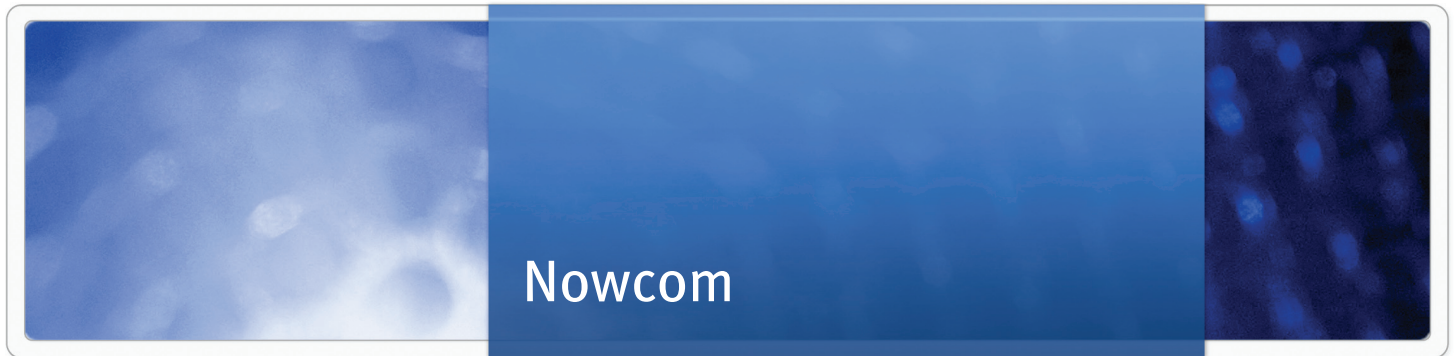


CUSTOMER PROFILE



Delivery time cut with EMC RecoverPoint



Only five years ago, small car dealerships relied on newspapers to advertise their automobiles for sale and paper documents to manage their finances, insurance, credit reports, inventory, and other functions. As the Internet has grown as a new channel for automobile sales, and online solutions for smaller dealerships have become available, small to medium-size dealerships have dramatically changed the way they do business.

Nowcom has become a major force in this market with the introduction of Dealer Center[®], an online dealer management solution, which today is used by 5,000 dealers across the United States. Small and medium-size dealerships rely on Dealer Center's integrated access to credit, financing, and insurance agencies. They also use the secure site to store and manage their financial information.

Because of Dealer Center's widespread adoption, Nowcom's business has grown at a 30 percent rate over the last two years. In turn, there has been dramatic growth of Dealer Center's SQL Server 2005 database, which stores inventories and other valuable data for its dealership customers. As a result, Nowcom's former recovery solution was no longer keeping up with its growing data assets and presented a recovery risk that emerged as one of its primary IT challenges.

Business success demands new disaster recovery solution

With headquarters and a primary data center in Los Angeles, California, Nowcom needed a recovery solution that would protect the business and its customers from the risk of data center failure caused by several regional factors, including earthquakes, sensitive power grids, and civil unrest. Even taking its SQL Server database offline for upgrades and other routine maintenance was no longer acceptable to Nowcom.

For example, if Dealer Center was down for one hour, Nowcom estimates its customers would lose \$50,000 to \$100,000 in combined sales and Nowcom's reputation would be severely damaged. To avoid such a scenario, Nowcom overhauled its disaster recovery infrastructure to ensure dealership customers had reliable and secure access to their business-critical information 24x7.

Central to Nowcom's new disaster recovery environment is EMC[®] RecoverPoint, a network-based, data protection solution that provides continuous data protection (CDP) and continuous remote replication (CRR). Along with a tiered EMC storage infrastructure, RecoverPoint is used to continuously replicate Nowcom's SQL Server database from its primary data center to a remote recovery site, shrinking its RTO by 99.9 percent. Nowcom also has achieved a 98.9 percent RTO improvement with EMC Celerra[®] Replicator software for recovery of iSCSI and network-attached storage (NAS) files over an IP network.

With increasingly automated recovery functions, Nowcom has significantly increased availability of its critical information assets while enabling its IT administrators to spend less time on recovery tasks and more time on functions aimed at growing the business and improving customer service.

SQL Server database growth creates recovery risk

Prior to implementing EMC RecoverPoint, Nowcom's recovery solution for Dealer Center utilized SQL Server log shipping. In this environment, the SQL Server database automatically backed up transaction logs and "shipped" them, using FTP, to a standby server in the data center.

