



Solution Snapshot

Protection for Distributed Data:
Extending the Reach of Enterprise Backup to the
Desktop and Beyond

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October 20, 2004

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INTRODUCTION

From SMBs to Fortune 500 enterprises, business efficiency is predicated upon the ability to create, control, and exchange information. The amount of business information that any company accrues increases over time, and may expand to include classes of historic company data, legal/financial data, marketing/sales data, and current/future product data, among many others. However, while the sheer volume of business data continually increases, its core value rests not in its mere existence but on how accessible it is to internal and external employees. Even the most strategic business document is useless unless it is immediately and easily available. A business's operational efficiency, then, depends on the accessibility of its strategic business information assets.

Centralized data storage provided secure, single points of information storage with multiple points of access by employees. Eventually, the maturity of network-based computing technologies afforded a rise in localized devices, including personal computers (PCs), network-attached storage devices, and related peripherals that essentially changed the structure of data storage and the nature of information access. Though the rise of distributed storage solutions empowered employees to more easily create and contain their business information, the process dramatically increased the amount of data stored and typically proceeded without consideration for the company's long-term strategic information goals.

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The Challenge: Providing Strategic Storage for All Enterprise Data

Distributed storage assets have created tangible business benefits. Internal employees and workgroups that require regular access to business-critical data such as reports, projects, frequently updated company files, and archival material can find this information at their fingertips. On the enterprise periphery, mobile and remote workforce employees gained access to company sales/marketing materials and support data, as well as key headquarters resources and oversight information for operating remote facilities. Overall, the introduction of distributed storage assets streamlined business processes and empowered employees and workgroups by making critical information available to them.

IT Central: Past Solutions Were Limited to Centralized Data Repositories

While distributed storage solutions delivered real business benefits, they also introduced a new set of challenges revolving around the need to manage information strategically while the volume of data expanded. Overseeing centralized data storage rested with trained IT personnel, but the responsibility for many distributed storage assets ultimately fell on the shoulders of rank-and-file employees. Yet conventional employee-managed methodologies (e.g., backup to disk, etcetera) became increasingly unwieldy as the volume of data increased; this was particularly accurate for PC and mobile users.

Remote Office Phone Home: Bringing Remote Resources Back into the Fold

Mobile workers require reliable and secure access to stored data from remote locations, yet achieving this goal is typically an expensive and difficult process. However, in today's computing environment the increased usage of PC-synchronized devices such as PDAs and other small form factor devices has created a class of ever more "remote" devices that are collecting and updating business-critical data far beyond the reach of traditional data backup solutions. Thus, the *edge* of corporate networks has moved far beyond what was ever imagined and an increasing amount of *centralized* data now is residing on, and its access moving to, the *edge*. Ultimately, many enterprises attempted to adapt conventional file system and database-focused solutions to the task, but these technologies often failed to work out or were difficult to manage with the cost of deployment often exceeding the perceived value of the data involved.

The Solution: A Marriage of Centralized Repositories with Remote or Network Edge Data

While the challenges of distributed storage assets continued to expand, IT vendors have not been idle. Some have attempted to stretch the capabilities of existing solutions to address the needs for desktop and remote data backup, but the reality is that the market demand for centralized backup of distributed data resources requires a new approach to solving the unique dilemmas of backup and business continuity.

Bringing the Edge Back to the Center: Connected DataProtector/PC

One solution that emerged for managing enterprise data distributed across company PCs is Connected's DataProtector/PC that provides automatically scheduled backups of data stored on network-attached PCs to a central repository. Connected DataProtector/PC includes an application deployed on a central server that communicates with an agent that sits on PCs, including mobile devices.

There are a number of tangible benefits to enterprises in using Connected's DataProtector/PC solution. First, DataProtector/PC's automated back-ups do not require user intervention — they run in the background at the lowest priority level, making them transparent to PC users. Connected's DataProtector/PC also offers significant scalability: up to 20,000 PCs can be connected to a single DataProtector/PC backend, making the product suitable for use in large enterprise environments. Data stored with Connected's DataProtector/PC is automatically 128-bit AES encrypted and compressed prior to storage, ensuring an appropriate level of data security while speeding upload and retrieval of data.

Connected's *SendOnce* feature affords more efficient utilization of storage resources and eases data management processes. The application and agent scan for new PC documents and saves them to a central repository, but only saves and/or updates those changes that have occurred since the previous session. Working in conjunction with Connected's *DeltaBlock* technology, which only requires the changed sets at a block level as opposed to whole files to be transmitted, *SendOnce* ensures that only essential data is sent across the network. Collectively these features save tremendous space on the backend by utilizing data compression to store documents more efficiently as well reducing the operating need for bandwidth.

DataProtector/PC also possesses options for retrieving only critical files and initiating "system state" (whole-system) restore if necessary. Finally, Connected's secure Web-based data access feature affords secure access to stored files via a Web site from any Web-connected PC, freeing mobile workers from both fixed home workstations and mobile laptops, and helping to ensure that any piece of company data is always safely within reach whether workers are inside or outside the enterprise.

Table 1: Summary of Connected's DataProtector/PC Benefits

Transparency	Automated back-ups do not require user intervention.
Scalability	Up to 20,000 PCs can be connected to a single DataProtector/PC backend.
Security	Data is automatically 128-bit AES encrypted prior to storage.
Efficiency	<i>SendOnce</i> affords efficient data management via compression and saving only new changes to previous documents. <i>DeltaBlock</i> affords efficient bandwidth utilization by transmitting only the necessary components of a changed file.
Flexibility	Offers remote access and options including simple retrieval of necessary files and whole-system restore
Reach	Secure Web-based data access affords secure company file access from any Web-connected PC.

