



How ANS DataSafe Works



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OVERVIEW

ANS's DataSafe service performs world class unattended online backup and restore functionality. However, the offering is differentiated from traditional backup/restore software in the marketplace because the ANS DataSafe backup/restore functionality was built for service provisioning from the ground up and incorporates a variety of tools, functions, and architecture specifically for that purpose.

ANS's DataSafe extends the traditional client/server architecture of most data protection and management products available on the market by adopting an “Agentless” architecture. This makes ANS's DataSafe unique because there is no need to install an “agent” or “client” on every target machine that needs to be protected. The “Agentless” **DS Client software** fully integrates with Windows domains, Trusts and Novell® NDS trees, and otherwise adopts the LAN's existing security settings. The only exception to this “Agentless” architecture is for MS-Exchange Message Level Restore (MLR), which requires a small agent on the Exchange server due to Microsoft-imposed restrictions.

ARCHITECTURE

While ANS recognizes that each client's architecture is unique, a generalized architecture is shown in Figure 1. Everything to the left of the IP WAN Internet “cloud” represents the customer environment while everything to the right represents the ANS infrastructure.

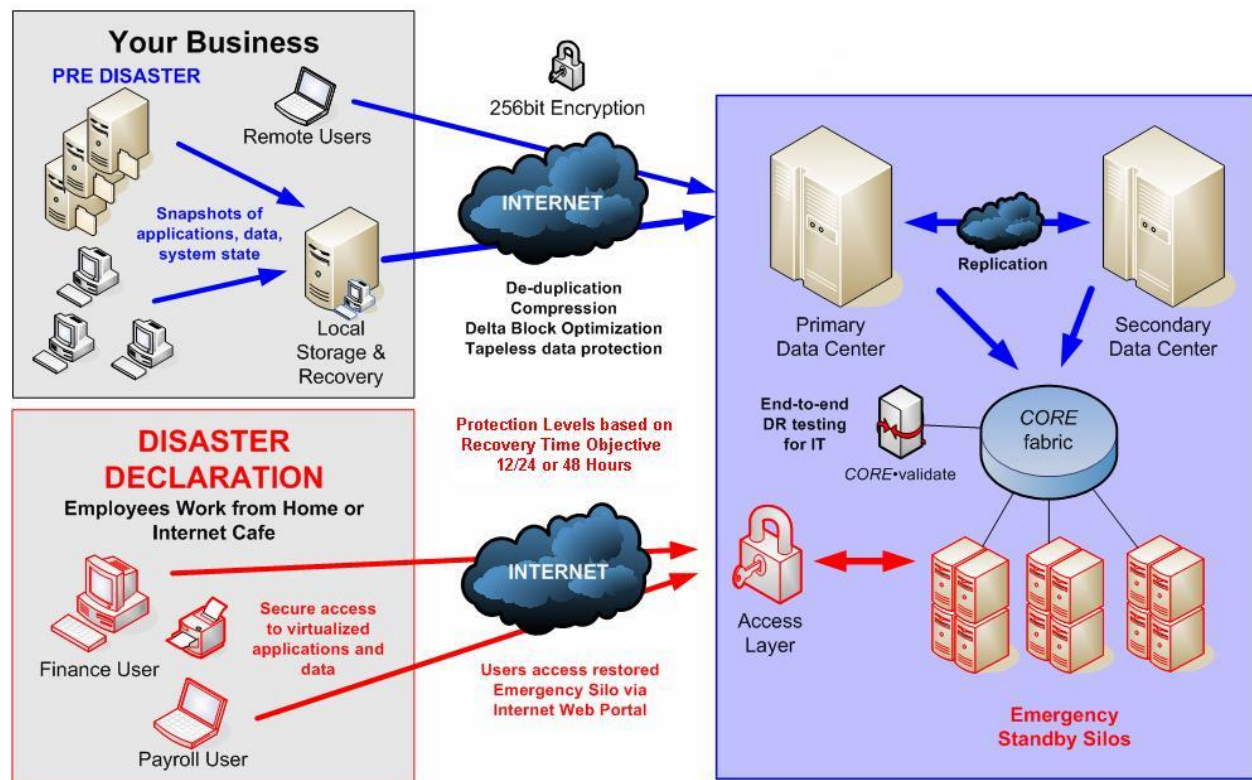


Figure 1 Generalized Architecture

ANS's DataSafe is comprised of the **DS Client software** and an optional **Appliance**. The DS3 Client software (installed at the Customer's premises) runs on customer's hardware and collects data to be protected. The DS3 Client software sends the data in compressed and encrypted format to the data vault.

The **DS Client** software is a Windows service that is always operating to check schedule times, implement file and data block transfers, and perform backups/restores. The **Appliance** is used for enhanced disaster recovery and can be used to store a local copy of backup data and can be used to host virtualized servers in the event a server on the local network fails.

From the diagram above, you can see that only one instance of the **DS3 Client** software can protect data residing in numerous servers and workstations across the network.

