FalconStor Software

Continuous Data Protector (CDP)

Enterprise solution for continuous data availability and disaster recovery (DR)

FalconStor® Continuous Data Protector™ (CDP) provides TOTALLY Open™ continuous protection and instant recovery for enterprise data centers and remote offices.

Highlights

- Continuous availability through instant recovery from any type of data loss, from a single block to an entire data center
- TOTALLY Open architecture supports DAS, networked storage over iSCSI or FC, and virtual server environments
- Continuous or periodic protection for any-point-in-time recovery
- Thin Provisioning maximizes disk utilization while reducing storage costs and power consumption
- Serverless backup accelerates backup performance
- Application-aware Snapshot Agents, including Microsoft Windows certified agents, ensure 100% transactional integrity
- Host-based or fabric-based deployment
- Integrated Microsoft Exchange and Lotus Notes message recovery
- Integrated with Oracle RMAN, ASM
- Can restart physical server disk via FC/iSCSI HBA booting in 5 minutes
- Centralized management of SAN clients
- Supports individual LUNs up to 16TB.
- Directly replicates entire system and data to a remote disaster recovery (DR) site
- Thin Replication maximizes network efficiency and security via compression and encryption, saving bandwidth and costs

Comprehensive protection

FalconStor CDP provides high-speed disk-based data protection with instant recovery. By keeping a complete mirrored copy of data in its native format, as well as a series of point-in-time snapshots, FalconStor CDP offers the most rapid and granular recovery possible in all disaster scenarios, including accidental data loss, system corruption, server or storage failures, and site-level loss.

A unique data journaling feature protects information at a per-write level of granularity, letting you recover up to the last bit of information written before a service outage. Periodic protection, based on FalconStor TimeMark® snapshots, gives you numerous bootable recovery images based on a pre-set schedule, such as every hour or every few hours, delivering far more recovery points than typical nightly tape backup. In addition, because many organizations still require tape backups, FalconStor CDP can dramatically accelerate tape backup speeds using a zero-impact, serverless backup model.

5 minute recovery from outages

Traditional backup plans focus on the backup and archiving of data, rather than protection of the whole system. If a system disk is damaged or corrupted, administrators are faced with the time-consuming task of re-installing the operating system and application, and then reapplying configuration information to fully recover the entire system. This can take many hours, which is an unacceptable level of downtime for most organizations.

In contrast, FalconStor CDP provides fast and easy recovery via SAN boot technology. FalconStor CDP allows you to browse any snapshot on the original server while the primary volume is mounted. Using high-speed iSCSI and/or Fibre Channel (FC) SAN connectivity, you can inspect the contents of the snapshot disk and quickly validate the accuracy of the content. You can then recover an application server operating system by booting from the backup image. The entire process takes less than five minutes, minimizing business loss from downtime

Thin Provisioning for efficient disk utilization

FalconStor CDP offers Thin Provisioning, which allocates physical storage space on an as-needed basis, using less actual physical storage space than what is represented by virtual disks. This maximizes disk utilization efficiency while reducing storage costs and power consumption.

For example, when using a DiskSafe™ Agent, only the used portions of a drive need to be copied to the CDP mirror. For example, a 500GB drive may have only 100GB used. Rather than mirror the full volume, the FalconStor DiskSafe Agent copies only the 100GB of used data blocks. At the mirror side, FalconStor CDP devices use Thin Provisioning to minimize storage requirements, presenting a volume of 500GB to accommodate the mirror but only consuming a portion of that 500GB for physical storage. Replica volumes can also use Thin Provisioning.

100% transactional integrity

Application-aware Snapshot Agents integrate with FalconStor CDP to protect databases and messaging systems with 100% data integrity, ensuring transactional consistency during recovery. This speeds the recovery process by eliminating the need for lengthy database consistency checks. TimeMark technology supports consistency groups, so all the volumes for an application can be snapped at precisely the same moment in time.

FalconStor Snapshot Agents are available for major enterprise applications, including Microsoft Exchange, Microsoft SQL, Oracle, VMware, and others.

Flexible deployment options

FalconStor CDP can be deployed in various ways to best fit your organization's needs, and is available in multiple configurations suitable for remote offices, branch offices, data centers, and remote DR sites. Appliances with internal storage are available in various sizes for easy deployment to remote sites or offices. Gateway appliances can be connected to any external storage array, allowing you to leverage the storage systems you have in place. FalconStor CDP can also be purchased as software (via a software appliance kit) to install on servers or as virtual appliances that integrate with and leverage virtual server technology.

FalconStor CDP can use both a host-based approach and a fabric-based approach. For a host-based model, an optional DiskSafe Agent runs on the application server to capture block-level changes made to a system or data disk without impacting application performance. It mirrors data to a back-end FalconStor CDP device, which handles all of the data protection operations. All journaling, snapshot processing, mirroring, and replication occurs on the out-of-band FalconStor CDP appliance, so that primary storage I/O remains unaffected.

