NO
COMPROMISES

McAllen ISD simplifies its messaging, storage and backup infrastructure while reducing power and cooling requirements by a projected 86%

CHALLENGE
McAllen Independent School District (MISD) needed to consolidate two separate, legacy email systems and improve the reliability and manageability of its server, storage and backup infrastructure.

SOLUTION
Dell helped the district migrate to Microsoft® Exchange Server 2007 running on Dell blade servers and Dell™ EqualLogic™ storage with a CommVault backup and recovery solution.

BENEFITS
RUN IT BETTER
- Two email systems consolidated onto one
- Approximately 50% less management time required to maintain email system
- 75% improvement in storage utilization by consolidating direct-attached storage onto EqualLogic SAN
- 75% reduction in backup time for Exchange database
- 100% backup success rate for Exchange database
- Able to accommodate file-level restore requests
- Anticipated compliance with upcoming Texas archiving regulations
- Projected tenfold increase in average CPU utilization (70% vs. 7%)

GROW IT SMARTER
- Exchange migration completed on time (6 weeks) and under budget
- 30-40% savings with iSCSI vs. Fibre Channel SAN
- Able to allocate storage for new virtual machines in minutes
- Projected 86% reduction in data center footprint, power and cooling costs

DELL

Located at the southern tip of Texas in the Rio Grande Valley, along the United States' border with Mexico, lies the city of McAllen. Its lush palms, subtropical climate and relatively low cost of living make it one of the fastest growing cities in the country.

"DELL BRINGS FORTH A LOT OF ENGINEERING EXPERTISE AND EDUCATIONAL RESOURCES, SO IT MADE IT EASY FOR US TO MAKE DECISIONS BASED ON DELL'S RECOMMENDATIONS AND EXPERIENCE."

Pat Karr, coordinator for network services and support, McAllen ISD

When cities grow quickly and public school enrollments rise, school districts are often challenged to do more with less. With help from Dell, McAllen Independent School District recently put a technology infrastructure in place that will help ensure the district won't have to compromise when it comes to delivering the best possible education to its students.

THE PARTNERSHIP FACTOR

Like many districts, McAllen had a variety of rack-mount servers in its data center with poorly utilized, internal storage. Email systems ran on hardware that was nearing end of life. Backups were a headache, recovery was impractical, and rumors of new State of Texas archiving regulations that McAllen would not be able to meet were beginning to circulate. When McAllen ISD's technology department was able to secure funding to improve the situation, it sought a partner that would be able to provide not only reliable, cost-efficient hardware, but also services and expertise. McAllen chose Dell.

"We have had a very good relationship with Dell beginning with OptiPlex 755 desktops, and we've since found the Dell PowerEdge 2950 servers to be outstanding performers," says Pat Karr, coordinator for network services and support, McAllen ISD. "But there's also the partnership factor; Dell brings forth a lot of engineering expertise and educational resources, so it made it easy

for us to make decisions based on Dell's recommendations and experience."

To update the district's legacy hardware infrastructure, Dell recommended the M1000e modular blade enclosure with M600 blade servers. The Dell blades come equipped with dual Intel Xeon processors for optimal performance in a small form factor—up to 2x better performance per watt compared to previous processor generations.[1]

CONSOLIDATING 2 EMAIL SYSTEMS IN 6 WEEKS

Previously, maintaining two separate email systems—one for administrators and another for teachers—presented management challenges. "They were both running on older servers running Exchange 2003," explains Karr. "Having to manage two different Active Directory® domains was a pain, and we had no way to efficiently migrate users between the two domains, for example, if a teacher were to take an administrator position."

For assistance in merging its two legacy email systems and migrating to a new Microsoft Exchange Server 2007 messaging platform, McAllen ISD enlisted the aid of Dell Infrastructure Consulting Services.

