

Lewisville Independent School District

EMC backup and recovery solutions support innovative digital learning environment



ESSENTIALS

Industry

K through 12 education

Organization Size

More than 60 schools serving 50,000 students in 13 Texas cities

Business Challenges

- Outdated IT infrastructure did not support digital learning initiative
- Tape backups and restores were slow, costly, and inefficient

Solutions

- EMC Avamar
- EMC VNX unified storage
- EMC FAST Suite
- EMC RecoverPoint
- EMC Data Protection Advisor
- VMware vSphere
- VMware vCenter Operations Management Suite
- Microsoft Exchange
- Microsoft SQL Server

CUSTOMER PROFILE

OVERVIEW

Encompassing 127 square miles in suburban Dallas-Fort Worth, Texas, Lewisville Independent School District (LISD) serves 13 cities and more than 50,000 students at more than 60 elementary, middle, and high schools. More than 38 LISD schools have received the “Exemplary” rating and 20 schools have earned the “Recognized” rating by the Texas Education Agency. In addition, six LISD schools have been named National Blue Ribbon Schools of Excellence, the highest designation a school can earn from the U.S. Department of Education.

BUSINESS CHALLENGES

LISD is on the forefront of digital learning. As one of 23 schools chosen to participate in a national network focused on digital conversion, the district launched its 1:X initiative to create a culture of instruction with digital tools. With the goal of giving any student access to data anywhere and at any time, the district has distributed iPads to 29,000 students with hopes of reaching 53,000.

“Our vision is to empower students to use technological tools to access, create, and share content as well as collaborate with other learners throughout the world,” explains Patrick Johnson, manager of network and technical services, LISD.

To drive this ambitious initiative, LISD needed a comprehensive upgrade of its technology and network infrastructure—much of which was foundational, outdated, and inefficient. The goal was to build a well-designed wireless infrastructure to enable any WiFi-capable device including laptops, smartphones, and tablet computers. A major component of the project was virtualization, which the district viewed as a critical game-changer for resource utilization.

A particular target for the upgrade was LISD's costly and inefficient tape-based backup and recovery systems. Backup and restore times were falling far short of the district's SLA—backups of certain applications were taking more than 24 hours. In addition, the district had more than 3,000 tapes to manage, making restores slow and labor-intensive for LISD's limited IT staff. LISD wanted to eliminate tape and turn to disk-based backup.

SOLUTIONS

LISD turned to EMC to meet its data storage, backup, and recovery requirements. The district implemented EMC® VNX® unified storage with the EMC FAST™ Suite (including FAST Cache and FAST VP) to support its virtualization plans. The district replaced its tape backup environment with EMC Avamar® deduplication backup software and system, which provides rapid backups for all LISD data—from email and user files to Microsoft SQL Server databases.

Results

- Saved \$2.2 million over three years via tape elimination
- Reduced time to back up 28 terabytes of data from 24 hours to 40 minutes
- Achieved deduplication rate of 99 percent, boosting network performance

"Compared to the other solutions we evaluated, Avamar was a significantly better price for the amount of data it enabled us to back up," explains Johnson. "Not only was Avamar the best fiscal and operational choice for our virtual infrastructure, but it has also reduced our backup and restore times exponentially. Avamar enables us to back up our complete data set to more reliable disk-based media and gives us peace of mind that we can easily restore data if needed."

EMC RecoverPoint® enables highly efficient replication to a legacy EMC unified storage system at the district's offsite DR site. RecoverPoint provides the school systems with an RPO of three to five minutes and an RTO of four hours for critical virtual machines. LISD has virtualized 85 percent of its environment with VMware® vSphere™, including its critical applications such as Microsoft Exchange and Microsoft SQL Server. The district plans to be fully virtualized soon.

LISD uses EMC Data Protection Advisor (DPA) to monitor and report on a full range of performance metrics in the virtual environment, as well as Avamar backups. DPA also enables the IT team to provide charge-back reports showing departmental system usage for justification purposes. LISD also uses VMware vCenter™ Operations Management Suite™ for analytics and metrics on the virtualized environment's performance, capacity, and configuration.

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Manager, Network and Technical Services, Lewisville Independent School District

Paul Letbetter, LISD Engineer, adds, "EMC's proven track record of producing and supporting the industry's most reliable storage arrays made our decision to purchase VNX an easy one."

DRAMATICALLY FASTER BACKUP AND RECOVERY

At LISD, the Avamar NDMP accelerator node is able to complete a full, 28-terabyte backup of its entire block and file environment, stored on the VNX, in only 40 minutes—a drastic reduction from the previous 24-hour window. The company's total backup size is 97 TB on two Avamar grids after deduplication and compression. LISD can complete full backups in only three to four hours—an operation that used to take most of the week.

EMC RecoverPoint supports planned and unplanned failover and failback for one or all of the VMs. The advanced source-side deduplication of Avamar ensures that only 150 to 200 gigabytes of data cross the wire daily. This phenomenal 99 percent deduplication rate reduces the bandwidth required for data backup and keeps the network operating at peak performance.

In addition, the ability of Avamar to bring VMs back online very rapidly is critical for LISD's disaster recovery and business continuity. Avamar leverages VMware Changed Block Tracking for the image-level backups and recoveries, enabling the district's IT team to rapidly restore a VM by delivering only the needed blocks from the last backup to the current state of the VM.

SIGNIFICANT COST SAVINGS AND EFFICIENCIES

According to Johnson, the combination of virtualization, elimination of tape, and greater backup and recovery efficiencies has yielded significant savings. The district estimates that its compute costs have been reduced by at least 60 percent. In addition, it projects that eliminating tape will reduce costs by at least 40 percent, or a savings of \$2.2 million over a three-year period.

"Virtualization and disk backup deliver cost savings not only with hardware but also energy consumption, port count usage on the network, and Fibre Channel gear. And then there are tremendous new efficiencies for our IT staff," Johnson says.

Letbetter adds, "Since Avamar has allowed us to go completely tapeless, our team has recovered much-needed time to focus on other tasks. We no longer have to deal with tape and tape drive failures, or the cost of purchasing tape stock."

A TRUE PARTNERSHIP

LISD first implemented VNX on the advice of its former partner. But the advice was incorrect, and the array was undersized, causing problems. Letbetter says that EMC, and in particular, LISD's EMC account representative, really saved the day by bringing in a right-sized VNX with the FAST Suite.

"I can't say enough about our EMC account representative. He is responsive even on weekends and cares about our account more than any rep with which I've ever dealt. I really can't say enough about him and how much he has helped us," says Letbetter.

A LEARNING FOUNDATION FOR THE FUTURE

Johnson summarizes the value EMC has brought to LISD.

"Today's student learning environments require a stable, highly-available, and agile technology infrastructure to meet the requirements of applications and user data," he explains. "EMC has provided all of that and more, including five-nines availability, system redundancy, data protection and business continuance, and data deduplication. With the reliability provided by EMC, we can support the storage needs of our students and staff and recover data almost instantaneously when needed. The solution is highly scalable and was architected to meet LISD's needs for years to come."

CONTACT US

To learn more about how EMC products, services, and solutions can help solve your business and IT challenges, [contact](#) your local representative or authorized reseller—or visit us at www.EMC.com.

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