The State of Delaware saves 20% off the cost of email server ownership with Dell systems and Intel Xeon technology

**CHALLENGE**
The State of Delaware needed to consolidate its distributed email systems and 67 domain controllers into a centrally managed infrastructure and implement an email archiving solution to comply with federal and local regulations.

**SOLUTION**
The state migrated its email systems to Dell™ PowerEdge™ blade servers with Intel® Xeon® processors to reduce 12 clusters to 8 fully fault-tolerant clusters mirrored at disaster recovery facilities 45 miles away using Dell EqualLogic™ iSCSI SANs to provide storage for email archiving.

**BENEFITS**
- 20% savings off total cost of ownership of email servers
- Minutes of downtime per year vs. days previously
- 20 hours per year saved in remote server management
- 50% time savings in storage management
- 66% savings in rack space for email infrastructure (2 racks vs. 6)
- $1,000 savings per port per server

**CUSTOMER PROFILE**
**COUNTRY:** United States  
**INDUSTRY:** Government  
**FOUNDED:** 1787  
**NUMBER OF EMPLOYEES:** 35,000  
**WEB ADDRESS:** www.delaware.gov

**SOLUTIONS**
- BACKUP/RECOVERY/ARCHIVING  
- CLUSTERING  
- CONSOLIDATION  
- MESSAGING  
- POWER & COOLING
Today the state government maintains its central data center in Dover and its disaster recovery facility in New Castle, 45 miles away. “The recommendation is to have primary and secondary sites 150 miles apart, but if we’d done that, one of them would be in the ocean or in another state,” says Douglas Lilly, lead telecomm technologist, Department of Technology and Information, State of Delaware.

One of Lilly’s several areas of responsibility is the state’s email system with 20,000 mailboxes for state officials and employees. It processes more than a million messages a day and has to keep them all for a year to comply with federal and local regulations.

SAVING 20% OFF TOTAL COST OF OWNERSHIP
With its initial migration to Microsoft Exchange Server a decade ago—when the organization also deployed Microsoft Active Directory—the government established its first centralized email system. In addition to centralizing management of email, which was previously managed independently by individual agencies, the state began to consolidate 67 domain controllers that were spread throughout state agencies, sometimes in employees’ offices.

The state government first chose HP server blades to provide a centralized email infrastructure and consolidate domain controllers, but recently switched to Dell PowerEdge M610 and M600 blade servers in six Dell PowerEdge M1000e modular blade enclosures. The email system runs on Dell PowerEdge M610 blade servers with Intel Xeon 5500 series processors, and the M600 blade servers with Intel Xeon 5400 series processors run the domain controllers.

“When we migrated to Microsoft Exchange Server 2007, Dell presented us an outstanding value for a consolidation solution,” says Lilly. “When we first started out with Microsoft Exchange, we had 16 clusters, which we reduced to 12 clusters of HP server blades. Now we’ve

WE WOULD NEED A WHOLE NEW CLUSTER SET OF THE OLDER BLADES TO MATCH THE CAPACITY OF THE INTEL XEON 5500 PROCESSOR, WHICH WOULD RAISE OUR TOTAL COST OF OWNERSHIP BY ABOUT 20 PERCENT.”

Douglas Lilly, lead telecomm technologist, Department of Technology and Information, State of Delaware

The second-smallest state in the United States after Rhode Island, Delaware is a 30-mile by 96-mile wedge of land on the Delmarva Peninsula. Delaware was the first state to ratify the Constitution of the United States. Its state capital was moved from New Castle to Dover in 1777 because of the latter’s central location and its relative safety from British marauders on the Delaware River.

HOW IT WORKS

SERVICES
• Dell™ ProSupport for IT

HARDWARE
• Dell Chassis Management Controller
• Dell EqualLogic™ PS5000E iSCSI SANs
• Dell PowerEdge™ M610 blade servers with Intel® Xeon® 5500 series processors
• Dell PowerEdge M600 blade servers with Intel Xeon 5400 series processors
• Dell PowerEdge M1000e modular blade enclosures
• Dell Remote Access Cards (DRAC)

SOFTWARE
• Dell OpenManage™ Server Administrator
• Microsoft Active Directory®
• Microsoft® Exchange Server 2007
• Microsoft Office Communication Server
• Mimosa NearPoint email archiving software
Reduced those to four clusters of Dell PowerEdge M610 blade servers. The Intel Xeon 5500 processors give us the ability to run our entire email system on four active nodes."

