



HOW TO REDUCE COSTS,

INCREASE SECURITY

AND SIMPLIFY SCALING

IN REMOTE OFFICE

ENVIRONMENTS

COREVAULT™
Secure Cloud Solutions for your Business



The Agentless Architecture

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The Agentless Architecture

Preface

This white paper describes how CoreVault's agentless architecture improves remote site backup and recovery processes to reduce costs, bolster security and simplify scaling. The paper contrasts these benefits with the security risks, high licensing costs, administrative complexity, and CPU/LAN overhead problems associated with agent-based backup/recovery alternatives. CoreVault's disk-to-disk (D2D) software solution offers a highly reliable, high-speed replacement for legacy tape-based, remote site backup/recovery systems. Designed with a focus on fast data recovery at remote sites, CoreVault's solution offers a unique agentless design, plus hard-coded security and WAN optimization techniques that differentiate it from competitive D2D backup-consolidation software products. Simple to set up and manage, the CoreVault solution offers bottom-line benefits that range from lower administrative costs to pay-as-you-grow scalability. Emphasizing data recoverability, the CoreVault solution helps organizations with geographically distributed sites reduce business risk by meeting Recovery Time Objectives (RTOs) and Recovery Point Objectives (RPOs) and ensuring dependable, ready access to critical office and laptop data.

Background

Businesses with geographically distributed sites are feeling the pain of protecting remote office data. Ask IT managers to elaborate, and most will describe a trio of troubles:

- **Unabated growth.** Expanding from gigabytes to terabytes, petabytes and beyond, and seemingly overnight—such is the storage challenge confronting IT administrators. Small office/home office (SOHO) businesses, small and medium-sized businesses (SMBs), and corporate enterprises alike face the relentless pressures of data growth. The impact on backup and recovery processes is particularly painful: tape backup systems that sufficed in protecting a few offices' worth of data are too cumbersome, complex, and costly in larger environments. The problem only worsens as organizations add sites, systems, applications, and users. Recovery of large data stores is an even bigger concern. Day after day, companies need ready access to more and more data in order to keep critical operations running. Existing backup/recovery solutions often fall short in meeting RTOs and RPOs.
- **Increased security pressures.** Moving data to and from remote sites can be fraught with danger, particularly if the primary backup media is tape. Recent reports of tape-parcels vanishing from delivery trucks, unencrypted tapes packed with employee data gone missing from off-site data protection services and mounting threats of litigation and penalties have many businesses running scared. Companies also acknowledge that the hackers they face off against today are no longer just bored or mischievous teenagers, but more likely criminal organizations with paid technical thieves searching for high-payoff security holes.
- **Scarce local expertise.** Most tape backup products, even in their simplest forms, require an attendant at remote sites. But few organizations have technically proficient staffing resources available to administer backup operations at every single branch office or remote site. It forces an unpleasant choice—incur on-site IT staffing costs, or hand off the protection of business-critical data to inexperienced users who have other primary obligations. And again, the problem only worsens with data growth and increasing infrastructure complexity.



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The Problem with Agents

Organizations typically address these issues by consolidating backup processes, choosing either to assign responsibility to a central data center or to outsource data protection to a service provider. Whichever path an organization follows, the presence of agents in the backup/recovery software utilized (be it either a tape or a disk-to-disk (D2D) product), will directly impact data security, recoverability, and costs. IT managers already know the downsides that accompany agent-based solutions:

- **Compromised security.** A port in the firewall must be opened for every agent. And, because almost every agent has administrative privileges, it effectively creates a backdoor hole in the server architecture—tap into the agent and have your way with the server. With no “in-flight” encryption mechanisms, agents also put data at risk during transmission from the remote office to the data center.
- **More pieces of software to manage and fail.** More sites, more data, more applications, more users, more systems, more agents—growth makes everything harder to manage, and agents only compound the problem. As the infrastructure expands in size and complexity, problem diagnosis takes longer. Operating system upgrades (now implemented monthly by many organizations) have broader impact and potential to break software, including proliferating backup agents. Agent management drains IT resources, causes disruptive downtime, and negatively impacts data recoverability.
- **Exorbitant licensing fees.** “Veritas users plead for simpler licensing”—that recent StorageSearch.com headline says it all (Source: StorageSearch.com, 26 Apr 2005). Most software vendors charge for software based on the old per-system model, a pricey plan that requires customers to keep close tabs on complex system and user landscapes. For many growing organizations, buying a site license is actually a simpler—albeit even more costly and often unnecessary solution than trying to keep track of large numbers of backup products installed across hundreds or thousands of sites. There are even companies that now consult on doing audits to help enterprises try and lower license fees.
- **Mounting administrative costs.** Heterogeneous application environments can be administrative nightmares when backup processes require the installation and management of agents for every single flavor of database, application and operating system platform. It takes time and a lot of ‘touching’ of remote-site systems to push agents and agent upgrades out to every server in the backup roster. And each time a data center administrator or service provider has to deploy an agent or intervene to support it at a remote site, that cost rolls back into their business model making it increasingly difficult to be competitive or stay within budget constraints.