If there was an issue with the SQL Server database or Nowcom needed to take it offline to conduct routine maintenance, the logs could be replayed on a standby server in production mode. This worked well until the database grew so large that the log shipping process began failing frequently. In addition, as Nowcom's customer base grew and Dealer Center's website activity reached 7,500 hits hourly, the Internet bandwidth was severely strained. As a result, log transfers would slow down and the primary and standby servers would become increasingly out of synch.

Soon, Nowcom's SQL database administrator was spending half of his time repairing broken log shipping links and manually overseeing SQL Server log shipping process. With all of these issues, Nowcom realized their ability to recover from an SQL Server failure would be only partial and take up to two weeks since the backed-up logs were often several hours or even days behind the production database. And if a catastrophe completely disabled the data center, it would take several months to rebuild and resume operations.

Initially, Nowcom deployed Idera's SQL Safe backup and restore solution to compress the database. However, only 30 days passed before this compression was not sufficient to keep the database small enough to support reliable SQL Server log shipping.

Implementation choices—one week vs. four-to-six months

Nowcom's first step toward improved recovery was to build a co-location facility 20 miles away from the primary data center that would serve as a recovery site for Dealer Center and other critical applications. Then, Nowcom examined solutions that would enable their main applications to recover in less than two hours.

First, Nowcom evaluated the option of in-house development, which would have involved a complete redesign of Nowcom's backend IT infrastructure and the full-time attention of their 20-plus-person development team over a four-to-six-month period. Since Nowcom could not afford to completely dedicate their development team to this project, they began reviewing off-the-shelf solutions.

Already an extensive user of EMC infrastructure storage solutions, Nowcom selected EMC's RecoverPoint CRR solution, an industry-leading technology for advanced disaster recovery, to protect its Dealer Center environment. By deploying RecoverPoint to replicate its existing infrastructure, Nowcom was able to protect its technology investments.

Nowcom also decided to contract with EMC Global Services to assess their recovery requirements as well as design and implement the solution. By working with EMC Global Services, Nowcom was able to leverage EMC-developed and qualified best practices for deploying EMC replication into application environments.

One of EMC Global Services' first steps was to evaluate and ultimately recommend that Nowcom have adequate bandwidth requirements to support the replication of the SQL Server database to the co-location facility. For the replication topology, they recommended and designed appropriate storage and server configurations at the main data center and co-location site.

It took only one week for EMC Global Services to design and implement the RecoverPoint solution for Nowcom. EMC Global Services installed two RecoverPoint appliances, one each at the main data center and remote site, connected them to dual Dell PowerEdge 2950 servers running SQL Server, and set up additional connections to the network and existing infrastructure.

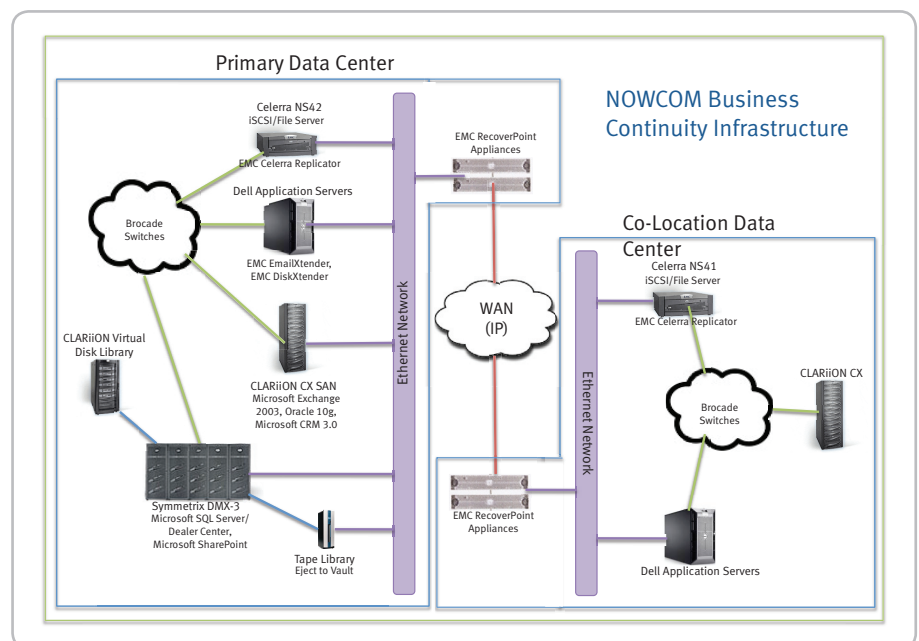
“When RecoverPoint was installed, we couldn’t believe how the replication just snapped into shape. We recently discovered we were replicating an extra 95 gigabytes of data to our co-location site and we didn’t even know it despite the added wear and tear on the system. That’s how flawless everything has been.”

