

## SOLUTION BRIEF

# Enhancing Disk-to-Disk (D2D) Backup with Data Deduplication

*Easy-to-use network-based data storage enhances backup speed and reliability while dramatically reducing data storage consumption.*

## Highlights

**The FalconStor<sup>®</sup> File-interface Deduplication System (FDS) provides the following benefits for D2D backup:**

- > Reduces disk consumption by 95% or more
- > Keeps months' worth of data readily available on disk for fast and efficient data restoration and information retrieval
- > Makes data backup faster and more reliable
- > Easily integrates with any industry-standard backup software
- > Replicates data across sites while reducing bandwidth utilization by 95% or more
- > Supports database backup tools such as RMAN and SQL Backtrack
- > Provides highly efficient data storage for VM images

The performance and reliability benefits of disk-to-disk backup are readily apparent. Faster backup speeds, reduced backup windows, and more reliable data restores make disk-to-disk (D2D) backup a valuable option for data management. The main challenge is cost.

By its nature, the backup process creates multiple copies of the same information over time. The same stores of data are moved again and again, including files, databases, and virtual machine (VM) images, and most of the information remains unchanged from week to week. The result is a huge accumulation of duplicate data that consumes disk resources at an ever-increasing rate.

In one sense this is desirable for quick restore, because it is extremely useful to have months' worth of information readily at hand. Users often request versions of a file that are several weeks old. Database administrators need past instances of data for development efforts. Legal and compliance teams routinely seek past emails that have long since been deleted from primary storage.

In an ideal situation, the IT staff would keep everything readily available on disk. However, the cost of doing this can be considerable and prohibitive. Today's storage environments need a way to keep data intact without consuming corresponding disk storage. The FalconStor<sup>®</sup> File Interface Deduplication System provides the solution.

## Keep your data while reducing your storage

Sometimes you need one technology to compensate for the weaknesses of other technologies. Data deduplication works in precisely this way. It takes direct advantage of the most inefficient aspect of the backup process, which is the creation of large volumes of duplicate data.

The FalconStor<sup>®</sup> File-interface Deduplication System (FDS) examines data at the block level and removes all repeated instances of a given data block, keeping only one copy on disk storage. To understand the effectiveness of this, imagine a very colorful digital photo consisting of millions of small colored pixels. Then imagine you could store that photo by keeping only one pixel of each color. You could reduce those millions of pixels down to a handful. To take it one step further, imagine that you can store many similar photos in a sequence, the same way you have many instances of the same file or database with only minor variations between them. The accumulated savings are even greater.

This is exactly what happens when you back up data to FalconStor FDS. Disk storage utilization is reduced by as much as 95% or more. This means that you can store several months of data in the same space that you currently store only several days' worth. The restore process is fast and reliable, letting you quickly satisfy data retrieval needs across your company.

## An easy to use, flexible solution

FalconStor FDS is very easy to deploy. It allows organizations to use a simple network file share interface, such as a drive letter or mount point, as a target for backup applications, database backup utilities such as RMAN, and so on. Users can simply edit their existing backup jobs to point to the new target.

The deduplication process can begin immediately after the first file is received, or it can be scheduled after backups are completed. This operational flexibility allows FalconStor FDS to better meet the unique backup and recovery needs of each organization.

## Built-in data replication to replace off-site tape

One of the biggest headaches in the IT world is dealing with remote tape backups. Studies have shown that as much as 60% of total corporate information is held at remote sites. Oftentimes, however, small, scattered offices doing local backups to tape often do not have qualified IT personnel on hand to manage the process and troubleshoot problems. The result is a backup failure rate far higher than in the data center, as well as related problems such as the costs and security concerns around tape handling, shipping, and storage.

FalconStor FDS provides the ideal solution for remote sites. By deploying backup storage devices at remote sites, users can maintain several months' worth of local backups on disk and remotely manage it, with none of the worries of physical tape failure. The system can then replicate data back to the data center for off-site protection. If needed, data can be moved to physical tape for long-term archiving at the data center.

Because only deduplicated and globally unique data is sent over the wire, bandwidth needs are reduced as much as disk storage needs, by 95% or more. This empowers organizations to use existing data connections without the need to increase costly bandwidth capacity.

## About FalconStor

FalconStor Software, Inc. (NASDAQ: FALC), the provider of TOTALLY Open™ Data Protection solutions, delivers the most comprehensive suite of products for data protection and storage virtualization. Based on the award-winning IPStor® platform, products include the industry-leading Virtual Tape Library (VTL) with deduplication, Continuous Data Protector (CDP), File-interface Deduplication System (FDS), and Network Storage Server (NSS), each enabled with WAN-optimized replication for disaster recovery and remote office protection. Our solutions are available from major OEMs and solution providers and are deployed by thousands of customers worldwide, from small businesses to Fortune 1000 enterprises.

## One solution, multiple uses

FalconStor FDS supports many use cases. It can be used as a target for backup operations using any industry standard backup software. It also supports database specific tools such as Oracle RMAN and SQL Backtrack.

Virtual machine backup is especially suited for deduplication. With VMware technology, for example, IT departments often experience "virtual machine sprawl" as multiple copies of VMDK files are spawned. By their nature, VMDK files contain a great deal of duplicate data across copies. By backing these files up to FalconStor FDS instead of tape or standard disk, organizations can realize tremendous storage savings.

End users can take advantage of FalconStor FDS by using it as a near-line file repository for completed projects, older and less accessed data, and so on. Older files can be migrated off primary storage resources into FalconStor FDS storage, freeing up costly disk resources.

## Convenience and cost reduction

FalconStor FDS is a multi-purpose, easy-to-deploy solution that brings immediate cost saving benefits to any IT organization that needs to keep more data at hand. Faster and more reliable backup and restore combines with data deduplication to create an ideal solution for satisfying data storage requirements from the remote office to the data center.

For more information, visit [www.falconstor.com](http://www.falconstor.com) or contact your local FalconStor representative.

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