In the fabric-based model, a pair of Continuous Data Protector Connector (CDP-X) gateways is placed into the SAN fabric (either FC or iSCSI). These devices function similarly to switches: They split data writes off to one or more out-of-band CDP appliances that provide the data protection functionality. The pair of CDP-X appliances may be configured for high availability (HA) to provide fault tolerance.

Protect physical and virtual servers simultaneously

Virtualization technology from providers like VMware, Virtual Iron, Microsoft, and Citrix is gaining popularity among businesses for its ability to consolidate servers, minimize space utilization, and streamline management. However, virtual servers require the same level of data protection as physical ones do in order to minimize data loss and service downtime in the event of hardware or software failure. FalconStor CDP provides powerful data protection capabilities for both physical and virtual servers, and even allows physical server snapshots to be mounted on virtual servers for the purposes of recovery or testing.

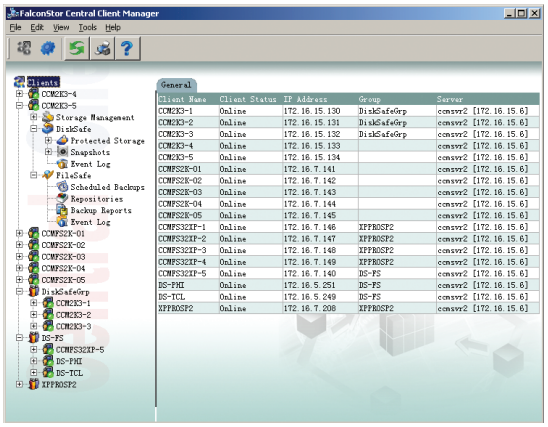
Eliminate backup windows and accelerate tape backup

FalconStor CDP offers the FalconStor HyperTrac™ Backup Accelerator option to automatically mount snapshots from CDP to a backup server, in order to back up data to a virtual tape library such as FalconStor Virtual Tape Library (VTL) or to physical tape. Applications are not impacted because backup occurs directly from the CDP storage to the tape. This is a centralized, LAN-free, serverless backup methodology that eliminates all backup software clients and accelerates tape drive speeds.

Efficient centralized management

FalconStor CDP clients (such as application servers) integrate with a FalconStor Central Client Manager™ (CCM), which enables you to monitor and manage their activity from a centralized console. CCM displays application server status and resource statistics, creates groups for efficient administration, and monitors storage utilization.

FalconStor Central Client Manager (CCM)



TOTALLY Open storage and connectivity

The TOTALLY Open architecture of FalconStor CDP lets you use any storage devices and protocols, avoiding vendor lock-in or disruption to your infrastructure or processes. For example, rather than re-create a full FC SAN at a DR site, you can leverage lower-cost SATA disks with standby servers attached via iSCSI. Smaller remote sites can take advantage of centralized storage using iSCSI while replicating to an FC SAN in the data center.

Remote site protection and DR

In addition to local site physical and virtual server protection, FalconStor CDP extends data protection to remote sites. FalconStor CDP devices in branch offices can replicate data to a central site, eliminating the need for remote-site tape backups. Replicated data can be moved to tape at the central location.

Similarly, data center-based FalconStor CDP devices can replicate to a DR facility. In the event of a site-level disaster, administrators can quickly restart business operations at the DR site, using individual standby servers or consolidated virtual machines. Once the facilities at the local site are repaired, the remote replicated data can be written back to the local site to resume normal operations.

Thin Replication reduces bandwidth and cost

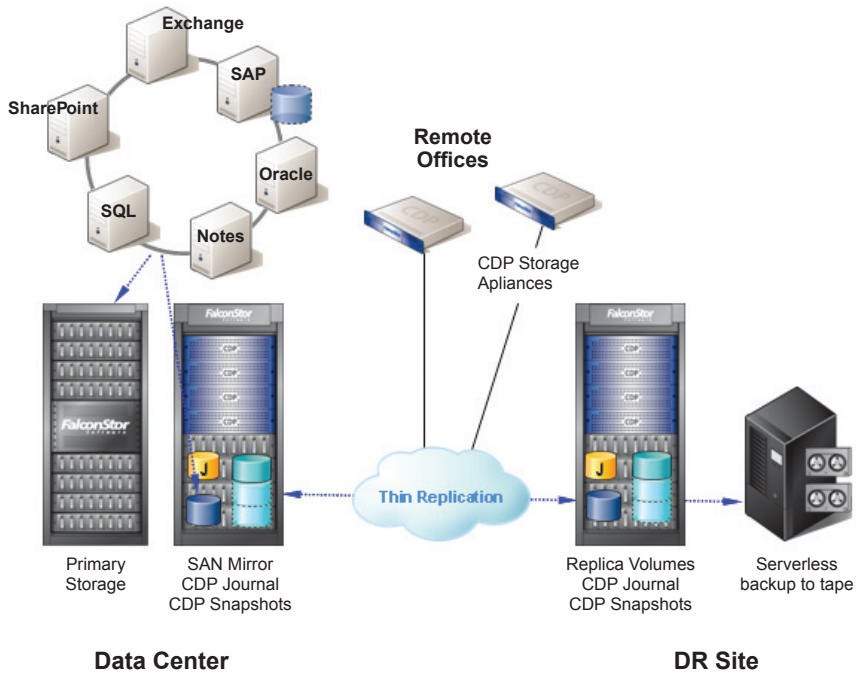
Network bandwidth between a local and remote site can contribute significantly to remote backup/DR overhead. FalconStor CDP offers Thin Replication, which includes encryption for security and compression for reduced bandwidth consumption. Thin Replication uses patented FalconStor MicroScan™ technology, delivering the lowest possible bandwidth consumption – as much as 70 to 90% less than similar solutions. This leads to significant cost savings, making offsite data copying financially and technically feasible for organizations of all sizes.

