

Leading cash-handling provider regains control over backup windows and administration



ESSENTIALS

Challenges

- Backup windows running into production hours
- Unreliable backup servers and tape failures
- Slow recovery times

Solutions

- EMC Data Domain deduplication storage systems
- EMC Avamar deduplication backup software
- EMC NetWorker unified backup and recovery solution
- EMC Data Protection Advisor (DPA) backup management software
- EMC RecoverPoint remote data protection

Key benefits

- Microsoft Exchange backups slashed from nearly 24 to six or seven hours
- Microsoft SQL Server backups completed in two hours compared to five to six hours
- Recovery times improved from hours to just minutes
- Tapeless branch backup operations reduced server refresh cost by \$130,000
- Daily full guest and image-level backups protect growing virtualized environment

Loomis is an international cash-handling leader with origins from California's gold rush in the 1850s. Today, Loomis' U.S. operations include an electronic network of nearly 200 locations; 8,000 employees; and approximately 3,000 armored and other vehicles for secure transport, automated teller machine (ATM) services, cash processing, and vault services.

At the corporate data center, rapid growth of Loomis' mission-critical applications, including Microsoft SQL Server and Exchange, was leading to longer backups and straining backup administrative resources. At the time, Loomis was using a combination of Computer Associates' BrightStor ARCserve and Symantec NetBackup to manage a physical tape backup environment.

"When we became a public company, we began investing heavily in data mining, business intelligence, and other new applications," says Bill Homes, vice president of IT infrastructure. "Our SQL Server infrastructure was growing especially fast since it touches almost every one of our customer transactions. With all this new data, we filled up a 20-terabyte tape library in only six months, and soon our backup windows were running into production hours."

For branch office data backup, Loomis used BrightStor ARCserve and tape systems to protect servers in 67 field locations responsible for delivering cash to ATMs, banks, and other sites. Yet, backups were unreliable, restores could take up to two weeks, and backup administration consistently consumed valuable IT staff time.

Homes says, "Our integrated stand-alone server backups had a high failure rate due to contaminants in the environment, which was disrupting our operations because we needed to bring down the servers to repair them. If we miss deadlines for reporting nightly deposits to the banks, we've got financial penalties and non-compliance issues."

COMPREHENSIVE BACKUP AND RECOVERY

Based in Houston, Texas, Loomis has implemented EMC® Data Domain® DD600 Appliance series deduplication storage systems with EMC NetWorker® backup and recovery software to protect its mission-critical Microsoft SQL Server infrastructure, which manages its data warehouse, cash ordering, Loomis SmartSafe, and other applications. Exchange, SharePoint, Oracle, and file sharing are also protected by Data Domain.

In addition, Loomis depends on a replicated, two-node EMC Avamar® backup and recovery deduplication solution to back up its IBM DB2 cash management application and documents on servers in 67 branches across the U.S.

After successfully resolving branch data protection issues, Avamar was chosen to provide daily full guest and image backups of a growing virtual server environment, which involved upgrading to an Avamar RAIN6 GEN3 Grid system with Avamar Virtual Edition. This greatly enhances the company's recovery-time objective (RTO) for key mission-critical applications—including truck dispatch and tracking, safe polling, financial reporting, time tracking, and Microsoft SharePoint—by providing application image-level recovery of the virtual machines.

“EMC’s close partnership with Microsoft ensures we’ll continue to find excellent integration between EMC backup solutions and new product releases like SQL Server 2012. EMC gives us flexibility so we can easily scale and move strategically ahead as our needs change.”

BILL HOMES
VICE PRESIDENT OF IT INFRASTRUCTURE

EMC Data Protection Advisor software provides Loomis with centralized backup reporting for both Data Domain and Avamar. The Avamar and Data Domain systems are replicated to Loomis’ remote disaster recovery site for additional protection. Loomis also uses EMC RecoverPoint to provide continuous data protection (CDP) of SQL Server, Exchange, and Oracle between its primary and remote sites. While EMC MozyPro® is implemented to remotely back up laptops used by Loomis’ field-based employees, Loomis is evaluating Avamar desktop/laptop functionality for this purpose.

EMC unified storage solution manages Loomis’ critical application data, files, and virtual machines. Loomis has virtualized 70 percent of its overall infrastructure to date. In addition, Loomis has streamlined backups of its EMC unified storage using EMC SnapSure™ and EMC NetWorker NDMP Storage Node configuration, which streams data at the device level at four gigabytes over the fiber network.

DATA DEDUPLICATION SHRINKS BACKUP WINDOWS, EASES ADMINISTRATION OF MISSION-CRITICAL APPLICATIONS

Since deploying EMC Data Domain appliances, Loomis has reduced its backup storage requirements, which has increased onsite and online retention of backups, decreased time to back up and restore, significantly decreased administration of backups, and almost entirely removed its reliance on tape.

