

FalconStor in Action

Case Studies: How Customers Gain
a Leading Edge

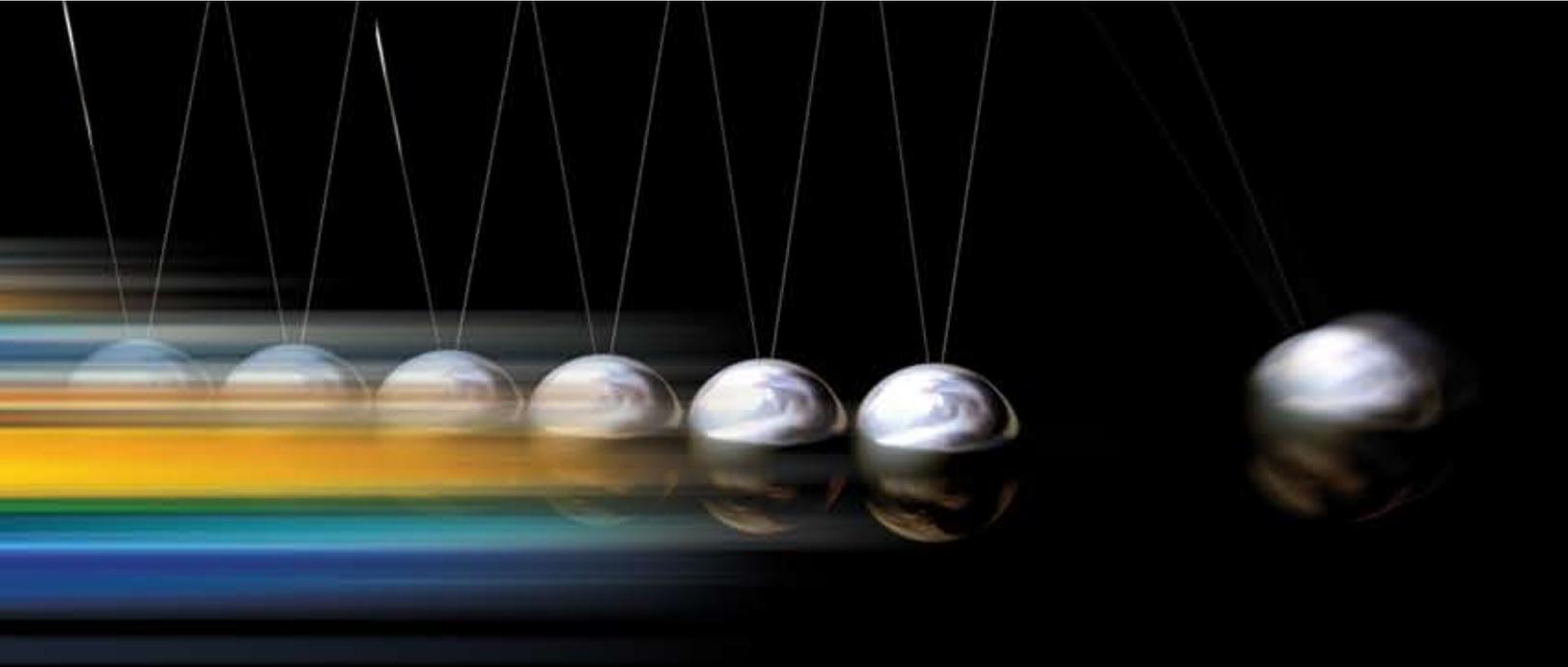
FalconStor
Software



Complete Data Protection and Continuous Availability

Speed, Simplicity, Integrity

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Leading Energy Provider Saves Over \$1 Million Per Year with FalconStor VTL and CDP

Business Highlight

As one of the largest integrated energy providers in the world, this company is engaged in every aspect of the oil and natural gas industry; including exploration, production, refining, marketing, transportation, manufacturing, and power generation, conducting business in approximately 180 countries.

