



*An overview of today's  
Continuous Data Protection  
(CDP) solutions*

September 2006 – Second Edition



**CDP Buyer's Guide**

Second edition – September 2006

**PUBLISHED BY**

The Storage Networking Industry Association  
SNIA DMF CDP Special Interest Group  
500 Sansome Street, Suite #504  
San Francisco, CA 94111

Project Editor: Brian J. Olson ([brian.olson@atempo.com](mailto:brian.olson@atempo.com))

Copyright © 2006 by the Storage Networking Industry Association (SNIA), USA. All rights reserved. No part of the contents of this guide may be reproduced or transmitted in any form or by any means without the written permission of the publisher. Created in USA. The SNIA logo is a trademark of SNIA. Other features or product names mentioned are trademarks of SNIA or other vendors or manufacturers.

---

## What is CDP?

Continuous Data Protection (CDP) represents a major breakthrough in data protection. Historically, data protection solutions have focused on the periodic backup of data. Complex issues like backup windows, protection of open files and databases, and heavy impact to production systems during the backup operation have all arisen from this scheduled backup paradigm. Today, CDP dramatically changes the data protection focus from backup to recovery. With CDP continuously safeguarding all changes to your important data, the IT administrator need never think about backup again—it just works. And when disaster strikes, CDP-based solutions offer the utmost in flexibility and performance by allowing for the rapid recovery to any desired point in the past.

CDP offers more flexible Recovery Point Objectives (RPO) and faster Recovery Time Objectives (RTO) than traditional data protection solutions, which were designed to create, manage and store single-point-in-time (SPIT) copies of data. CDP, on the other hand, captures and protects all data changes, not just at select, pre-determined points. This provides access to data at any point in time (APIT), thereby reducing data loss and eliminating costly downtime. Data retrieval is reliable, fast, and granular.

This buyer's guide is intended to serve as an introductory overview of the currently available CDP solutions. The information provided in this guide has been supplied by the individual vendors and has been independently verified by the SNIA CDP SIG. The buyer's unique environment and requirements will determine the right solution that best meets their specific needs. Vendor contact information is also provided to further simplify solution research.

---

## CDP Defined

The SNIA DMF CDP SIG defines CDP as follows:

**Continuous data protection (CDP)** is a methodology that continuously captures or tracks data modifications and stores changes independent of the primary data, enabling recovery points from any point in the past. CDP systems may be block-, file- or application-based and can provide fine granularities of restorable objects to infinitely variable recovery points.

So according to this definition, all CDP solutions incorporate these three fundamental attributes:

1. Data changes are continuously captured or tracked,
2. All data changes are stored in a separate location from the primary storage, and
3. Recovery point objectives are arbitrary and need not be defined in advance of the actual recovery.

There are a number of recognized technological approaches to delivering CDP, including block-, file- and application-based. Today, many vendors offer varying degrees of support and awareness of specific application and data environments. But regardless of the underlying technological approach utilized, CDP can offer faster data retrieval, enhanced data protection and increased business continuity with lower overall cost and complexity.

---

## CDP Product Attributes

All CDP solutions provide arbitrary recovery point objectives through continuous protection to an independent storage location. Beyond these similarities, however, there can be many differences among CDP solutions. Some of these differences are summarized below.

### CDP Design Approach

CDP solutions are designed to operate at the block-, file- or application-level. **Block-based** solutions operate just above the physical storage or logical volume management layer. As data blocks are written to primary storage, copies of the writes are captured and stored by the CDP system to an independent location.

Similarly, **file-based** CDP solutions are designed to operate just above the file-system, and capture file-system data and metadata events (such as file creation, modification, or deletion.)

Finally, **application-based** CDP solutions are designed to operate directly within the specific application that is being protected. Such solutions offer deep integration and are typically either built-in to the application itself or make use of special application APIs, which grant continuous access to the application's internal state as changes occur.

Block- and file-based CDP solutions can have the advantage of supporting many different applications with the same general underlying approach. Application-based CDP provides CDP only for that application, but typically does so in a far more integrated manner.

