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Case Study: British Red Cross Modernizes Backup to Better Service Remote Offices

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This Case Study examines the British Red Cross' successful implementation of disk-based recovery that leverages block-level, incremental backup with client-side data deduplication. This modernization of its backup and recovery architecture enabled the centralization of backup for 72 of the Red Cross's remote offices and improvements in their overall recovery processes. Organizations looking to improve backup and recovery in general, but especially in remote offices that need to protect file and e-mail data, should consider a similar approach.

Key Findings

- Block-level, incremental backup significantly reduces the amount of backup data that is transmitted to the backup server, which is especially important when the backup is over the WAN.
- Centralizing backup and removing the requirement for small offices to manage tape will increase recovery success.
- Client-side deduplication will aid in the reduction of bandwidth required for backup, as well as reduce the amount of disk space required to store the backup data.
- Replication of data to a disaster recovery site eliminates the need for tape management and transportation.
- Traditional, local backup options may still be appropriate for database applications generating a large volume of data because of the network transmission requirements.
- Examination of the files included in the backup process may reveal opportunities to exclude files, reducing backup time and storage costs.

Recommendations

- Take advantage of a hardware upgrade or contract renewal cycle to re-evaluate your recovery architecture and to look for ways to modernize your approach to backup, recovery and disaster recovery. Server virtualization may also offer new options that were not viable previously.
- Look at the detail around what you are backing up, or not backing up, to fine-tune your procedures to ensure maximum use of resources and to fill holes in your recovery plan.

WHAT YOU NEED TO KNOW

The British Red Cross took advantage of a major hardware upgrade to modernize its backup and recovery architecture. Using Asigra's Televaulting backup product allowed the Red Cross's IT organization to centralize the backup process, moving the company from a tape-based approach for central and remote offices. This reduced backup time and local office involvement, while delivering faster recovery, allowed for the implementation of an improved disaster recovery process.

CASE STUDY

Introduction

The British Red Cross is a nonprofit organization with 222 offices across the United Kingdom. The central office houses the main computer center, with 80 Windows, SUSE Linux and Novell Open Enterprise Server (OES) servers. GroupWise is used as the mail system. Two other data centers house the PeopleSoft financial systems and the call center systems. Of the remaining remote offices, 70 have Novell OES servers for files and GroupWise e-mail, while the rest have only Windows-based PCs.

The Challenge

The Red Cross' backup infrastructure was becoming increasingly problematic. Backup at the central office was exceeding the backup window, even using an approach that allowed for the backup of a server to multiple tape drives. This multithreading approach using EMC NetWorker for backup had helped the organization meet backup windows historically, but resulted in long recovery times because the files had to be pieced together from portions of multiple tapes. Backup of the remote servers was also a problem. The existing approach was to use CA ARCserve to backup the files and e-mail to tape. However, because there were no skilled IT professionals at the remote offices, the management of the tapes lacked discipline and often resulted in problems in finding the right tape when a recovery was required. Disaster recovery for remote office server data was identified as a concern that needed to be addressed. And on top of all this, the amount of data that needed to be protected was growing, so the problem was expected to continue and worsen.

Approach

As part of an upgrade of the organization's computer systems, a new approach to backup, recovery and disaster recovery was included in the project. The maintenance contract with EMC for NetWorker support was up for renewal, and before signing up again, the Red Cross wanted to modernize its approach to backup, with NetWorker or with another technology. The new design required replacement of the tape backup approach with a disk-based solution that would send the backup to the central office. The solution needed to accommodate the various bandwidth constraints of remote office connections and support Novell NetWare/OES and GroupWise, as well as Windows, SUSE and Red Hat Linux.

After talks with EMC, searching the Internet and attending local IT conferences, the Red Cross chose Asigra Televaulting. Working with an Asigra reseller — Backup Technology — a set of Asigra DS-Client servers were set up in the central office to handle local and remote backup to a central DS-System. Each of the three data centers and remote offices has a system running VMware and two virtual machines — one running Novell OES for local file and GroupWise access, and one running Windows XP to run the Asigra DS-Client software. The DS-Client at the

remote offices is configured with 72GB of local disk storage so that a copy of the most current backup can be kept for fast, local recovery needs. After the initial full backup is completed and transmitted, only subfile block-level changes are transmitted to the DS-System vault at the central site. This reduces traffic on the WAN. Global deduplication and compression reduce the amount of disk space needed at the central site, with the added benefit of also reducing the cost of the Televaulting license, which is priced by the amount stored at the central site. The data on the DS-System vault is replicated once a week to another remote site using rsync — an open-source replication product. EMC NetWorker remained at the financial system site to protect the Oracle-based PeopleSoft systems, because it was decided that the large amount of data involved made that system an inappropriate candidate for remote backup over the WAN. The solution is being used to backup a set of PCs in one office, but PC backup was not a goal for this project.

Results

With almost three full years of production use of the new design, the project has successfully met and continues to meet all of its goals. Tape support requirements were eliminated for the local offices, with the central site taking on the responsibility of managing the process and the data. The help desk now has ready access to the data to speed recoveries. Moving to a disk-based backup process with advanced features has allowed the central site to meet its backup windows, improve its recovery speed and disaster recovery process, and allows for the management of the process with the same staff, even as the number of servers and the amount of data has grown.

Critical Success Factors

The British Red Cross identified the following as key to the project's success:

- Asigra's Televaulting disk-based, block-level incremental approach to backup provided the necessary technology to support centralized backup from the remote offices without bandwidth issues becoming a problem.
- Client-side deduplication reduced backup bandwidth requirements and reduced the amount of disk space required at the central DS-System vault site. Because Asigra prices its product based on the amount of compressed space required for disk storage for the backup system, this space-efficient approach to data storage helps keep the cost of the software down.
- The agentless architecture — which required only one DS-Client (and no application-specific clients) to be installed at the remote sites, and only on the backup servers at the central site — provided for ease of deployment, updating and the management of the backup system.
- Support for Novell NetWare/OES, SUSE and Red Hat operating-system environments, and the GroupWise application, eliminated many competitive options, with Asigra being one of the few vendors offering the needed technology to support the whole environment.

Lessons Learned

The migration to the Asigra solution went smoothly, but there was one area that needed attention as the deployment was rolled out. Examining the kind of data being backed up was key to keeping down the cost of the solution. The Red Cross' IT organization learned to identify and exclude from the backup all files that really didn't need to be protected, such as SQL dump export files. Initial and periodic review of the kinds of data in the backup store can identify files that are taking up space unnecessarily.

RECOMMENDED READING

"Options for Enterprise PC Backup Are Still Limited"

"Key Issues in Data Protection, 2008"

"Solutions for Data Protection in the Branch Office"

"Data Deduplication Is Poised to Transform Backup and Recovery"

"Hype Cycle for Storage Software Technologies, 2008"

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