Constantly increasing prices, intense competition, and the growing importance of environmentally sound energy sources create a challenging business environment. In this industry, only companies with superior IT and competencies gain competitive advantages. Therefore, this customer strives to drive strategic transformational IT through solutions that cost effectively address business challenges while enabling continuous access to mission-critical application data.

The Challenge

When the catastrophic effects of Hurricane Katrina caused massive flooding in the company's key data center, the IT staff was unable to access critical data from the tape vaults. It became clear that tape-based protection made it virtually impossible to meet recovery time and recovery point (RTO/RPO) objectives in data centers, and created inefficiencies and vulnerabilities at remote offices and regional hubs. For instance, tapes that were not properly rotated caused data to be overwritten rather than shipped offsite.

The company knew that it needed to reassess and overhaul its worldwide disaster recovery (DR) architecture in order to ensure rapid recovery of key applications and data. The focal point was to reduce dependency on tape-based data protection and remove associated vulnerabilities, while providing an ROI that addressed pressures on CAPEX/OPEX expenditures in the data center.

They needed a solution that could improve backup performance, minimize the impact of backup processes on mission-critical application servers, and accelerate recovery with little or no data loss.

The FalconStor Solution

After carefully evaluating solutions from more than 45 different vendors, the company selected FalconStor's industry leading VirtualTape Library (VTL) and Continuous Data Protection (CDP). Offering a clear grasp of IT and business issues, broad range of solutions, unified architecture, and heterogeneous support, FalconStor stood heads and tails above all of the other vendors.

The company implemented FalconStor VTL, which leverages disk to enhance the speed, reliability, and availability of backups, eliminating dependence on tape resources for regular backups. VTL allows the customer to retain up to 45 days worth of backup data profiles, dramatically reducing the consumption of tape media. Tape that was once used for daily backups is now leveraged for monthly or bi-monthly archiving. This alone enabled them to save more than \$1 million dollars annually in media and related costs such as shipping and handling.

With VTL, backup performance improved significantly. Applications and database systems such as Microsoft Exchange, Lotus Notes, and Unix/Linux are backed up 60-80% faster. Full backup of the NetApp infrastructure used to take as much as an entire week; it now takes less than 2 days. VTL has minimized the backup window and the impact of backup on productivity. What's more, cross-site VTL-to-VTL replication eliminates issues associated with offsite vaulting and reduces the number of dedicated backup servers required.

In addition, FalconStor VTL technology cost-effectively addresses AS/400 replication requirements, resulting in more than a 50% savings in CAPEX expenditures over competitive offerings. The ability to bootstrap the AS/400 IPL process to virtual tape further accelerates recovery.

FalconStor CDP and the IPStor® virtualization platform with Continuous Data Replication (CDR) technology allows the customer to create a flexible, service-oriented architecture that enables centralized, remote data consolidation with replication. This heterogeneous "single pane of glass" environment is tiered to further minimize costs, enabling them to incorporate any application, operating system, storage, or network protocol in any geographic location. This ensures that all data assets in over 170 remote offices and hubs can quickly and easily be recovered to any known good point in time, with 100% transactional integrity. Data recovery points have been reduced from 24 hours to zero, eliminating the possibility of data loss. In addition, file-level restore can be performed by end users as a streamlined self-help process.

To date, the company has made tremendous strides in streamlining its data protection and DR infrastructure to maintain a competitive position and realize its vision of success. FalconStor technology allows the customer to perform transactions with data integrity, efficiently meeting and/or exceeding end-user and customer needs with respect to SLAs, RTO, RPO, and regulatory requirements, all while slashing over \$1 million dollars in costs. The company's partnership with FalconStor is strong and continues to grow as it explores FalconStor's rich portfolio of solutions to address additional requirements in the storage virtualization area.

