator to control the amount and timing of bandwidth used for backup, allowing organizations to implement remote office and branch office backup solutions without making huge investments in additional network connectivity between locations. Because Double-Take Backup is also application and hardware agnostic and can protect any Windows server, regardless of its physical or virtual characteristics, it can utilize existing infrastructure, eliminating hidden costs standing between you and better backups.

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Double-Take Backup allows for the complete recovery of an entire server and any Microsoft Windows application running on it as well as any associated data. Double-Take Backup integrates with the Microsoft Volume Shadow Copy Service (VSS) to allow you to schedule and recover from up to 512 point-in-time copies of data on your backup repository. Optionally, IT administrators can also use the product's TimeData™ Continuous Data Protection (CDP) feature to transparently and automatically capture and protect all data changes as they occur, eliminating the risk of data loss that can happen between traditional backups or disk-based snapshots. The real-time protection of Double-Take Backup provides a Recovery Point Objective (RPO) usually measured in seconds with vastly more recovery points than lesser backup solutions.



Double-Take Backup replicates changes to files at the byte-level from a protected Windows server to a Double-Take Backup repository server across any IP-based network. A small software agent is installed on each system and a file system filter driver is used to determine what changes are occurring to files and to replicate copies of those file operations to the repository server and apply them to a second copy of the protected data. All changes are sent and applied in the exact order they occurred on the production system, guaranteeing a crash-consistent copy of data on the secondary system. Unlike tape based backup, there are no protection gaps, no scheduling requirements, no backup related system slowdowns and no backup windows for administrators to manage. Recovery with Double-Take® Backup is fast and intuitive at any granularity for the entire system, individual databases or even single documents or Exchange e-mail items. When a system volume or entire server fails, recovery of both system state and data can be performed from the management console. This reduces the number of steps and time needed to recover a server to its original state, improving achievable recovery time objectives (RTO). Double-Take® Backup replicates and can recover between any configuration of physical and virtual systems. When it's time to recover, Double-Take Backup allows you to configure and perform recoveries on-demand to physically dissimilar hardware or virtual servers, with added validation steps to make sure recovery will go as planned.

The management console also push-installs Double-Take® Backup to the recovery server if necessary, eliminating the need to have it preinstalled on the recovery server. The recovery process can account for a variety of differences between the original source and recovery server, prohibit incompatible differences and warn the user of possible performance degradations after recovery.

## Double-Take Backup versus Traditional Tape Backup

While tape is still the standard that many organizations use to judge other backup solutions, tape has several disadvantages. Tape backup has been around a long time and has improved marginally over the years; however, tape-based backups are still a very unreliable solution. Statistics show that over a third of all tape backups fail at the time of restoration of the data. Another disadvantage of tape backups is that they offer poor RTO and RPO for the data they are protecting. The time needed to recover (RTO) is high due to the method in which the data has to be restored. This includes locating the tape, bringing the tape back if it is stored off-site, mounting the data, checking the data and, if the data sound, restoring it. It can take anywhere from hours to weeks to restore data and get systems back online. Since most backups are usually not taken any more frequently than once a day, 24 hours worth of data is potentially exposed to loss. Another disadvantage of tapes is that they are expensive – administrators have to deal with tape drives, agent software, tapes and downtime to run backups and facilitate off-site storage.

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Double-Take Backup addresses tape backup issues in a way that makes backups more efficient and reliable while keeping costs under control. Double-Take Backup is a blend of two protection solutions that offer one state-of-the-art backup solution. Double-Take Backup provides full system state or data replication-only coupled with continuous data protection to provide the next generation of server backup. This solution allows data to be written to the backup repository in real time, eliminating the backup windows that have plagued IT departments for many years. The RPO with Double-Take Backup is seconds; because of the real-time replication the data is in the state it was at exactly the time of the failure. The RTO is minutes to hours as opposed to hours to weeks with tape. Double-Take Backup allows you to view the data from the management console without mounting it, then administrators can simply push the data or entire system state from the repository back to the production server -there are no application specific agent drivers required as there are with traditional tape. Double-Take Backup is application and hardware agnostic. Another advantage that Double-Take Backup has over tape is that it has CDP built in. This feature allows data to be recovered to any point in time in the previous 31 days.