DATA BACKUP

The ANS DataSafe Service stores customers' data in encrypted and compressed format to ensure privacy. Moreover, ANS DataSafe optimizes the amount of data stored on the data vault by using *delta blocking* and *common file elimination* technologies. *Delta blocking* ensures that after an initial data back up, no updated file will ever be backed up in its entirety. Rather, we segment the file into 1K and 2K blocks and then back up only those blocks that have changed. This typically provides significant storage size savings over traditional back up techniques where a single change in a file entails the entire file having to be backed up. *Common file elimination* ensures that the same data is never transmitted offsite more than twice, thereby saving the bandwidth to transmit only new, unique data. Due to the way this technique is applied, it does not matter if the files are on different servers, or even have different filenames, the DS Client software will still never transmit more than two copies.

These two processes, along with compression, reduce the amount of data that is stored on the data vault, which is typically a much lower figure than the amount of data that is protected. Since we charge you based on the amount of data stored, we pass these savings onto you.

At all times in the process, your data is encrypted (up to 256 bit AES) so that no one, not even ANS personnel, can access your data. You set the encryption key and thus you control access.

The Appliance retains the latest copy of all backed up data. All previous generations of data (a generation is defined as a backed up version of a file) are stored on the data vault.

DATA RESTORE

The DS Client software allows the authorized customer network administrator to quickly and easily select and restore data. Data can be restored to the original server or to a remote system. Multiple restore operations to separate servers can be performed from a single server, making this particularly suitable for a help desk role.

Any restore of the latest version of the backed up data (e.g. the current MS Exchange email information store) can be accomplished by restoring from the DS Client software. Alternatively, restores of past versions of data involve accessing the data on the data vault.

There are two methods in which data can be restored, each of which represents a unique scale of data restore. The first is Online Restore, where data is restored either from a local Appliance or across the Internet connection from the data vault. The second is Portable ANS Disk Restore where the restore data is delivered via a portable disk or media.

DATA RESTORE - Online Restore

The primary method of data restoration is online. Using a wizard driven GUI, your administrator or help desk personnel can easily search for and select the proper data, its proper generation and the target destination server to enable restores in minutes. There is no need to retrieve tapes, mount them, and then hope that the media was not physically damaged during transfer. Depending on the version of the data, the ANS DataSafe system automatically searches its archives on the DS Client software and Appliance and the data vault to find the optimal location from which to implement the restore.

Typical data size on this type of restore is 1 MB to 10 GB. Larger data volumes are supported through local restore from the Appliance.

DATA RESTORE - Portable ANS Disk Restore

The second method of data restoration is via a portable disk. Using another wizard driven GUI, your administrator or help desk personnel will request that a copy of the backed up data is copied to a portable disk/media. Once our data center staff accomplishes the restore to the disk/media, the disk/media will be transported to your site. Another on-screen wizard will guide your administrator or help desk personnel through the process of restoring the information from the disk/media to a target destination server.

This level of restore is used in instances of major data loss, like a major database server or multiple servers. Typical data size on this type of restore is 10 GB to 100 GB.

BENEFITS

ANS DataSafe can protect a range of network platforms and applications such as Windows, NetWare, UNIX, and Linux based data. NetWare 3 capability includes support for bindery, and NetWare 4 and 5 include support for NDS. Windows environments are fully supported including permissions and streams on NTFS volumes, registry, active directory, and so on.

ANS DataSafe can also backup laptop users while they are on travel, working at home, or working at a customer site. The DS Client software is installed locally on the laptop that periodically (during a specific time schedule) checks for an Internet connection to the data vault. Once a connection is detected, the agent sends the changed data in compressed and encrypted format to the data vault. The agent runs in the background and can be customized to use very little CPU power on the laptop (as low as 5%). The user is notified when two scheduled backups have been missed. Restores can be performed either online, or via a portable disk/media.

MS-SQL and MS-Exchange are fully supported without a need to stop the service or install any agent on the host machine. This is accomplished because Microsoft® developed SQL and Exchange with the backup requirement in mind. Both products can respond to API calls requesting the services to dump their data, while online, to an external destination. The DS3 Gateway simply asks the specified MS SQL

or Exchange server to stream the data to the DS Client software where it is compressed, encrypted and transmitted to the data vault. This process is a totally supported Microsoft® function and guarantees compatibility with your existing Microsoft® systems. Online (also known as “hot”) backups for Oracle 8 are supported.

For MS-Exchange Message Level Restore (known more generically as “Brick Level Restore”), an agent is installed on the MS Exchange server to adhere to Microsoft® requirements. This allows for backup and restore of individual MS-Exchange and MS-Outlook mailboxes and folders (such as contacts or calendar), as well as individual items within the mailbox or folder. The Message Level Restore (MLR) feature allows for restore of mail messages, calendar items, etc while the MS Exchange system *remains online and fully functional* for all users.

FURTHER INFORMATION

For further information about this product, please contact your sales account representative. If you have not been assigned a sales account representative, please visit us at www.ansonline.net or contact us at sales@anscorp.com or (330) 645-4266.