Business Value

- RTO reduced from hours to seconds or minutes
- RPO reduced from 24 hours to zero; no data loss
- Savings of more than \$1 million annually in tape media and related costs
- 80% improvement in storage utilization
- Reduced reliance on tape
- Mitigation of tape access issues
- Improved backup speed of application data by 60-80%
- Eliminated backup window and associated overhead
- Unified, centralized architecture independent of application, operating system, geography, storage, and network infrastructure
- Flexibility to leverage heterogeneous storage for data protection (tiered to further reduce costs)

Leading Electronics Provider Leverages FalconStor and Storage Virtualization to Take Business to New Heights

Business Highlight

With more than 35 years serving its customers, this world-class electronics corporation strives to continuously introduce new innovative programs, leading-edge technology, and superior customer service to maintain its competitive edge in its industry. As a leader and innovator in the distribution and marketing of its components, this company needs to provide 24x7x365 access to mission-critical product data and expertise for over 100 locations throughout the Americas, Europe, and Asia.

The Challenge

This company constantly strives to meet or exceed recovery time and recovery point objectives (RTO/RPO), service level agreements (SLA), and customer expectations. Its drive to maintain and expand its leadership position includes providing an open, heterogeneous IT data center to address ongoing global distribution requirements. A flexible, scalable infrastructure is needed in order to cost-effectively meet current and future needs – maximizing ROI and minimizing future CAPEX and OPEX expenditures.

To address its goals and simplify storage provisioning and management, the company began to adopt storage virtualization. They sought a solution that enabled data replication for disaster recovery (DR) with the best possible WAN efficiency. Although backup was critical, the customer hoped to eliminate the impact of daily backup processes on mission-critical application servers. And in order to optimize efficiency, the company wanted to maintain the platform-independence and flexibility to which they had grown accustomed.

After reviewing its previous IT solution provider's technical support offering, the company determined that its business needs were not adequately being addressed, and concluded that it was time to look elsewhere.

The FalconStor Solution

FalconStor was selected for its award-winning flagship IPStor® virtualization solution, which provides a proven set of core data center services including storage virtualization and data protection, along with the additional advantage of first-class technical support.

IPStor forms the cornerstone of the company's DR strategy, providing a uniform data protection model across all sites, applications, and data profiles. With its heterogeneous support, IPStor enables the company to efficiently and transparently virtualize existing data assets across any storage platform or protocol, with the flexibility to add storage as business needs dictate.

IPStor provides a single point of control that enables the staff to easily and proactively perform capacity planning, load balancing, and provisioning of logical drives to end-users, all without compromising the SAN setup or affecting productivity.

Granular infrastructure reporting enables proactive storage management and planning. The IT staff can see queues building up in the environment on logical and physical levels, facilitating such activities as future growth analysis/trending and capacity planning.

Thanks to FalconStor, the customer has benefited in numerous measurable and intangible ways. IPStor helps reduce costs by improving operational efficiency, allowing the customer to manage storage on both a physical and logical level without adding administrative resources.

Heterogeneous support enables the company to avoid vendor lock-in associated with host- or array-based solutions for provisioning, data protection, and data replication. This enables them to leverage lower-cost storage for data protection, yielding significant savings in data protection costs – as much as 80%.

By making it easier to centralize, manage, and secure storage and data profiles, FalconStor dramatically reduces the costs to run and operate IT as well as the bottom line of the overall business – empowering them to maintain and expand their market leadership.

Business Value

- Reduced data protection costs by up to 80%
- Optimized storage management efficiency
- Proactive capacity planning and storage management
- No vendor lock-in; customer can leverage low-cost storage
- Maximized ROI and minimized IT overhead
- Improved operational efficiency, enabling more with less
- Uniform protection model across platforms and data profiles
- Transparent virtualization and protection of new and existing data profiles
- Utilization and growth analysis/trending
- Granular infrastructure reporting for proactive storage management



FalconStor Keeps Critical Operations Running for Top Energy Provider

Business Highlight

As one of the largest providers of energy solutions in the US, this company goes where no other can to provide critical support services for overseas operations, often in hostile environments. In cases like this, it is vital to have a foolproof disaster recovery (DR) solution in place to protect the data that helps power important missions. Continuous data availability and business continuity is a must, so backup activities cannot impact day-to-day business operations.