## Double-Take Backup versus Disk Based Backup

It is accepted that disk-based backup solutions have better performance than traditional tape backup solutions because disk-based solutions have a better RTO. However, these solutions still have many of the same drawbacks that tape solutions have. Disk-based backups are still scheduled at specified intervals just as tapes are, which makes them have poor RPO as well. These backups are also usually performed no more frequently than once a day, leaving 24 hours worth of data exposed to loss. Disk-based backups, like traditional tape backups, are mainly focused with protecting the data only. Another disadvantage of disk-based solutions is that they are expensive and in many cases appliance-based. These proprietary solutions make it very difficult to change strategies or vendors without major overhauls.

When it comes to the storage requirements for disk-based backup solutions, Double-Take Backup provides even greater benefits. Real-time replication solutions create only one copy of the data and then use snapshots for point-in-time recovery. The overall storage footprint of data that is replicated in real time is roughly the same size as the source data with only a fraction more for snapshots. As storage requirements increase for disk-based backups, vendors must rely on technologies such as data deduplication to keep the disk-based backup storage growth under control. Because Double-Take Backup maintains a "synthetic full backup" in the form of a continuously updated copy of protected data and only requires the use of snapshots CDP for recovering previous points in time, data protected via continuous replication is typically in the same state as it was on the source, openly accessible for recovery and use without the need to un-deduplicate. This makes recovery faster and makes the overall cost of the backup solution lower because additional deduplication add-ons or specialized deduplicated hardware is not required.

Since Double-Take Backup is application and hardware agnostic in its approach to backing up systems in any IT environment, it can be implemented on existing hardware. Double-Take Backup can run on physical or virtual servers, which is a major advantage over disk-based solutions. Additionally, Double-Take Backup offers full system state protection, CDP, real-time backups (no backup windows), excellent RPO and RTO and the ability to use existing equipment. Double-Take Backup allows you the flexibility to manage the backup environment in the best way for your environment.

## Double-Take Backup and Branch Office Protection

Using Double-Take Backup for branch office data protection reduces cost, errors and improves security and recovery time. Tape backup has hidden costs; longer recovery times means lost productivity, physical tape maintenance and off-site storage fees, investment in drives and per-target licenses are just a few.

A 2005 Gartner report notes costly complications with tape-only backup solutions:

Tape has been identified as a weak link in the recovery process for many companies, whether it is the problem with incomplete backups to tape, tape drive problems, or just the problem of managing and locating the correct set of tapes for a recovery when

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needed. Mechanical delays and tighter service-level agreements (SLAs) are two more reasons that tape is considered a weak link. With virtual tape, more than 90 percent of the time is spent moving data. With real tape, it is not unusual to see more than 90 percent of the time spent picking, mounting, searching, rewinding and storing the tape. The facts are that backup-to-tape has a degree of failure regardless of whether the actual failure is tape.

Tape backup is notoriously error prone. An article in SearchSecurity reports that in a survey of 500 IT departments, as many as 20% of routine nightly backups fail to capture all data. Among participants of the study, 40% of IT managers were unable to recover data from a tape when they needed it. Further, corporations that are regulated also face a risk of noncompliance if they cannot produce required data when they need it.

With many recent incidences of lost or stolen tapes, it's no wonder tape backup is in the hot seat – especially since there are more secure options available. Regarding a survey in which 388 IT professionals in 10 industries were asked about their tape backup practices, a senior analyst at the Enterprise Strategy Group said:

Data backup and offsite storage is an error-prone, manual undertaking that often includes junior employees, unmarked cardboard boxes, untrusted couriers and public transportation. This process is full of holes ripe for compromise. If a malicious individual wanted to steal confidential data, he or she could simply bribe an employee or simply grab a non-descript cardboard box in transit.