"Dell Migration Services for Exchange was instrumental in ensuring that the migration would work well—from figuring out how many blades we would need to designing the server

HOW IT WORKS

HARDWARE
- Dell™ PowerEdge™ M1000e modular blade enclosure
- Dell PowerEdge M600 blade servers with Intel® Xeon® processors
- Dell PowerEdge 2950 servers with Intel Xeon processors
- Dell EqualLogic™ PS5000E iSCSI storage array
- Dell OptiPlex™ 755 desktops

SOFTWARE
- Dell OpenManage
- EqualLogic Auto-Snapshot Manager Smart Copy for Microsoft® Exchange
- Microsoft Active Directory®
- Microsoft Exchange Server 2007
- Microsoft Windows Server® 2008, 2003
- Microsoft iSCSI Software Initiator
- CommVault Galaxy
- VMware ESXi

SERVICES
- Dell Infrastructure Consulting Services:
  - Dell Migration Services for Exchange
  - Dell Virtualization Readiness Assessment
- Dell Support

and storage configuration," says Karr. "Dell really simplified the migration process for us and showed us exactly where we could save both money and management time. They made sure we were engaged in the whole process, which took less than six weeks, and they finished on time and under budget. Given the additional complexity involved in merging two legacy systems, we would definitely not have been able to accomplish this migration without Dell's help."

McAllen's consolidated email system is now served by two Dell PowerEdge M600 blade servers running the Microsoft Windows 2008 operating system. The district is currently only using two blades, so it has lots of room to grow into the 16-blade chassis. "The new email system is working well, and users are happy," says Karr. "They have the benefit of a much-improved Web mail interface with Outlook Web Access 2007, and we no longer have to maintain two separate systems. In fact, the new solution requires approximately 50 percent less time to manage."

IMPROVING STORAGE UTILIZATION BY 75%

To consolidate direct-attached storage for a variety of applications and provide a scalable storage solution for the new email system, McAllen ISD selected a Dell EqualLogic PS5000E iSCSI storage array. By choosing an iSCSI SAN from Dell, the district saved approximately 30 to 40 percent compared to a Fibre Channel SAN in combined CAPEX, expected OPEX and estimated networking costs, according to Karr. "We've also improved our storage utilization by 75 percent by consolidating direct-attached storage onto the EqualLogic SAN," he says.

McAllen ISD was able to keep down costs normally associated with SAN deployments by using Microsoft's iSCSI Software Initiator to network the servers to the SAN, instead of using expensive, specialized Host Bus Adaptors. Using iSCSI as the transport medium, McAllen ISD is able to leverage its current network infrastructure, thus reducing the overall cost.

"The Dell EqualLogic SAN works very well for us," says Karr. "And it came in at a price point that made our Exchange migration possible. In school districts, money is always hard to come by, and I'm confident that we're scaling our storage the right way. If we need to buy another SAN, it will also be iSCSI."

SIMPLIFIED MANAGEMENT AND EXPANDABILITY

Cost isn't the only benefit the district is receiving from the EqualLogic array. "The EqualLogic array takes a lot of the guesswork out of configuring a SAN," says Karr. "The interface is very user friendly and surprisingly feature-rich. You do not have to be a storage specialist to manage the device. We can carve up our 10 terabytes of disk as we need it, as opposed to just throwing drives at capacity problems. Also, the expandability of the EqualLogic box is incredible. Not just to add additional storage, but to add storage and have the SAN automatically load-balance across the two arrays. We know we can add more fault tolerance by replicating files across the network."

At no extra cost, the EqualLogic PS5000E includes Auto-Snapshot Manager Smart Copy for Microsoft Exchange software that provides "application-aware" snapshot, cloning

and data replication capabilities. "We use EqualLogic software to take daily snapshots of our Exchange environment, as well as user documents and anything else we really depend on," says Karr. "This way we can quickly recover from any data loss or corruption. The snapshots also improve our availability, because if we need to recover an old version of a document or mail store from a snapshot, we can leave the production volume running, put the snapshot back online separately, and get whatever we need off the snapshot."

