Electronic Vault

Cloud Backup and DR Solutions

electronicvault

Whitepaper

Agentless Architecture

The Agentless Architecture

Backup and recovery software typically requires agents to be installed onto the host servers that a system administrator wants to back up.

Electronic Vault requires no agents, which inherently makes it easier to install and support than legacy backup and recovery solutions.

Even in a modest-sized environment, agent management can get extremely complex when an administrator is forced to deal with different operating systems and revision levels. The complexity of agent management is further complicated by the growing number of software packages that also require agents running on the same host servers, or what is also referred to as “agent pollution”.

Electronic Vault does not require any agents to be installed but instead reaches out over the network to back up operating systems, file systems, and applications, using industry standard programming interfaces. To understand how Electronic Vault backs up data over the network without the use of agents, consider how a local hard drive in a Microsoft Windows server can be backed up over the network. A system administrator accesses the local hard drive over the network as a shared drive and maps it as a drive letter. A disk-to-disk backup of that hard drive can then be performed by copying the contents of one hard drive to another hard drive over the network. Electronic Vault software works without agents but instead uses a sophisticated extension of this idea. This is simple and elegant in concept, but requires a lot of hard work and years of development to successfully implement on a broad variety of operating systems and data types.

Why Agentless Architecture Matters

Dealing with backup software agents is a cumbersome and mundane task that can be extremely time consuming. Matching agent revisions with operating system levels, researching compatibility issues, and other labour-intensive tasks are non-existent when using the Electronic Vault solution. Additionally, many problems that occur while managing backup software are due to agent bugs and their incompatibility with host servers. Electronic Vault is inherently easier to support and the risk of problems is reduced as compared to other solutions because of its agentless design.

Finally, because traditional backup and recovery software puts agents onto servers, processing power is stolen away from a server’s core application to feed the needs of agents. Electronic Vault makes no such demands of the servers it is backing up.

The Problem with Agents

The presence of agents in the backup/recovery software (be it either a tape or a disk-to-disk (D2D) product), directly impacts data security, recoverability and costs. The vast majority of IT managers already know the downsides that accompany agent-based solutions:

> **Compromised Security -** A port in the firewall must be opened for every agent. Based on the fact that almost every agent has administrative privileges, this effectively creates a backdoor hole in the server architecture

for hackers to tap into the agent and have their way with the server. With no "in-flight" encryption mechanisms, agents also put data at risk during transmission from the remote office to the datacentre.

Compromised Security - 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 - Traditional 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 flavour 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 datacentre administrator or service provider has to deploy an agent or intervene to support it at a remote site, those costs 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, email 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 pounds.

How Does Electronic Vault's Agentless Architecture Work?

As a true next-generation backup and recovery software solution, Electronic Vault technology completely eliminates the negative impact of agents.

How does it work?

The Electronic Vault architecture consists of two software components: the DS-Client and the DS-System. DS-Client software, installed at the local or remote site 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 our highly secure central Vault.

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. Utilising delta blocking and common

file elimination technologies, the DS-Client reduces the amount of raw data transmitted and stored onsite and in the Vault.

The DS-System is installed in our Vault and manages the online storage repository for backup data transmitted from multiple DS-Clients. Electronic Vault 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. 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 versions of backup data files. This ensures that local users can restore critical data immediately and at LAN speed.

Additional Electronic Vault tools include Long Term Storage policy-making, a Discovery Tool to automatically ascertain characteristics of primary data, Email Message Level Restore, Bare Metal Restore capability, Client and System Monitoring, and SNMP Integration.

Why Electronic Vault Works

The Electronic Vault software eliminates the requirement for locally installed agents because it leverages the protocols, APIs, methods and functionalities that platform, operating system, database and other application vendors utilise 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 Electronic Vault 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 (within our Vault).

Another advantage of the Electronic Vault 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. Electronic Vault has also been highly optimized to conserve both LAN and target-system CPU resources.

The Benefits of Agentless: *Reduced Costs, Robust Security, Simple Scaling*

Implementing an Electronic Vault backup and recovery solution produces immediate and dramatic benefits. Compared to legacy agent-based alternatives, Electronic Vault software offers:

> ***Significant Savings*** - Even if agents from traditional vendors were free, an Electronic Vault solution would still enable huge reductions in operating expenses. As per an estimate, first-year operating expenses alone approach £150,000 for an enterprise environment with 1,000 server agents. 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.
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> ***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. Simply

purchase software the same as disk capacity—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 - Electronic Vault 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 - Electronic Vault 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 traditional agent-based backup/recovery solutions require implementation of high-speed pipes between the central datacentre and remote offices, Electronic Vault enables the effective use of existing links such as DSL.

Robust, Hardcoded Security - Electronic Vault provides both 'in-flight' and 'at-rest' data protection, utilizing up to 256 bits for AES encryption keys to guarantee extremely safe data transfer and storage. And, it works within the organisation's security framework—there are no agents to open hacker-tempting ports in the firewall. With secure data transmission across an IP WAN, the Electronic Vault solution helps businesses achieve compliance, minimise 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 Electronic Vault agentless backup/recovery solution easily accommodates new capacity, new applications, and new sites. Features such as integrated load-balancing ensure efficiency across multiple DS-System IP addresses.

Backup Consistency, Improved Recoverability - The simplicity, efficiency, and security of the Electronic Vault system promote 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.

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