## Host Agent?

Some CDP solutions require that special “agent” software be installed on the protected host, in order to access data as it changes. Alternatively, others CDP solutions utilize data transfer protocols already built-in to the protected host or network infrastructure (such as NFS, CIFS, MAPI, FC, or iSCSI.)

## Recovery Granularity

Different CDP solutions offer recovery at different degrees of granularity. Examples of recovery granularities (in increasing order) include volumes groups, an individual volume or filesystem, individual folders or file groups, or a single file or application object (such as an email or calendar item.)

## Support for Continuous Protection of Databases?

Many CDP solutions are designed to support the continuous protection of popular database environments (such as Oracle or Microsoft SQL.) “Support” in this context means that the solution is fully tested and certified by the vendor, and supporting user documentation is readily available.

## Protects System Volumes?

Many CDP solutions can support the full recovery of bootable volumes or filesystems.

## Network File Server Protection?

Many CDP solutions can continuously protect data that is exported by network file server platforms (such as Windows/CIFS or Unix/NFS).

## Supported Operating Systems

CDP solutions must be tested and certified by vendors for each operating system platform they support, and full technical support must be available for customer deployments involving such operating systems.

## Repository Architecture?

Many CDP solutions are architected in such a way that the CDP storage repository (that is, the independent location where all data changes are stored) is available as a distinct and dedicated node on the LAN, WAN or SAN. Other CDP solutions rely on the protected host itself to write data directly onto the independent CDP storage.

## Major Product Focus

Today, most CDP solutions are focused primarily on data protection. However, some CDP products incorporate CDP technology as part of a larger solution set (such as disaster recovery, file sharing, or information lifecycle management).

## Vendor / Product / Current Product Version

This guide includes basic reference information about a vendor’s CDP product and its currently shipping version.

## CDP Product Descriptions

Today, many vendors are shipping CDP solutions. The following sections provide a brief description of those CDP solutions that are currently available, as well as vendor contact information from which more information can be obtained.

# CDP Products Matrix

**Continuous data protection (CDP)** is a methodology that continuously captures or tracks data modifications and stores changes independent of the primary data, enabling recovery points from any point in the past. CDP systems may be block-, file- or application-based and can provide fine granularities of restorable objects to infinitely variable recovery points.