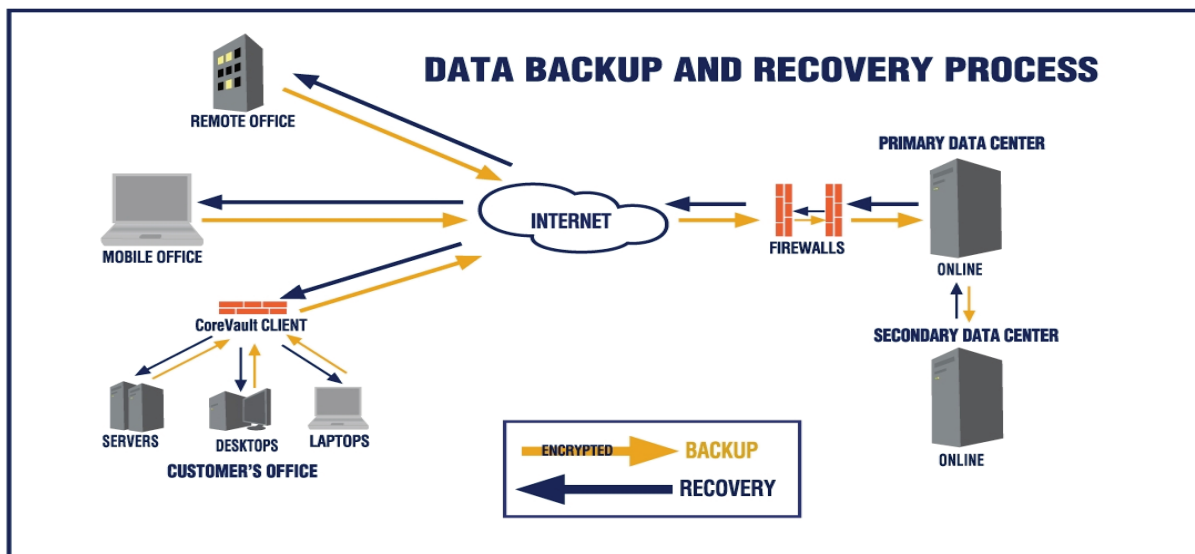
To put licensing and administrative costs in perspective, an enterprise with just five offices can easily spend \$50,000 to purchase and maintain the file/print server, e-mail server, database, and workstation agents required for backup processes. For large enterprises with thousands of agents, licensing and support costs can quickly add up to millions of dollars.

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The CoreVault Architecture

As the industry's only agentless, multi-site backup and recovery software solution, CoreVault technology completely eliminates the negative impact of agents. How does it work? The CoreVault architecture consists of two software components: the DS-Client and the DS-System. DS-Client software, installed at the remote office on an existing or dedicated Windows, Macintosh, or Linux server, captures data from target backup machines. The DS-Client then conducts several data reduction processes, compresses, encrypts, and transmits the data via an IP WAN to the DS-System at the central location.

The DS-Client does not require installation of any backup agents on target servers, desktops, or laptops. The agentless DS-Client fully integrates with NT domains, Trusts and Novell NDS trees, and otherwise adopts the remote site's existing LAN security settings. Using standard APIs, the DS-Client can remotely log in to target backup systems, capture requested data, and securely manage transmissions to the central site. Utilizing delta blocking and common file elimination technologies, the DS-Client reduces the amount of raw data transmitted and stored at the off-site vault.



The DS-System can be installed on Linux, Macintosh, Solaris, and Windows platforms and manages the online storage repository (configured as direct-attached disk, NAS or SAN) for backup data transmitted from one or multiple DS-Clients.

CoreVault software integrates a comprehensive feature set designed to maximize and accelerate data recoverability. An autonomic healing mechanism, for example, runs seamlessly in the background to identify and isolate corrupted or otherwise problematic files.



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As an added value, if a file is found to be unfixable, it is marked to be re-transmitted on the next scheduled backup. Another feature, the Local Restore tool, allows remote-office storage of the latest generation of a backup data file. This ensures that local users can restore critical data immediately and at LAN speed.

Additional CoreVault tools include an Online File Summary, Long Term Storage policy-making, a Discovery Tool to automatically ascertain characteristics of primary data, Service Level Agreement Management, Budget Allocation to set backup/restore capacity limits, E-mail Message Level Restore, Bare Metal Restore capability, Client and System Monitoring, and SNMP Integration.

Why It Works

The CoreVault software eliminates the requirement for locally installed agents because it leverages the protocols, APIs, methods and functionality that platform, operating system, database, and other application vendors utilize for remotely accessing and managing their own systems. While other backup/restore solutions require a unique backup agent (installed on every target server, workstation, and laptop) for each type of system and application, the CoreVault architecture integrates support for all major platforms and applications into a single, optimized software system comprised of just two major components: the DS-Client (just one installed at each remote site) and the DS-System (installed at the vaulting location).

