



## Bringing the edge to the data center—a data protection strategy for small and midsize companies with remote offices

Business white paper

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Small and midsize businesses with remote offices need data protection strategies that are closely aligned with their business priorities, IT infrastructure, and regulatory requirements for data retention. This white paper discusses how small and midsize businesses can effectively address their data protection challenges, implementing solutions that help store and protect their business-critical data as they cut costs and improve efficiency and reliability.

## Data protection—synonymous with business success

Data is the backbone of every organization. Whatever the business, industry, or size, reliable access to data is essential. And, as the organization's data grows, it becomes even more important to have a secure backup and recovery strategy that meets the needs of the business and has the flexibility to grow and evolve with its changing priorities.

Protecting business data is critical to the survival and growth of a business. It is imperative to keep IT systems and employees up and running—and productive—even as backup and restore processes take place. What's more, businesses must be prepared with an appropriate disaster recovery strategy in case of a disruption.

Given the potential high cost associated with data loss, reliable data protection is no longer an option, but a mandate to drive business efficiency.

## Data protection for small and midsize businesses

Small to midsize businesses that have remote offices typically understand the importance of data protection and have implemented some kind of a data backup infrastructure—yet for a significant number, that infrastructure does not adequately protect their business data. Because businesses often think of their computing hardware as driving production, many choose to prioritize upgrading their desktops, laptops, and servers over upgrades to their data protection strategy by replacing under-performing or outdated data protection technologies. These businesses should ask themselves what happens when data is corrupted or lost. Does this not stop production as well?

Small to midsize businesses are often unaware of or do not understand the data protection technologies available to them—and many such businesses look to a vendor/reseller to recommend a data protection solution on the basis of budgetary constraints. While a low-cost solution might fit the business budget, that solution

may not necessarily address business needs—especially when data is growing exponentially and the existing data protection infrastructure does not meet business demands. These businesses should be asking their IT departments the following questions: Can we complete backups during our backup window? Are we able to support our SLAs for company and customer data? What are the costs associated with downtime or loss of productivity?

The use of older or under-performing technology can contribute to maintenance and management issues as well, especially for businesses with remote offices and a distributed IT environment. For example, what happens when the current backup becomes too big for a single tape cartridge and requires two or more tape cartridges? Will someone need to be at the remote office at midnight to change the tape? Will the backup need to be completed during production hours, making the most recent data inaccessible until the backup is completed? An upgrade to a tape library might be a good solution, but would it address all of the challenges faced by the IT department?

## Data protection challenges that affect small and midsize businesses

**Inability to manage growing data:** An outdated or under-performing backup/recovery solution may not be able to efficiently manage a growing volume of business data. Valuable IT resources that are needed for other business-critical tasks must spend hours managing data protection, thus contributing to an increase in operational costs and making other areas of IT vulnerable to failure.

**Lack of automated backups:** Using stand-alone devices rather than network-based solutions requires dedicated human resources to make sure that backups are started and completed. This leads to an increase in human error as the need for intervention grows.

**Inability to recover data quickly from storage media:** Many companies choose to send tape backups offsite for enhanced disaster protection. Subsequently, data recovery from an offsite backup may take extra time requiring hours or possibly days to be completed.

**Inability to manage data protection at remote/branch offices:** Remote locations usually operate with few or no IT resources. If the data protection solution at the remote office is outdated, underperforming, or unreliable and the local IT resources are unable to resolve the problem for several days or weeks, then the data at the remote office becomes vulnerable to threats.

“Disk-based backup systems can enhance data protection for a business of any size. Integrating deduplication technologies allow customers to leverage up to 50 times more capacity to ensure their business has faster and reliable access to stored data”

—Dave Russell, Vice President, Gartner Inc.

**Inability to meet regulatory requirements:** Non-compliance with global or industry-defined data protection regulations could result in fines, legal fees, and damage the organization’s reputation.