| Vendor             | Product                                     | Current Product Version | Target Markets   | CDP Design Approach | Host Agent? | Recovery Granularity  | Support for Continuous Protection of Databases?            | Protects System Volumes? | Network File Server Protection? | Supported Operating Systems                      | Repository Architecture? |
|--------------------|---|-------------------------|--|---------------------|-------------|---|--|--------------------------|---------------------------------|--|--------------------------|
| Atempo             | LiveServ for Microsoft Exchange             | v2.04                   | Exchange Server Data Protection                                      | Application         | yes         | storage group, store, mailbox, folder, or individual email/contact/etc.   | Microsoft Exchange   | no                       | no                              | Windows 2000/XP/2003                             | yes                      |
| Atempo             | LiveBackup for Desktop/Laptops              | v2.93                   | Desktop/Laptop Data Protection                                       | File                | yes         | server, volume, file group or individual file   | Outlook PST  | Windows                  | yes                             | Windows 95/98/ME, Windows NT/2000/ XP/2003/Vista | yes                      |
| CA XOsoft          | Enterprise Rewinder                         | v2.0                    | Server Data Protection   | File                | yes         | volume group, volume, file group or individual file   | Oracle, Microsoft SQL, Exchange                            | no                       | yes                             | Windows  | no                       |
| CA XOsoft          | WANSynCHA                                   | v4.0                    | High Availability / Disaster Recovery                                | File                | yes         | volume group, volume, file group or individual file   | Oracle, Microsoft SQL, Exchange                            | no                       | yes                             | Windows, Solaris, AIX                            | yes                      |
| IBM                | Tivoli Continuous Data Protection for Files | v2.2                    | Desktop/Laptop Data Protection                                       | File                | yes         | single folder or file   | Outlook PST, NOTES NSF                                     | no                       | yes                             | Windows 2000/XP/2003, Linux, Solaris, AIX        | yes                      |
| InMage             | DR-Scout VX                                 | v3.5                    | Server Data Protection / Disaster Recovery with Application Failover | Block               | yes         | volume group or volume, file, mailbox, tablespace   | Microsoft SQL, IIS, Exchange, DB2, Oracle                  | Windows                  | yes                             | Windows, Linux                                   | optional                 |
| Mendocino Software | RecoveryONE                                 | v1.2                    | Server Data Protection / Secondary Data Management                   | Block               | yes         | volume group or volume, mailbox or individual email   | Oracle, DB2 UDB, Sybase, Informix, Microsoft SQL, Exchange | no                       | yes                             | Solaris, AIX, Windows, HP-UX, Linux              | yes                      |
| Revivio            | Continuous Protection System 1000           | v1                      | Server Data Protection   | Block               | no          | volume group or volume, mailbox or individual email   | Oracle, DB2 UDB, Sybase, Informix, Microsoft SQL, Exchange | yes                      | yes                             | AIX, HP-UX, Solaris, Linux, Windows 2000/2003    | yes                      |
| Revivio            | Continuous Protection System 1200/1200i     | v4                      | Server Data Protection   | Block               | no          | volume group or volume, mailbox or individual email   | Oracle, DB2 UDB, Sybase, Informix, Microsoft SQL, Exchange | yes                      | yes                             | AIX, HP-UX, Solaris, Linux, Windows 2000/2003    | yes                      |
| TimeSpring         | TimeData                                    | v2.5                    | Server Data Protection   | File                | yes         | server, volume, file group or individual file, database table/record/row, mailbox, folder, or individual email/contact/etc. | Microsoft SQL, Exchange                                    | no                       | yes                             | Windows  | yes                      |

## Atempo LiveServ® for Microsoft® Exchange

### ***The fastest path to RTO on Exchange***

Atempo LiveServ's application-aware CDP software enables quick and easy recoveries from any point in time, while the Exchange server is running. From an entire storage group, mailbox or public folder, right down to individual email messages, appointments, and contacts, LiveServ delivers zero data loss. LiveServ integrates with Microsoft Exchange to capture each new, modified or deleted message in real-time, so you always have the latest data for recovery. By capturing changes to hard disk, LiveServ enables you to perform instant recovery without waiting for the correct tape to be loaded. LiveServ radically simplifies Exchange data protection, optimizes disk storage space, and safeguards your mission-critical email data at all times.

## Atempo LiveBackup®

### ***Transparent Real-Time Backup Software for Windows PCs***

Atempo LiveBackup is completely automatic and transparent backup for Windows desktop and laptop PCs in the global enterprise. LiveBackup's advanced continuous data protection technology provides up-to-the-moment backups without impacting end-user productivity, and LiveBackup provides self-serve file recovery tools that enable users to solve many problems by themselves. For the administrator, LiveBackup provides a set of comprehensive disaster recovery tools that can roll back PCs to a known good state or recover an entire PC from "bare metal." LiveBackup's scalable architecture and sophisticated management console allow LiveBackup to deliver these benefits in "lights out" fashion, with minimal impact on the IT staff and the network.

#### **Atempo, Inc.**

2465 E. Bayshore Road, Suite 400  
Palo Alto, CA 94303 USA

[www.atempo.com](http://www.atempo.com)  
[info@atempo.com](mailto:info@atempo.com)  
(650) 494-2600

## Tivoli Continuous Data Protection for Files

### ***Real-time Protection of Changing Files...For Laptops and workstations***

Tivoli CDP for Files for Real-Time Workstation Protection provides transparent real-time file-level protection. Any time a "user-created" file is changed, versioned copies are made both locally and to remote targets (such as file server, web servers, ftp server, or Tivoli Storage Manager) and tolerant of network unavailability. All other changing files are also backed-up per a traditional schedule and via a journaling technique (no file system scans). No administrator is necessary; users restore files by themselves. Scales down to a single user/machine and up to 1,000's of systems with central management.