Ryan Jacobson
IT Manager, Nowcom

Multi-level recovery

At each location, Nowcom uses Microsoft SQL Server database mirroring to replicate Dealer Center data between the Dell PowerEdge servers for local redundancy. For extended-distance recovery, RecoverPoint facilitates asynchronous replication between the sites in both directions over a 50-megabit Internet wide area network (WAN). See Figure 1.

Figure 1: Nowcom Business Continuity Infrastructure



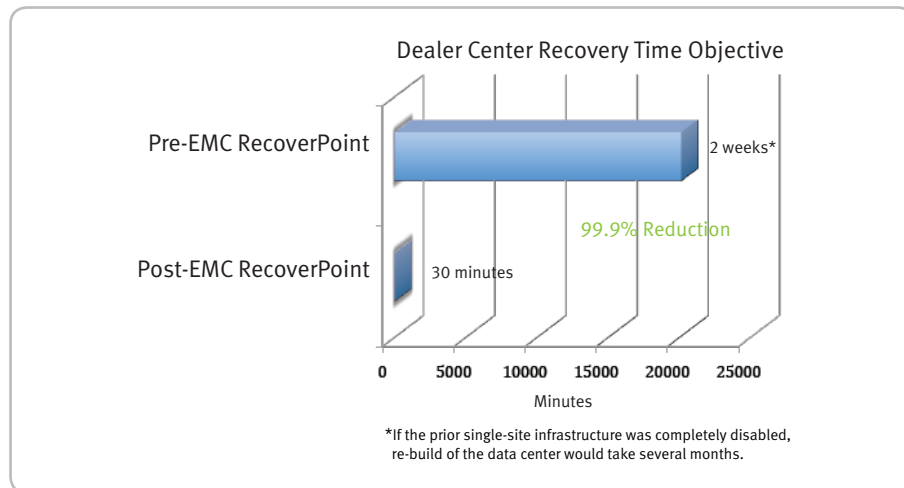
The RecoverPoint CRR solution is integrated with Nowcom’s 72-terabyte EMC storage infrastructure which includes an EMC Symmetrix® DMX-3 storage area network (SAN) for storing all of Dealer Center’s information, such as customers’ inventories and vehicle reports, at the main data center. The RecoverPoint appliances have been assigned a protected LUN identifier on the Symmetrix where the live Dealer Center data is stored and continuously replicated to the RecoverPoint appliances and a LUN identifier on an EMC CLARiiON® CX-series SAN at the co-location facility. At each site, the RecoverPoint servers are networked to the SANs via an Ethernet network.

For additional redundancy, Nowcom backs up live SQL Server production data to an EMC disk library. Every night, Nowcom uses Symantec’s Veritas NetBackup software to back up the disk library data onto LTL3 tapes. On a weekly basis, the tapes are trucked to a remote Iron Mountain facility 100 miles away for long-term storage.

Faster, high-performance data recovery

Since implementing RecoverPoint, Nowcom has significantly improved its ability to recover from a major failure at its data center. In monthly tests, Nowcom is able to completely recover Dealer Center at the remote site in 30 minutes or less (see Figure 2). These results exceeded Nowcom's original RTO of two hours for the new disaster recovery solution.

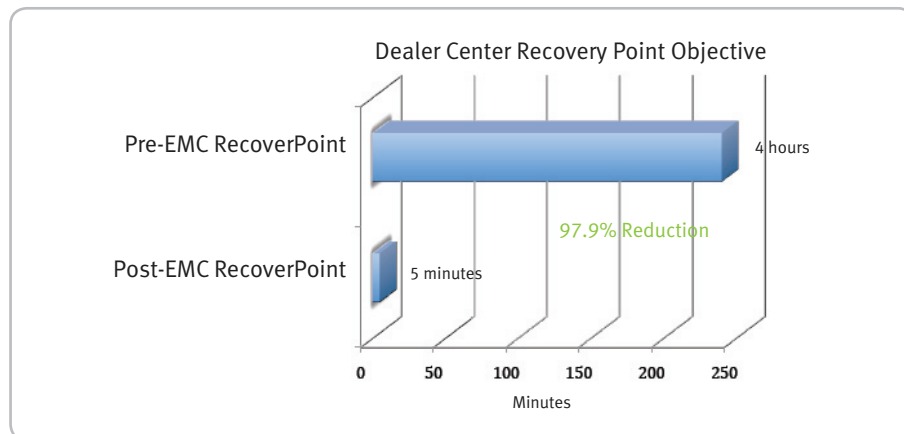
Figure 2: RTO Decreased from Two Weeks to 30 Minutes



If the Dealer Center application goes offline, all web activity and communications are directed to the co-location facility. When the main site becomes operational again, Nowcom changes the synchronization so that the co-location facility begins replicating to the main site until Dealer Center is fully powered up and then replication resumes from the main site to the co-location facility.