Simplified testing and DR planning

One of the most critical yet least performed operations is rehearsing a DR scenario. In a tape backup model, recovery rehearsal is a difficult, lengthy process that is often skipped due to time, cost, and personnel constraints. FalconStor CDP greatly simplifies rehearsal and planning by providing readily mountable TimeView® images, either in the data center or the remote DR site. These images can be created and used for booting standby servers, without disrupting ongoing data protection operations.

In the same manner, snapshot images can be used for testing and development. Before deploying a patch or upgrade into production, a TimeView snapshot image can be used to boot a production-identical instance of a server. Updates can be applied to the writeable TimeView image and the results can be verified before deploying on the production system. When testing is complete, the TimeView image can be deleted, returning the disk resources to the storage pool.

FalconStor CDP for the enterprise



Key features

Storage services

Email alerts. Monitors the operation of the FalconStor CDP appliance. It provides email notification so that a technician or maintenance provider can carry out system maintenance and eliminate problems.

FC support option. Supports FC protocols over 2Gb or 4Gb ports. Supports FC booting using certified HBA. Integrates with Disk Manager to securely allocate storage.

iSCSI support. Supports iSCSI protocol over built-in Gigabit Ethernet ports. Load balancing and path failover are supported via standard Microsoft iSCSI Initiator driver. Supports iSCSI booting using certified iSCSI HBA. Integrates with Disk Manager to securely allocate storage without the usual complexity associated with iSCSI authentication.

Replication option. Enables block-level, delta replication to a DR site. A built-in UDP or TCP protocol can be used without the need for additional FC/IP routers. Patented MicroScan technology analyzes each replication block on-the-fly during replication and transmits only the changed sections. Encryption options are available.

Synchronous Mirroring/Zero Downtime Migration. Protects against hardware failures, enables data migration from one storage array to another with zero downtime for servers, applications, and/or users.

Thin Provisioning. Allows provisioning of virtual storage that represents a higher capacity than is physically available. Physical storage is automatically allocated only when needed. This enables more efficient storage utilization. Thin Provisioning may be applied to primary storage, replica storage (at the DR site), and mirrored storage.

TimeMark snapshots. Space-efficient snapshots called TimeMark snapshots can be enabled for all iSCSI and FC disks or DiskSafe protected disks. Database agents are available for popular databases to ensure 100% transactional integrity.

TimeView images. TimeMark technology includes the TimeView feature, which creates an accessible, mountable delta snapshot image that enables administrators to freely create multiple and instantaneous virtual copies of an active data set. The data set and/or replica copies can then be assigned to multiple application servers with read/write access for concurrent, independent processing, all while the original data set is actively being accessed/updated by the primary application server.

Client agents

Central Client Manager (CCM). CCM provides central management of client-side DiskSafe Agents and monitors the client storage. It allows an administrator to monitor and manage the activity of SAN clients for one or more FalconStor CDP appliances at once.

DiskSafe Agent. Supports timely transaction monitoring of server disk and synchronous/scheduled disk replication. One DiskSafe server disk protection tool must be configured for each protected server. Supports Microsoft Windows Vista Ultimate/Ultimate (32-bit or 64-bit); Windows Server 2003 R2 Standard/Enterprise Edition (32-bit or 64-bit); Windows XP Home/Professional Edition (32-bit); Windows 2000 Professional/Server/Advanced Server.

FalconStor Message Recovery for Microsoft Exchange option. FalconStor CDP appliances integrate with Microsoft Exchange 2003/2007 Recovery Storage Group technology. The snapshot disk responds directly to Microsoft Exchange databases and rapidly recovers information in single inboxes. A wizard lets you load information into databases without having to restore and recover databases or consume server disk space.

HyperTrac Backup Accelerator option. Supports serverless file backup, enabling the backup server to connect to a FalconStor CDP appliance and assisting with backup by automatically connecting to the snapshot disk, completely backing up server files to tapes.

Snapshot Agent suite. Application-aware Snapshot Agents ensure full protection for active databases such as Microsoft SQL Server, Oracle, Sybase, and DB2; messaging applications like Microsoft Exchange and Lotus Notes; and file servers. Complete data and transactional integrity is attained through a robust and automated process that safely and reliably takes snapshots of databases for point-in-time copy purposes and DR.

For more information, visit www.falconstor.com or contact your local FalconStor representative.

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