**IBM**  
Armonk NY  
USA

<http://www-306.ibm.com/software/tivoli/products/continuous-data-protection>  
[turnerja@us.ibm.com](mailto:turnerja@us.ibm.com)

(512) 740-7877

## DR-Scout VX

### ***Comprehensive Near-Line and Disaster Recovery Protection for Applications***

DR-Scout VX is a comprehensive Near-Line and Disaster Recovery solution that protects critical applications including Database, Email, ERP and File servers. DR-Scout combines application consistency measures and business event support with CDP technology, enabling enterprises for the first time to easily align data protection to business objectives. DR-Scout features:

- Business and Application aware policies that provide fast and reliable recovery of volumes, files, and application objects
- Automated application failover support
- Accurate pre-deployment modeling for provisioning storage and bandwidth
- Offload of compression, encryption, and bandwidth management
- CDP-based Disk to Disk to Tape work flow which leverages existing tape infrastructures
- Branch office data protection consolidation

DR-Scout's proven set of features make it a cost effective and self-managing solution that is easy to deploy.

**InMage**  
3255-1 Scott Blvd, #102  
Santa Clara, CA 95054 USA

[www.inmage.net/products.html](http://www.inmage.net/products.html)  
[info@inmage.net](mailto:info@inmage.net)  
(408) 200-3840

## RecoveryONE

### **Application Recovery to any Previous Point Based on Time or Events**

Developed for enterprise environments, RecoveryONE transparently and continuously captures data from designated servers, instantly allowing readable, writable copies of data to be retroactively created without impacting production applications. These copies, called "historical views", can be used for a variety of tasks, including backup, recovery, testing, analysis, development or any off host processing or secondary data management requirements. Because data is captured at the block level, RecoveryONE can be used in any application environment, while additional application-specific functionality is enabled by add-on modules for enterprise applications like Exchange and various databases. Mendocino was the first vendor to enable historical view creation based on either time or events, and paired an out-of-band architecture with true CDP technology to provide coverage for even the highest performing application environments. RecoveryONE is also distributed by HP under the name Continuous Information Capture.

**Mendocino Software**  
47001 Benicia Street  
Fremont, CA 94538 USA

[www.mendocinosoft.com](http://www.mendocinosoft.com)  
[info@mendocinosoft.com](mailto:info@mendocinosoft.com)  
(510) 668-1600

## Continuous Protection System®

### **Enabling Dynamic Data Availability by Delivering Any Event / Point in Time Recovery for Enterprise Applications**

Revivio's Continuous Protection System (CPS) allows companies to eliminate their backup windows, restore data instantly, instantly access any or all volumes used by an application exactly as they existed at any point or event in time, and recover business applications in just minutes. Both the high-availability enterprise-class CPS 1200 and the workgroup-class CPS 1200i can be configured for replication over vast distances and for 24/7 remote access and management. The CPS 1000 is the newest entry supporting departments and dev/test environments. Revivio supports federated applications and production restores, and empowers data management activities including integrity checking, upgrade testing and validation exercises to take place with no impact on production systems. Requiring no host agents or application APIs, Revivio CPS operate in virtually any application, operating system, or storage environment.

**Revivio, Inc.**  
12 Hartwell Avenue  
Lexington, MA 02421 USA

[www.revivio.com](http://www.revivio.com)  
[info@revivio.com](mailto:info@revivio.com)  
(781) 301-0200

## TimeData Continuous Data Protection Software

### **All of the data, all of the time - no hassle**

Dropping transactions or losing data translates to lost orders, customers and critical management decisions. TimeData™ software ensures that you avoid these costly pitfalls by ensuring the reliability and integrity of your data, through complete, transparent protection of data from logical and physical corruption. TimeData provides you with a moment-by-moment view of your data and transactions, and allows you to quickly and simply recover from data loss or corruption by "turning back time" to a precise moment before the corruption or loss occurred with a painless point and click. You can meet Recovery Point Objectives that are measured in transaction time, not hours or days. TimeData provides truly continuous data protection across the entire Windows platform, including Exchange, SQL Server, SharePoint, and NTFS.