**Lack of budget and IT expertise:** Small and midsize businesses typically think of data protection as a complex and expensive effort, and choose only basic data protection solutions to address their current needs. Such solutions may fit tight budgets, but they may not deliver all the features businesses need—especially when the next 12 to 24 months of data growth and performance requirements are considered. The use of under-performing solutions leads to a host of backup/recovery management issues and could even disrupt business activities. Additionally, many small and midsize companies seem unaware of the abundance of affordable, simple, and efficient solutions on the market. Unlike IT departments of larger companies, many of these companies simply do not have the time and resources to research and test new solutions before making a purchase decision.

## Tape storage—the de facto standard for data protection

Tape technologies such as drives, autoloaders, and libraries have long been the de facto standard for data protection storage. This is especially true for small and midsize businesses that choose tape-based data protection solutions over other, seemingly more expensive data protection/backup technologies.

Indeed, tape storage has several distinct advantages over other storage mediums, including:

- **Easy portability:** Data can be taken offsite for disaster recovery protection.
- **Long shelf life:** Data can be archived for up to 30 years, meeting regulatory data retention requirements around the world.
- **Low cost:** The price of tape is usually about half that of disk-based solutions when the costs of hardware (including tape media) are spread across multiple terabytes (TB) of data.
- **Density:** Large amounts of data can be stored on a very small and inexpensive data cartridge because, with compression, cartridge capacity can exceed a terabyte.

These benefits—along with ongoing improvements in performance, device management, and form factor—continue to extend the life of tape technology. Tape storage is still considered an excellent and affordable solution for the long-term, offsite storage of large amounts of data. But, for the typical small or midsize business with remote or branch offices, is a tape-only data protection solution sufficient to meet business needs?

## Is tape enough for business?

The question “Is tape storage enough protection for business data?” requires some additional analysis. It is no longer enough to simply look at the immediate IT environment, determine how much backup capacity is required, and consider how fast backups need to be completed. These are obvious needs that must be considered—but in doing so, the importance of reliable data recovery to the business is often overlooked.

Two key measures related to data recovery can help a business match its data protection needs to an ideal solution. The first is recovery time objective (RTO)—the amount of time the business can tolerate a business process being down. The second is the recovery point objective (RPO)—the amount of data the business can afford to lose. For 24x7 applications, the RPO could be the most recent transaction with an RTO of less than one hour; for file servers, it could be last night's backup with an RTO of eight to 24 hours, depending on the criticality of the data on the server.

Once the RTO and RPO objectives of the business are established, it is important to take into account the following additional factors:

- How many servers need to be backed up?
- How many additional servers are likely to be added in the coming 12-24 months?
- How large is the IT staff and what are its capabilities?

Small or midsize businesses with distributed IT environments commonly have multiple servers that require daily backup in their remote offices. In some cases, these remote office servers may need to complete multiple backups each day. The use of traditional tape backup in a distributed IT environment can put a lot of pressure on IT resources—especially when there are multiple tape backup devices to manage, multiple backup streams to schedule and manage, and complex cartridge rotation requirements to physically accommodate the data. As the IT environment expands, the task of managing daily backups becomes even more complex. It can become very difficult to back up data reliably and efficiently without stretching IT resources and endangering data security.

In some cases, simply upgrading to an automated tape solution, such as an autoloader or library, can help alleviate the problems associated with device and cartridge management. Additionally, many of these solutions are affordable and readily available. However, for the small or midsize IT user, this may only solve part of the problem—they must still consider their RTO and RPO objectives. If many of their data recovery jobs involve recently created data that needs to be recovered in minutes or a few hours, then a tape-only data protection strategy may not be suitable.

So what is the most suitable data protection solution for small and midsize business with remote offices? The answer is simple: D2D2T—disk-to-disk-to-tape.

## D2D2T—the best of both worlds

When you are determining your business's data protection needs you must address both short-term and long-term considerations. Most businesses' short-term goals revolve around completing daily backups and being able to quickly recover lost or corrupted files or data sets. Long-term goals, however, are typically focused on getting data offsite for protection against disasters and meeting the data-retention requirements of specific regulatory agencies or industries.