With RecoverPoint CRR, Nowcom is ensured that its recovery-point objective (RPO) is never more than five minutes behind the production environment. That is a dramatic improvement over its former RPO of three-to-four hours (see Figure 3).

Figure 3: RPO Decreased from Four Hours to Five Minutes



RecoverPoint allows Nowcom to select the exact point in time of recovery. For example, if the SQL database was corrupted, Nowcom could choose to recover from any time period before the corruption occurred. Previously, it would have to recover from a point the day before, resulting in the loss of several hours of data and requiring administrators to painstakingly reconstruct the database.

When Dealer Center experiences spikes in activity, such as when thousands of customers download a software update, RecoverPoint's intelligent monitoring automatically meters transfers to avoid replication errors. The more efficient use of bandwidth also has allowed Nowcom to postpone investing in additional bandwidth even as its information infrastructure continues to grow.

As originally configured, RecoverPoint was replicating an additional copy of the SQL Server database that was targeted for tape backup. As a result, replication transfers had increased from 100 gigabytes to 130 gigabytes. Due to RecoverPoint's ability to adjust to the increased load without impacting the other replication transfers, Nowcom's IT staff didn't even notice the discrepancy until it was brought to their attention later.

“We’ve had a lot of infrastructure challenges and EMC’s consultants had the expertise to address all our requirements—whether it’s replication or server performance or tiered storage. They come in and check out our environment, recommend and implement a solution, and then test everything to make sure it all works. If there’s a problem, they’re all over it until the issue is resolved.”

Ryan Jacobson
IT Manager, Nowcom

Cost and time savings with recovery automation

EMC RecoverPoint has reduced downtime recovery costs in other ways as well. Before RecoverPoint, Nowcom administrators would take the SQL Server database offline for two days over a weekend to perform maintenance, such as testing or data migration. Today, Nowcom uses RecoverPoint to recover the database at the remote site and run it in production mode while maintenance occurs at the main data center without any downtime at all.

As a result, Nowcom administrators are able to conduct maintenance and testing more frequently and efficiently, helping to improve the stability and cost effectiveness of the Dealer Center infrastructure and ultimately bring new product features to market faster.

In addition, the automation provided by RecoverPoint has freed Nowcom administrators from labor-intensive replication tasks and reactively responding to availability issues. As a result, RecoverPoint has opened up more time in their schedule for IT projects focused on delivering value to customers and helping to increase IT productivity and competitive advantage.

Overall infrastructure—tiered storage

Three years before implementing RecoverPoint, Nowcom required additional speed, performance, and reliability for its storage environment as its information assets and business had grown. Nowcom considered Network Appliance's solution suite, but determined its feature set and performance was too limited and did not cover all of their requirements.

Ultimately, Nowcom decided to replace its direct-attached storage arrays with a centralized and multi-tiered EMC storage infrastructure. Not only did the EMC infrastructure deliver dramatically improved performance and reliability, but it also allowed Nowcom to achieve economies of scale and simpler information management with EMC's centralized environment.

To support its tiered storage strategy, Nowcom assigns different tiers of EMC storage to specific applications to ensure the most productive and cost-effective use of storage assets. At the primary site, for example, SQL Server and SharePoint Server are stored on an EMC Symmetrix DMX-3 SAN. EMC CLARiiON networked storage handles Exchange 2003 e-mail and an Oracle 10g database. And an EMC disk library supports disk-based backup, while an EMC Celerra NS42 IP NAS solution is targeted for iSCSI and NAS file serving. The co-location facility houses a CLARiiON CX-series SAN for the replicated SQL Server data and a Celerra NS41 server for replicated IP storage.

Nowcom also uses advanced EMC software such as EmailXtender® for archiving Exchange 2003 e-mails and EMC DiskXtender® for file archiving.