REDUCING BACKUP TIME FOR EXCHANGE BY 75%

McAllen also uses EqualLogic snapshots to streamline backups and restores, in conjunction with CommVault Galaxy software, purchased through Dell. Using Exchange-aware Smart Copies, McAllen is able to eliminate the eight hours of nightly planned downtime that was necessary for backup. "We then back up those Smart Copies to tape," says Karr. "Our backup time for Exchange has been cut by approximately 75 percent."

In additional, the district is now able to quickly restore single files and email messages with no downtime. "We were using another backup tool previously that wasn't meeting our needs," says Karr. "We couldn't do file-level restores, so to recover even one email, it was a huge process. We'd have to make a backup of the current database, restore the old database, get what the user wanted, and then restore the newer database files. This process could easily take 10 to 12 hours while users were kept off the email system. It just wasn't practical for us to accommodate most restore requests."

No Exchange backup jobs have failed with the new solution, and restores are much easier now. "CommVault has by far exceeded our expectations," says Karr. "We just tell it what we need to restore, and it finds it, either on the EqualLogic array or it tells us what tape to put in and it restores from tape."

ENHANCED COMPLIANCE, FASTER E-DISCOVERY

The CommVault software includes archiving and journaling functionality, ensuring that McAllen retains copies of all emails sent and received throughout the district for compliance purposes. "To my knowledge, the State of Texas isn't requiring archiving yet, but it's likely that they will soon," says Karr. "So we're ahead of the curve on that."

The district also implemented indexing for faster e-discovery. "CommVault's indexing feature allows us to search on a granular basis for words and expressions within email accounts and storage volumes," says Karr. "You can search thousands of emails and create a PDF report without ever touching the mail server."

GOING LEAN AND GREEN

With its new Dell blade solution and a complement of Dell PowerEdge 2950 rack-mount servers, McAllen ISD has taken the plunge into virtualization to consolidate its legacy servers and reap powerful cost savings and manageability gains. As a first step, Dell performed a Virtualization Readiness Assessment to inventory McAllen ISD's current systems and propose potential consolidation scenarios. The district used the free VMware ESXi to introduce staff to virtualization, and will soon purchase VMware Infrastructure 3 through Dell to accelerate its virtualization strategy.

"The Virtualization Readiness Assessment showed that we can replace 15 standalone servers with just three Dell blades, and increase average CPU utilization from 7 percent to 70 percent," says Karr. "And by leveraging the EqualLogic SAN, we can carve out storage for new virtual machines in minutes instead of hours. It's possible that our entire infrastructure could soon be hosted on just seven Dell M600 blades and the EqualLogic SAN—an 86 percent footprint reduction. Our power and cooling requirements will shrink by the same amount. We'll be able to purchase a smaller, less expensive generator than we were planning on, and our UPS batteries will last longer if the power goes out."

Karr is looking forward to using Dell OpenManage Server Administrator to manage the new Dell blades. "It's a good tool, and I'm hoping it will allow our server administrator to be even more productive," he says.

A VERY SATISFIED CUSTOMER

Although the Dell solution has required no support since being put into production, McAllen can rely on 24x7 Dell support for fast service should any problems occur. Says Karr, "Dell was able to put together a solution that would meet our needs for the short term as well as the long term. I don't know how Dell did it, but they came in under budget."

Another key factor was that Dell accomplished the entire migration within the strict timeline of six weeks that was set due to financial guidelines. "Given the scope of work and attention to detail that was necessary, the project was a major success," Karr concludes. "Dell has a very satisfied customer in McAllen ISD."

1. Intel measured results as of Aug 22, 2007. Performance comparisons made using an internal virtualization workload on Intel Xeon X5365 Series Processor running at 2.66GHz/1333/2X4MB L2, 16GB memory and Intel Xeon X7350 Series Processor running at 2.93GHz/1066/2X4MB L2, 32GB memory. Actual performance may vary. See http://www.intel.com/business/xeon/index.htm

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