D2D2T technology leverages the best features of both disk and tape storage to create a cost-effective and comprehensive data protection solution that can meet both short-term and long-term needs. First, disk storage automates and helps optimize daily backups, and provides instant data access for fast restores. Once data has been backed up to disk, it can then be selectively copied to tape storage for offsite disaster recovery protection and to meet various regulatory agencies' and industries' long-term data retention requirements.

D2D2T data protection solutions help small and midsize businesses with remote and branch offices to:

- Consolidate data protection storage and simplify day-to-day management of backup and disaster recovery processes—backup and recovery from a single disk-based storage solution—without having to manage multiple, directly connected backup devices
- Help optimize backup reliability by providing fully automated, high-performance solutions that reduce human error—backups that start and complete when they are supposed to, day in and day out
- Improve business continuity by providing fast access to data to keep business functions operating efficiently—online access to data decreases search and wait time for data recovery purposes
- Provide long-term, cost-effective data storage when required—tape technologies continue to improve, while providing the lowest cost per GB and the longest shelf life for data
- Reduce both capital and operational costs associated with data protection by using a storage solution that meets both short-term and long-term data protection needs, separating daily backup needs from disaster recovery needs, then focusing on applying the appropriate solution to each problem

# HP StorageWorks D2D2T Backup Solutions

HP combines the HP StorageWorks D2D Backup Systems family with its portfolio of LTO tape solutions to create a D2D2T data protection solution for small and midsize companies. The D2D Backup System is a disk-based backup appliance that provides automated backup for multiple servers; fast access to data for recovery; and Web-based management for anywhere, anytime access.

HP LTO tape solutions can be directly connected to a D2D backup system or to a backup server on the network. Built using industry-leading tape technology, HP LTO tape solutions deliver multiple generations of high-capacity and high-performance options to meet most businesses' long-term data protection needs.

Remote offices that are looking to move away from local tape-based backup can add HP D2D Replication Software, which allows a remote D2D Backup System to replicate backup jobs to another D2D Backup System in the data center or head office. D2D replication may remove the need for tape at the remote site, but it is still important to add or continue using tape backup at the data center or head office to provide long-term data protection. HP D2D and LTO solutions are compatible with most mainstream backup applications. However, businesses can also choose between two HP backup applications—Data Protector and Data Protector Express—to configure a new installation or enhance their existing backup software.

## Benefit from HP StorageWorks D2D2T Backup Solutions

- **Automated data backup using disk-to-disk (D2D):**
  - Helps ensure that daily backups are started and completed on time, every time
  - Decreases the need for IT resources to manage daily backups, reducing human intervention and the potential for human error
- **Backup to disk for quick data recovery:**
  - Provides the ability to search for data quickly, allowing for better RTO—in minutes rather than hours/days
  - Decreases downtime, providing for greater business continuity
- **Data deduplication:**
  - Removes redundant data from daily backups, reducing the amount of data that must be backed up
  - Allows more data to be stored on disk for longer periods of time, helping to speed access to data and files

- Utilizes storage capacity more effectively, reducing the need for additional storage

- **Management capabilities:**

- Reduces the need for local/remote IT resources and allows for centralized data protection management from the data center with an Internet-based user interface
- Helps eliminate maintenance activities such as disk defragmentation, virus protection, LUN provisioning, and security patching with a self-maintaining data protection appliance

- **Support for low-bandwidth data replication:**

- Allows simple and affordable replication of backup data to a central offsite facility or data center
- Reduces the need to use removal media, such as tape, at remote sites as data can be replicated back to a central site
- Automated replication further reduces the need for human intervention
- Allows consolidation of backup data at the central site where data can be copied to tape for long-term archival

- **Support for direct offload of data to HP LTO tape solutions:**

- Includes a tape offload feature in the user interface that allows data to be copied directly to an HP LTO tape drive or library, reducing network bandwidth issues typically associated with copying to tape
- Allows users to meet long-term data retention requirements

- **Integration with existing hardware, software, and network environment:**

- Requires few, if any, additional components to integrate a D2D2T solution into existing IT environments
- Directly connects to either Ethernet or FC networks, using current backup applications and software licenses, and works with most server platforms and operating systems
- Allows the use of existing HP LTO tape devices while reducing the need for upgrades in software licensing