**TimeSpring Software Corporation**  
620 Newport Beach Center, #1100  
Newport Beach, CA 92660 USA

[www.timespring.com](http://www.timespring.com)  
[sales@timespring.com](mailto:sales@timespring.com)  
(408) 834-8966

## Enterprise Rewinder™

Since not all data availability issues are the result of full blown disasters, XOsoft offers an innovative business continuity solution that provides continuous data protection in the event of isolated data corruption episodes. This technology complements current disaster recovery and backup policies by integrating with existing technology. By continuously running throughout the day (and night), this continuous data protection solution allows for immediate restoration to the point just before corruption. No need to restore an entire backup volume. Enterprise Rewinder data recovery software makes certain that recent data, which has the most critical business value, is protected and easily retrievable in the event of an IT disturbance.

## WANSyncHA

WANSyncHA is a high availability business continuity solution based on asynchronous real-time replication and automatic failover and failback that integrates several technologies to provide continuous availability of your mission-critical application servers through a wide range of disruptions from server failure to data corruption to the loss of an entire site. WANSyncHA maintains identical replicas of complete database and application servers through continuous real-time replication. XOsoft's "rewind" CDP technology is built-in to WANSyncHA for immediate restoration to the point just before corruption. WANSyncHA was developed to integrate with snapshots and backup solutions.

**CA XOsoft Corporation**  
1601 Trapelo Road, Suite 383  
Waltham, MA 02451 USA

[www.xosoft.com/products](http://www.xosoft.com/products)  
[sales@xosoft.com](mailto:sales@xosoft.com)  
(781) 419.5200

## Who we are

The Storage Networking Industry Association's (SNIA) Data Management Forum (DMF) is a cooperative initiative of IT professionals, integrators, and vendors working to define, implement, qualify and teach improved and reliable methods for the protection, retention, and lifecycle management of electronic data and information.

The Data Management Forum hosts three initiatives focused on data protection, Information Lifecycle Management (ILM), and long term archive and compliance. The organization operates as a market development and educational service for the SNIA. It is currently spearheading three technical working groups within SNIA, hosts the "Enterprise ILM Solutions" Conference, participates world-wide in events and conferences speaking on these topics, produces and delivers tutorials and best practices training materials, and is the authority in the broad field of data and information lifecycle management.

This buyer's guide was produced by the **Continuous Data Protection (CDP) SIG**, an operating group within the Data Protection Initiative. The mission of the CDP SIG is to evangelize continuous data protection by both acting as the world-wide-authority and resource on CDP and by educating IT professionals to help them make informed decisions regarding the technological uses and practical applications of CDP. As a community of developers, integrators, and IT professionals, we are collaborating to educate the market on the benefits, technologies, and options available through this exciting new form of data protection. Our work is public and membership in the DMF is open to all companies and organizations. Interested individuals are welcome as well. Simply go to the DMF website, [www.snia.org/dmf](http://www.snia.org/dmf) and sign-up!

## For more information

If you would like to obtain more information about current CDP technologies, emerging standards and future directions, please feel free to contact the SNIA CDP SIG by sending email to:

[cdp@advisorygroups.snia.org](mailto:cdp@advisorygroups.snia.org)

This CDP Buyer's Guide is updated on a quarterly basis. If you are a CDP vendor and would like your product to be included in this Buyer's Guide, please contact us at:

[cdp-buyers-guide@advisorygroups.snia.org](mailto:cdp-buyers-guide@advisorygroups.snia.org)

To be eligible for inclusion, a product must satisfy the definition of CDP (as stated earlier in this guide) and be generally available for customer purchase. Please note that only products from CDP SIG members are included in this CDP Buyer's Guide.



Storage Networking Industry Association  
500 Sansome Street  
San Francisco, CA 94111  
Phone: 415.402.0066  
Fax: 415.402.0009  
[www.snia.org](http://www.snia.org)  
[www.snia.org/dmf](http://www.snia.org/dmf)

© Copyright 2006 SNIA DMF 002 9/2006