For example, since implementing Data Domain systems, Loomis has benefitted from an overall data reduction ratio of 14.8 times across its application workloads—only requiring 10.7 terabytes of capacity to protect 158.7 terabytes of backup data. In addition, the system is ingesting 4.7 terabytes of data daily, but Data Domain deduplication architecture has reduced this by 12.4 times. As a result, the system only requires 313.7 gigabytes to protect the 4.7 terabyte data set.

“Because our backup sets are smaller with Data Domain’s deduplication, we can keep backups onsite for 30 days instead of just a week,” says Hoang Tran, systems engineering manager. “And we’ve accomplished this even as our infrastructure has grown. We also no longer generate tapes every night and instead do a quarterly tape-out.”

Data Domain systems and NetWorker software also have enabled Loomis to decrease the time it takes to back up all of its large high-change-rate databases and file systems.

“Our backups were taking so long that users were saying that the network and system response time was too slow,” recalls Homes. “Once we implemented Data Domain, those complaints disappeared. SQL Server, which is the heartbeat of our most critical applications, is now backed up in two hours compared to five or six hours.”

In addition, Exchange backups have been cut from 24 hours to just six to seven hours and recovery windows from hours to minutes. Exchange backups, which were unreliable and only completed half the time, now have nearly 100 percent success rates.

With the Data Domain systems and NetWorker software, restores are completed in 15 minutes or less on average—and with much reduced administrative effort—compared to several hours before when restoring from tape.

DAILY FULL BACKUPS AT BOTH THE FILE AND IMAGE LEVEL

For branch offices and virtualized data center operations, Loomis uses Avamar software to obtain daily full backups by only sending new, unique sub-file data segments. Branches move 800 gigabytes nightly compared with 50 terabytes to tape before Avamar. Average daily full backups for branches execute in 45 to 60 minutes today compared to two to three hours for previous daily increments.

“We’re pulling very little data over the wire across thousands of miles,” says Tran. “So we’re getting full backups every night that easily complete within our window.”

Before the Avamar deployment, Loomis was limited to file-level backups of its virtual machines since it didn’t have enough backup storage capacity for image-level backups. Now, daily full image backups of virtual servers are completed in 10 to 12 minutes.

“With Avamar’s excellent integration with our virtualized infrastructure, we’re able to protect this environment at the file and image level with minimal disruption to the production systems,” says Tran. “And we do all this without requiring additional staging server resources.”

STABILITY, CENTRALIZED REPORTING STREAMLINE BACKUP OPERATIONS

Backup administration is consuming significantly less time for both data center and branch personnel. For example, backup reports on both Avamar and Data Domain, generated by Data Protection Advisor, (DPA) provide an accurate, streamlined view of backup status on a daily basis.

“DPA’s reports on Data Domain are very granular and extensive,” says Tran, “and give us a lot of insight so we can forecast better. NetWorker helps us manage both our Data Domain and tape environments as we transition to a tapeless infrastructure. It takes less time when we have centralized control.”

Loomis IT also credits Avamar software with significant time savings.

“One of the best things about Avamar is that it frees storage engineers to do storage engineering,” notes Homes. “Plus, it eliminated two operations jobs focused on monitoring backups and helping the branches with restores. Now when we get a restore request, the user has the file before we’re off the phone. Avamar just works. You look at the logs once a day. You don’t have to babysit like you do with tapes. That’s a huge time savings.”

In addition, audit compliance is easier due to more reliable backup executions, improved backup reporting, and faster backups and restores. Auditors also value that Data Domain systems and Avamar software are fully replicated at an alternative site.

INVESTMENT PAYBACK IN 24 MONTHS

Loomis attributes significant tape cost reductions and management time savings to the Data Domain and Avamar solutions. Loomis estimates its Data Domain investment paid for itself in 24 months and Avamar generated a return on investment in eight months.

Homes explains, “With Data Domain, we no longer send out 30 tapes per week offsite and have eliminated all tape backups of our critical systems. So, we’re spending less on tapes, transportation, and offsite storage, not to mention less risk and reduced time to manage the environment.”

Because branch servers no longer need to be equipped with tape drives, Loomis saved over \$130,000 when it refreshed them with smaller platform servers.

UNIFIED BACKUP AND RECOVERY SIMPLIFIES MANAGEMENT

Looking ahead, Loomis is planning to expand its use of EMC backup and recovery technologies to increase efficiency and data protection even more. For example, Loomis is evaluating Data Domain Archiver to facilitate a move to a completely tapeless infrastructure and Data Domain Boost software to further improve backup performance and integration between the technologies.

Loomis also sees streamlined integration across EMC backup and recovery solutions and Microsoft's application suite as a major advantage.

"We plan to get all our backup and recovery into one unified architecture," says Tran.

"EMC gives us the option to manage all of them—disk, tape, physical, virtual, and multi-vendor—from a single pane and simplify our backup administration."

Homes adds, "EMC's close partnership with Microsoft ensures we'll continue to find excellent integration between EMC backup solutions and new product releases like SQL Server 2012.

EMC gives us flexibility so we can easily scale and move strategically ahead as our needs change."

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