IP NAS boosts performance

One of the issues the new EMC infrastructure solved for Nowcom was a lack of resources for its former cluster of active-active Windows-based 2003 file servers. Users began reporting they couldn't open up their Microsoft Word documents and other files and were receiving anomalous errors on their desktops. Initially, Nowcom IT thought the desktops were causing the problems, but they soon realized their file server had exceeded the theoretical limit of 64,000 concurrent connections and lacked the resources to serve files to users.

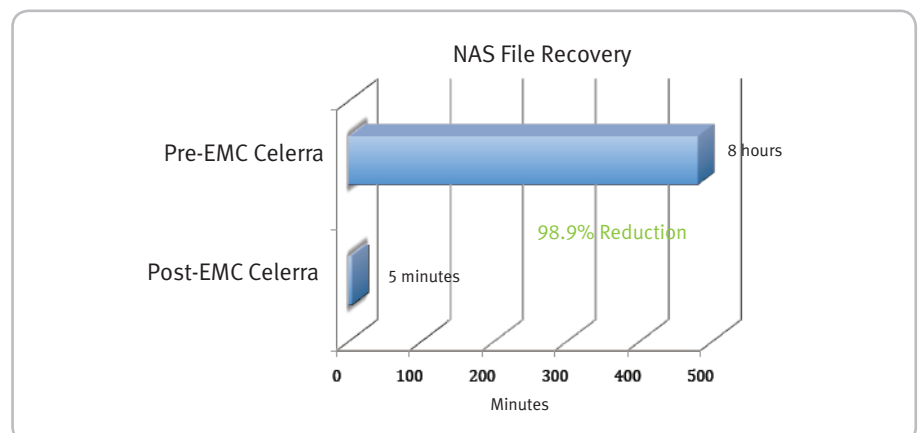
In response, Nowcom replaced the file server with an EMC Celerra NS42 IP NAS solution and the performance issues instantly disappeared and file availability improved.

“When our Windows file server was running out of steam and users could not open Word and other applications, we replaced it with EMC’s Celerra IP file server. The resource issues went away and the performance and availability have been outstanding ever since.”

Andrew Gunawan
Senior System Architect, Nowcom

In addition, Nowcom uses Celerra Replicator™ software for IP replication of NAS files residing on its Celerra NS42 to a Celerra NS41 located in its co-location facility. Now when a server or a desktop fails, Nowcom IT can recover files in five minutes or less compared with the eight hours it used to take to locate the tapes, read the tapes, and recover the appropriate files (see Figure 4). In addition, availability of Nowcom’s file serving environment has increased from 90 to 99.9 percent since deploying EMC Celerra.

Figure 4: File Recovery Reduced from Eight Hours to Five Minutes



Expanding recovery across the enterprise

Because of RecoverPoint's success with Dealer Center, Nowcom is planning to use the solution to replicate and protect other applications, such as Microsoft CRM 3.0. With RecoverPoint's ease of use across different storage tiers, Nowcom is looking forward to extending RecoverPoint to protect all of its critical business applications regardless of where they are stored. With a single enterprise-wide replication solution, Nowcom will be able to further reduce training, maintenance, and operational costs for its recovery infrastructure.

Eventually, Nowcom plans to move its co-location facility to another location hundreds of miles away. For now, Nowcom needs the remote site to be within driving distance as it continues to expand its use of RecoverPoint features, such as automated replication, and rolls out additional components of the EMC storage infrastructure. To improve efficiency and data protection even more, Nowcom is also evaluating replacing its tape backup infrastructure with the EMC Disk Library DL3D 1500 solution at both sites to provide automated backup-to-disk with data de-duplication and replication.

Nowcom also plans to expand its use of RecoverPoint CRR from long-distance replication to include local replication of its SQL Server database to an alternate server in the main center using RecoverPoint CDP. Nowcom developers will be able to create a staging environment for the SQL Server database and other applications and test them onsite without needing to replicate them to the remote location. RecoverPoint's concurrent local and remote (CLR) replication capability will enable Nowcom to leverage their existing CRR investment by adding licenses to support CDP for the SQL staging environment. Nowcom also will utilize the CLR functionality to concurrently replicate the SQL database locally with any-point-in-time recovery, as well as remotely, and still maintain their existing RPO.

Server virtualization with VMware® is another initiative that eventually will be integrated with RecoverPoint. Nowcom is investigating consolidating its growing web server environment onto VMware virtual machines and replicating the virtual machines to the co-location site for additional protection using VMware Site Recovery Manager for automation and orchestration of server failover.



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