Connected's DataProtector/PC with EMC's Centera Provides an Intelligent, Efficient, and Centralized Remote Backup

EMC's Centera, a content-addressed storage (CAS) solution, combines unique content addressing software with industry standard platform ATA disk drive-based storage repositories. Centera addresses each document in a central repository with a unique permanent identifier, expediting data retrieval and helping to ensure that content identity and data authenticity are maintained indefinitely.

Together, Connected DataProtector/PC and Centera blend automated PC backup and data collection with simplified, intelligent access to complex stored data in a single integrated solution. The three greatest areas of gained efficiency in this combined solution are performance, scalability, and manageability. The integrated solution enhances DataProtector/PC's cost-effective access to information on thousands of PCs by leveraging Centera to help reduce the complexity of retrieving stored data, which can directly affect employee productivity and increase the overall value of company information assets. Additionally, Centera's self-healing capabilities constantly monitor the system to detect and repair soft errors and automatically reconfigure itself as well as replicate objects; features that should notably boost management ease and efficiency.

The combined solution also provides easy, secure, and reliable online access to stored company content from any location or device, making the integrated solution particularly appealing to enterprises with mobile employees and/or remote facilities. Centera and Connected DataProtector/PC together ensure that excess data is not stored unintentionally. This is accomplished via Connected DataProtector/PC's *SendOnce* feature and EMC's "scrubbing" algorithm, which complement one another in preventing duplicate copies from being stored, while improving both data security and reliability.

The Centera and Connected DataProtector/PC solution is sensitive to existing corporate environments through Connected DataProtector/PC's leverage of PC-based resources and Centera's utilization of industry standard platforms and protocols. Collectively this offers enterprises a reliable, secure methodology for protecting and managing distributed business information that is more affordable than comparative file system or database-focused methodologies. Alternatives to the combined Connected DataProtector/PC and Centera disk-based solution include traditional tape-based data storage solutions. The primary advantages of a combined Connected DataProtector/PC/Centera disk-based solution versus tape-based alternatives include enhanced performance, ease of management, and total cost of ownership (TCO) considerations. On the performance front, there are simply fewer mechanics involved in disk-based solutions when compared with tape-based technologies. If swift access to data is desired, tape library-based solutions struggle by requiring lengthy and complicated processes for retrieving data (e.g., rewinding and/or forwarding tape, find processes, etc.) compared with disk-based solutions. The DataProtector/PC and Centera solution provides immediacy of data retrieval via simple disk search, find, and save functions.

Though tape-based solutions may appeal to enterprises for their initially lower purchase price, these costs can be dwarfed by higher management costs over the long term, which create ongoing and formidable TCO headaches. The support and maintenance required for tape-based solutions can also be costly, whereas supporting largely automated disk-based solutions is likely to be lower over time.

Table 2: Combined Benefits Summary of Connected DataProtector/PC and EMC Centera

Simplicity	Connected DataProtector/PC's automated backups are transparent to enterprise users and Centera's unique content addressing simplifies data retrieval.
Manageability	Centera's automated self-healing capabilities enhance and improve system manageability, and its content-addressing features mitigate NTFS file limitations.
Scalability	Connected DataProtector/PC's internal scalability affords up to tens of thousands of node connections, while Centera's automated self-managing capabilities help to ease data storage growth challenges.
CAS	Centera's globally unique identifiers make data easy to retrieve with DataProtector/PC, and improve cost effectiveness over homespun solutions.
Security	Data is automatically 128-bit AES encrypted prior to storage in central repository.
Efficiency	Internal redundancy via Connected DataProtector/PC's <i>SendOnce</i> , and Centera's "scrubbing" algorithms, avoids unintentional excess data storage.
Speed	Connected DataProtector/PC with Centera provides immediate data retrieval compared to tape-based alternatives.
Longevity	Industry standard platform/components and unique content-addressing (CAS) reduces technological obsolescence risks.
Flexibility	Combined solution provides reliable online access to stored company content from any location or device.
TCO	Management ease of IDE/ATA disk-based solutions reduces TCO long-term versus tape-based alternatives.

Conclusion

The challenges enterprises face as business information continues to accrue are real. Though solutions for increasing the amounts of information closer to end users are readily available, securing and providing quick access to backed-up data remained problematic, directly impacting cost and management issues surrounding stored data solutions. However, solutions are available that address the critical needs of protecting and managing data distributed across the enterprise.

Connected's DataProtector/PC and EMC's Centera independently offer competent standalone solutions. Combined, however, the two enjoy synergies of function that address the critical management requirements of enterprise data storage: simplicity, scalability, security, efficiency, speed, longevity, flexibility, and lower TCO. Centera offers unique value as a foundation for Connected's DataProtector/PC, buttressing critical DataProtector/PC functions while providing a content addressing system that adds additional layers of management ease, data access, content integrity, and information security.

This combined solution is also ideal for companies with mobile and remote workers. It provides location-independent access that allows data retrieval/sharing without regard to location, users, or access devices. It also offers internal redundancy to address corporate sensitivity to bandwidth storage concerns, and Centera's content addressing system helps to preserve the value and safety of sensitive information assets. Centera's reliance on industry standard platforms and components helps mitigate IT administrators' concerns over technology obsolescence, and its automated self-healing capabilities are designed to enhance storage management processes.

Working together Connected DataProtector/PC and Centera fundamentally alter the way businesses collect, protect, and value their information assets. In the combined Connected/EMC universe, information stored on employee PCs is every bit as safe and accessible as that in company servers. By simplifying and automating backup processes, reducing management costs, and easing secure access to business-critical data for internal and external employees, EMC and Connected offer an integrated solution that has raised the bar for distributed data management in the enterprise.