Double-Take Backup helps eliminate the security risk of lost or stolen backup tapes. It replicates data over your existing infrastructure to a target located as close or as far away as your backup and recovery plan deems necessary. Replicating your data offsite reduces your dependence on local tape backup.

If applications are unavailable to individual users or company-wide, it can have an enormous impact on revenue. A study by CIO.com revealed it costs 42% of companies \$1,000 per hour, 26% of companies \$10,000 per hour – with upper ranges at over \$50,000 per hour.

Double-Take Backup provides the ability for branch offices to failover to a backup server immediately. In fact, users may not even know there is an issue and can continue working with a copy of up-to-the-minute data and applications. When the production server is fixed or replaced, users can failback – with no interruption of service or access.

## Branch Office Data Replication in Action

MidAmerica Bank ended the year with thirty-four offices, profits and income per share that surpassed the preceding year, and continued growth on the horizon. MidAmerica had become the Chicago metropolitan area's ninth largest bank in deposit share. The bank's success was more remarkable because much of this growth had occurred when the rest of the economy was sagging.

While tape backup had been sufficient in the past, MidAmerica Bank wanted to reduce their escalating backup costs and increase the protection of teller-based data—transaction records, check ordering applications, and spreadsheets in each branch office. The cost of tape backup was becoming exorbitant. Each branch had to spend \$7,000 - \$10,000 for backup hardware and software, plus set up time. This was in addition to the ongoing costs of media, maintenance, communications, transport and storage. Yet this costly system failed to guarantee the protection of all records because tape backup occurred just once daily. When failures occurred, the gap between the last backup and the failure resulted in the irretrievable loss of transactions and records. Another problem for MidAmerica was their dependence on non-technical staff for tape management. People trained to serve customers were inexpertly changing tapes. "There were always irksome questions, especially with so many branches," said Ray Zamora, Vice President of Network Operations for MidAmerica Bank. "Did they make the tape change? Did they do it correctly? Did they install new tape or erase data?" When relying on tape backup alone, MidAmerica Bank had to allow about an hour per branch for weekly technical maintenance and verification. With thirty-four branches, the support was roughly equal to the cost of a full-time employee.

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When the bank upgraded to a Dell™ EMC Storage Area Network (SAN), they re-evaluated options for protecting branch data. Armed with the bank's requirements for data storage and backup speed, Dell researched options and recommended the bank implement a real-time data replication software solution, Double-Take Backup.

MidAmerica Bank initially implemented Double-Take Backup in thirty-four branch offices, backing up user data from remote sites to a central server in Naperville, Illinois. Each branch office uses a Dell server with RAID 5 storage that replicates to a lower cost server. This server provides local failover protection for the office and serves as the source replicating the branch data to the centralized target server, attached to the central Dell/EMC SAN in Naperville. Because the replication software replicates and transports byte-level changes only, the average amount of data backed up every day from all branches is just 70 MB. This helps the bank achieve their goal of maximizing the use of their existing bandwidth for as long as possible.

According to Ray Zamora, "Double-Take Backup saves us about \$50,000 annually by eliminating the need for backup technical maintenance and assistance. We also save with the simple set up of the Double-Take solution, which is less than a tenth of the cost of setting up the tape drives. And there is no recurring hardware maintenance cost and no loss of employee time in supervising the backup process." With no user intervention and no additional bandwidth required between the branch offices and the central data center, real-time data replication gives MidAmerica Bank a backup and recovery solution without bottlenecks, allowing operations to continue unimpeded. The result: cost-effective quality service, up-to-the-minute data protection, and economical use of existing bandwidth.

## Summary

Continuous access to key business information is a critical requirement for both corporate headquarters and branch offices. But many companies have not adjusted to this reality, and continue to rely on tape backup to protect their branch offices. The tape backup and recovery processes are complex, labor intensive and prone to errors - especially when untrained branch employees are asked to execute them. In short, tape backup for branch offices is a costly and risky data protection strategy. New solutions that use real-time data replication software to automatically backup branch office data to a central server provide a simpler, more reliable and cost-effective way to protect your branch offices.

QUESTIONS?

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