Two active nodes and two passive nodes are located at Dover, and the solution is mirrored at New Castle. “The Intel Xeon 5500 processors are hovering at less than 10 percent CPU utilization, compared to the older Dell blades which run at 35 to 40 percent,” says Lilly. “We would need a whole new cluster set of the older blades to match the capacity of the Intel Xeon 5500 processor, which would raise our total cost of ownership by about 20 percent.”

**MINUTES OF DOWNTIME VS. DAYS**
The State of Delaware government also benefits from a completely fault-tolerant server solution which enables failover to another site. Previously with the HP architecture, if a site had to be patched—which typically happens once a month with Microsoft Exchange Server—email service would be interrupted for several minutes. Today, users are out a maximum of one minute if they notice it all.

“But the biggest difference is between instances when we have to do work at one site such as bringing up a new generator,” says Lilly. “Previously we would have been down for 24 hours or more. Now we can failover the site and we don’t deprive our users of valuable production time. We’ve literally gone from days of downtime per year to minutes.”

**66% SAVINGS IN RACK SPACE**
The email infrastructure used to consist of six 42-inch racks filled with HP servers, but the Dell blade servers with Intel Xeon 5500 processors have reduced that to two racks—66 percent less rack space. “And the two are not even full,” says Lilly.

Intel Intelligent Power Technology in the Intel Xeon 5500 processor lowers energy costs while minimizing impact to performance by automatically putting processor and memory into the lowest available power state. “Dell is a leader in energy savings,” says Lilly.

**50% TIME SAVINGS WITH EQUALLOGIC STORAGE**
Throughout the month, the government sends and receives millions of emails, which equates to millions of files and attachments. Since it has to retain these for a year for HIPAA, Sarbanes-Oxley, and other civil and federal policies, the IT team calculated that it needed 24 terabytes of storage.

To meet that need and simplify the deployment and management of its consolidated email archive, the State of Delaware government decided to purchase Dell EqualLogic PS5000E iSCSI SANs with SATA drives. For e-discovery and archive management, the organization uses Mimosa NearPoint software, also purchased from Dell.

Lilly was pleasantly surprised to discover the ease with which he could dynamically expand storage volumes on the EqualLogic SANs.

“One of the big sore spots with some of the other storage systems is you carve up your LUN, you present it to your disk, say it’s 500 gigabytes,” says Lilly. “If you need more storage, you’re pretty much out of luck. You have to present a new LUN that’s bigger and migrate your data. With EqualLogic, you can have a 750 gigabyte LUN in a matter of minutes. Compared to other storage, the ease of administration is fabulous. With EqualLogic, it takes 50 percent less time to administer LUNs and set up the servers with the storage.”

**SAVING $1,000 PER SERVER PER PORT**
Another benefit of EqualLogic iSCSI SANs is that they don’t require host-bus adapter cards for connectivity with the storage. “The savings with EqualLogic because of the ease of connectivity is $1,000 per server per port,” says Lilly. “That can really add up.”
Lilly also likes the ability to take point-in-time snapshots of storage volumes. “I literally right click, clone this volume, go, and I have an exact mirror copy of the LUN that I was working on,” he says. “That’s great for dev/test and also great for backup. We have volumes with millions of objects that literally took five days to back up. Now I can do a snapshot in ten seconds. The EqualLogic SAN lets us do an off-host backup with array-based snapshots, so it’s non-intrusive to the operating system of the server that’s running the show—nothing slows down.”

**PROSUPPORT IS FANTASTIC**

Lilly’s experience with Dell ProSupport has also been positive. “ProSupport is fantastic,” he says. “The times we’ve needed them to come out, they’ve been quick to respond and to follow up on emails.”

“We really like Dell services and products, which is why we are running our entire state Active Directory, email infrastructure, Microsoft Office Communication Server deployment and Microsoft SQL Server databases on Dell PowerEdge blade servers with Intel processors,” Lilly concludes.

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**State of Delaware**

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