The Challenge

The company set out to expand its DR strategy, and needed a reliable way to protect mission-critical Oracle RAC clusters during the hundreds of non-logged data feeds from across the world. With its development environment totaling 3TB and growing by 50GB per month, daily backup was taking as long as 6 hours to complete, affecting the production environment. The company also needed a way to protect against corruption and errors during external data loads into the database. As many DBAs do for performance reasons, their DBAs turn off database logging during bulk data loads. But if there are no logs, there is no way to recover if something goes wrong, and the entire process needs to start over from scratch.

In the main data center, provisioning current datasets for application development testing (via FTP process) was taking too long. Also, since the production environment was using an outdated version of Itanium-based RedHat Linux, finding a solution provider that was able to handle the environment was difficult. The path failover software did not support load balancing with the older versions, so the application hosts used a single path. All of this further hindered productivity and performance. The FTP data load process consumed excessive network resources, prompting the need for a better solution for testing with recent datasets.

The new solution needed to enable an optimal DR infrastructure, simplify and accelerate the recovery/restore process, provide application-consistent recovery to any point in time, reduce reliance on tape, support strict RTO/RPO objectives, provide a way to mount and test data assets for development without impacting the production workload, and be flexible enough to expand beyond the initial environment.

The FalconStor Solution

The company was in a bind, because its existing HP solution could not support all of its legacy hardware and software components, which included Itanium-based RedHat 3.1 Linux running Oracle RAC clusters with RMAN recovery. FalconStor understood the requirements, and was able to quickly port its IPStor® platform to Itanium. The IPStor platform and application-aware agents were used for all core data services (provisioning, continuous protection and replication, and recovery), which facilitated the transition from a traditional backup/recovery model to a new services-oriented platform for all data.

The comprehensive platform included FalconStor Network Storage Server (NSS), which was used to transparently virtualize all existing in-place datasets and LUNS, improving performance and business flexibility for data placement. FalconStor Continuous Data Protection (CDP), snapshot technology, and Continuous Data Replication (CDR) eliminated the need for backups, since all writes were journaled via CDP in conjunction with regular hot backup snapshots of application data. This ensured that all data assets could be recovered rapidly to any desired point in time, with 100% transactional integrity.

The advantages of the FalconStor solution were immediately felt. By unifying and consolidating data protection across all platforms, FalconStor simplified the IT environment and reduced storage costs by approximately 50%. For instance, the flexibility and vendor-independence of FalconStor technology allowed them to leverage low-cost or bulk storage for data protection, rather than forcing them to purchase from a single storage provider. The CDR process encrypted all replicated data, and FalconStor MicroScan™ de-duplication technology reduced WAN requirements by 80%. Administrators and DBAs are more productive, and the company's transactions, whether logged or non-logged, can now be processed 30% faster than before. Existing applications can scale to meet new business requirements without any fear of backup/recovery impacting 24x7 operations.

Over time, these benefits will significantly reduce TCO. The company is so pleased with the way in which FalconStor has met their needs, that it plans to deploy FalconStor solutions at additional facilities to replace existing backup and recovery throughout the organization, including host-based CDP and Bare Metal Recovery for Exchange and SQL. FalconStor VirtualTape Library (VTL) and Single Instance Repository (SIR) will be implemented to enhance the reliability, speed, and availability of the backup infrastructure, while further reducing storage and WAN costs.