- **Affordable and simple data protection solutions:**

- Cost less than half the price of comparable solutions from other vendors
- Requires no additional training—prior knowledge of tape backup is all that is needed
- Streamlines implementation with wizard-based installation in three simple steps—full installation is typically complete in less than an hour

“20% of the 60,000 mid-sized companies in the US have deduplication technology in place, and 35% are considering deploying it in the near term”  
—Robert Stevenson, Managing Director, Storage Research, TheInfoPro

## Data deduplication—a new business requirement

Traditional backup processes typically copy data to safe storage repositories over and over again, creating large amounts of redundant backup data. This data backup method gives rise to several problems—especially as secondary data storage volumes grow exponentially and become increasingly difficult to manage. Regulatory requirements magnify the challenge, forcing small and midsize businesses with remote offices to rethink their data protection processes. Deduplication helps eliminate duplicate data, makes data storage more compact and easy to manage, and allows businesses to keep more data online over greater lengths of time—and at significantly lower costs. Additionally, data deduplication can help minimize the bandwidth needed to replicate backup data to offsite locations, reducing dependency on tape-based backups in remote offices, and accelerating recovery time in case of an outage. This is why data deduplication has become a “must-have” for businesses looking to enhance performance, increase efficiency, and cut costs.

HP supports data deduplication—or Dynamic deduplication—on the entire line of HP StorageWorks D2D Backup Systems. This standard feature requires no additional licenses or upgrades. The deduplication process occurs at the time of the backup (inline deduplication) and is compatible with all mainstream

backup applications. Using HP Dynamic deduplication can help optimize storage capacity by retaining up to 50x more data on the same disk footprint, reducing the need to add additional physical storage capacity in the near future.

## HP StorageWorks D2D2T Backup Solutions—working in the real world

Vital Support Systems provide secure and integrated networking and managed technology solutions to businesses throughout the Midwest United States. As an HP channel partner, they have witnessed the shift from traditional tape storage to disk-based solutions.

For many of their customers, this shift was due to the challenges they were facing in daily backup—single backup streams with many files and unstructured data resulting in poor backup performance, and data excessive recovery time needed to recover/restore single files.

Vital Support Systems have seen many small and midsize customers utilizing low cost NAS (network attached storage) solutions in their daily backup processes due to budget constraints. These customers may have made this choice without considering the volume of data that needs to be stored on the NAS solution and have ended up deleting older data backups due to the lack of storage space.

“HP’s D2D2500 provides my customers with a highly functional virtual tape system with industry-leading disk-to-disk deduplication technology at the price of a similar capacity NAS solution. The D2D2500 addresses their real data protection requirements as compared to NAS, which falls short of their needs”

—Phil Thayer, Systems Engineer, Vital Support Systems

Vital Support Systems believe that HP StorageWorks D2D Backup Systems deliver the benefits of disk-to-disk backup and recovery at a reasonably low cost, while providing better performance and faster recovery. With the HP D2D Backup System’s Dynamic deduplication technology, customers no longer need to worry about running out of storage capacity or deleting older backups to create space. Additionally, because the D2D Backup System can easily offload data to an LTO tape device, customers can now use tape storage in an efficient and cost-effective manner without inhibiting daily backup and recovery requirements. By using tape as the solution for long-term, offsite data retention, Vital’s customers can benefit from improved business continuity and data protection.

## Better data protection, better business outcomes

Data is critical to business success—which is why it is essential for small and midsize businesses with remote or branch offices to implement a strong data protection technology infrastructure that is reliable, secure, and easy to manage. While tape-based data protection technologies have their merits, businesses need to understand the significant additional benefits of integrating tape with a disk-based technology—which can help them optimize performance, increase business efficiency, and comply with regulatory requirements, all without exceeding the IT budget.

To understand how you can integrate HP data protection solutions into your existing data protection technology infrastructure, visit:

[www.hp.com/go/d2d](http://www.hp.com/go/d2d)

[www.hp.com/go/d2d2t](http://www.hp.com/go/d2d2t)

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