Another advantage of our software is that it enables multi-level access controls. At installation, the DS-Client is assigned privileges to establish access rights that match the requirements of the site or organization. The DS-Client, for example, might be assigned multiple credentials for the same network to allow the domain administrator to back up all systems, including servers and workstations, while enabling users to control the backups of individual workstations. The software has also been highly optimized to conserve both LAN and target-system CPU resources.

Another characteristic that differentiates CoreVault's software from other backup/restore solutions is that it was designed from the ground up to be non-invasive and invisible in the customer environment. This trait reflects the CoreVault corporate pedigree earned in the service provider market. Because service providers must support multiple distributed customers with limited visibility and control of their clients' environments, a cost-effective solution must enable non-intrusive management—the backup/recovery solution must be centrally deployed, administered and supported across multiple client sites.

Admittedly a technology-development challenge with a unique-in-the-industry approach, the agentless design of CoreVault's architecture was nonetheless the right thing to do to ensure efficiency and profitability for CoreVault customers—both service providers and enterprises. The result of that design and its real-world testing in demanding service provider and enterprise installations has helped make CoreVault today's technology leader with an innovative, sophisticated, and proven architecture.



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The Benefits of Agentless: Reduced Costs, Robust Security, Simpler Scaling

Implementing a CoreVault backup/recovery solution produces immediate and dramatic benefits. Compared to agent-based alternatives, CoreVault's software offers:

- **Significant savings.** Even if agents from other vendors were free, a CoreVault solution would still enable huge reductions in operating expenses. For example, an enterprise environment with 1,000 server agents would show first-year operating expenses alone approaching \$150,000. Annual server maintenance and operating expenses for this same configuration add up to nearly \$60,000. Eliminating agents eliminates those costs that are in addition to the purchase price of agents.
- **Simple licensing.** DS-Client licenses actually are FREE. The DS-System offers businesses a unique pay-as-you-grow pricing model based on the aggregate amount of compressed data stored across the network. No license fees, no tracking, no overspending on site licenses—customers pay only for compressed capacity consumed.
- **One piece of software to install, manage and diagnose.** The CoreVault software even self-upgrades, so there is no time-consuming and administrative resource draining pushing of agents or updates out to hundreds or thousands of remote site systems.
- **WAN/LAN/CPU resource conservation.** CoreVault software runs with negligible impact on servers, workstations, and laptops, eliminating the CPU-cycle hits associated with agent-based solutions. Delta blocking, common file elimination and compression technologies also minimize impact on bandwidth and storage resources. While many agent-based backup/recovery solutions require implementation of high-speed pipes between the central data center and remote offices, CoreVault enables the effective use of existing links such as DSL.
- **Robust, hardcoded security.** CoreVault software provides both 'in-flight' and 'at-rest' data protection, utilizing 256-bit AES encryption keys to guarantee extremely safe data transfer and storage. And, it works within the organization's security framework—there are no agents to open hacker-tempting ports in the firewall. With secure data transmission across an IP WAN, CoreVault's solution helps businesses achieve compliance, minimize information-loss liabilities and protect customer confidence.
- **Elegant scaling.** "The DS-System is capable of elegantly scaling both in the dimensions of capacity and performance. This type of scalability is critical for environments with large numbers of remote sites, high-capacity data sets and rapid high data growth. While agent-based solutions compound complexity in rapid-growth environments, the CoreVault agentless backup/recovery solution easily accommodates new capacity, new applications, and new sites. Features such as integrated load-balancing ensures efficiency across multiple DS-System IP addresses.



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- **Backup consistency, improved recoverability.** The simplicity, efficiency, and security of the CoreVault system promotes implementation of consistent data backup programs across remote sites. Able to implement more frequent, successful backup processes, companies can significantly boost data recoverability in environments where success rates below 50% were once the norm.

About CoreVault

CoreVault is an affiliate of Dobson Telephone, which has served customers for over 70 years. CoreVault provides automated and centrally managed data backup and recovery services that help businesses protect critical data. Service portfolio includes off-site data protection, regulatory compliance, data encryption, data restoration, enhanced security and highly regarded customer service. CoreVault's two private, geographically separated data centers possess redundant backup systems. Organizations utilizing CoreVault can focus on core business with the knowledge that its critical data is protected 24-7.

CoreVault is SAS 70 Type II Certified. The widely recognized "SAS 70 Audit" confirms that CoreVault has control objectives and control activities examined by an independent accounting and auditing firm. The audit, which takes place over a minimum six-month period, elevates the trust that over 25 different professional associations place with CoreVault by endorsing us to their over 450,000 members.

CoreVault's corporate office is located in Oklahoma City, OK.

Contact CoreVault to find out more about how they can deliver backup/restore services to your company.

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