Business Value

- 30% faster transaction processing time
- Improved operational efficiency by nearly 400%
- RPO and RTO reduced to 15 minutes
- Up to 80% reduction in WAN bandwidth requirements
- Storage costs cut in half
- Testing time reduced from several hours to 15 minutes
- Rapid, any-point-in-time recovery
- Reduced reliance on tape
- Flexibility to leverage low-cost or bulk storage for all data protection
- Applications can scale to meet business requirements
- Backup/recovery does not impact operations

FalconStor Optimizes Application Availability for Leading Bank

Business Highlight

Today, extending support to end users and rapidly deploying strategic business decisions has created the need for 24x7 online service and database system operation. Our economy's dependency on real-time information requires continuous, non-disruptive backup of real-time mission critical data around the clock. As a result, there is a need for more flexible and resilient data management techniques to prevent the loss of data and data access in case of system- or site-level failures or catastrophes. In the case of this bank, which is part of one of the fastest growing financial institutions in the world, downtime can lead to a loss of revenue, productivity, profitability, and customers. Avoiding these risks through effective backup and recovery of mission-critical data is imperative.

The Challenge

With its data growing rapidly, the bank's data protection needs were exceeding the capabilities of its existing EMC and Symantec solutions, making it difficult to meet internal and external service level agreements (SLA), and recovery time and recovery point objectives (RTO/RPO). These challenges became painfully apparent during an outage of a critical online banking system, when it was found that the underlying databases were corrupted along with all of the BCV copies. It took the bank's IT team over 38 hours to fully recover from tape and get the application back online. This single outage made it clear that a change was required.

The bank needed a more flexible, cost-effective and robust local and remote disaster recovery (DR) solution to negate the impact and risk of future system- or site-level failures. The solution needed to leverage existing investments in storage and servers, while also taking advantage of technology advancements in data protection and archiving (CDP, CDR, VTL, and data de-duplication). It needed to meet stringent RTO/RPO goals for mission critical applications, reduce reliance on tape backup, enable virtualization to simplify provisioning and technology refresh, provide a tiered storage infrastructure, and do it all at a lower overall cost.

The FalconStor Solution

By leveraging the FalconStor IPStor® virtualization platform for its core data protection services, the bank was able to develop a more flexible and resilient storage management infrastructure, preventing data loss and ensuring continuous data access during a disaster or local system/storage failure.

With FalconStor solutions, the bank avoided vendor lock-in and instead leveraged existing storage investments. By reducing reliance on tape, they reduced media costs by over 50%, and utilized hardware more strategically for the business.

Additional benefits were amazing: Recovery time for any failure was reduced to a mere 15 minutes, and the storage requirements for disk-based data protection were reduced from 12TB of high-cost EMC DMX with BCV copies, to just 4.4 Tb (2.2 mirrored) of existing IBM SATA storage. (DMX remained as primary storage). These new cost-efficient rapid recovery capabilities let them achieve RTO and RPO requirements of 15 minutes and zero respectively, vastly improving internal and external SLAs.

The bank also experienced a 75% improvement in storage utilization of protected data by leveraging space-efficient snapshots. Application consistent recovery points increased from two per day, to complete protection for every write using CDP journaling, and FalconStor MicroScan™ technology was leveraged for an 80% reduction in bandwidth requirements for DR.

This bank can now confidently continue to grow the business, achieve new levels of efficiency and data availability, and most importantly, optimize customer service and satisfaction.

Business Value

- Reduced recovery time from 38 hours to 15 minutes
- 50% reduction in storage costs
- 75% improvement in storage utilization
- 80% reduction in bandwidth needed for DR
- Storage requirements reduced from 12TB of DMX to 4.4Tb of existing SATA
- Reduced reliance on tape backup; eliminated backup window
- Simplified provisioning and technology refresh
- Enabled bank to meet or exceed stringent RTO/RPO
- Minimized storage overhead; aligned costs with application SLAs
- Consolidated backup, removed backup load from hosts
- Allowed bank to meet regulatory compliance and archiving needs

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