

CHALLENGE	SOLUTION	BENEFIT
Improve availability of e-mail network, simplify support, increase disk space, and decrease server count	Standardized messaging platform and hardware throughout the e-mail infrastructure using Intel® Xeon™ processor-based Dell™ PowerEdge™ servers, Dell storage area networks, and Microsoft® Exchange software	Reduced server count from 350 to 210; expanded storage space; increased system availability to 99.99 percent; simplified server and storage administration

Message in a bottleneck

Motorola standardized its overloaded e-mail system, increasing availability and lowering total cost of ownership

Imagine a company that makes a large percentage of its revenue from sales of personal communications equipment—cutting-edge cell phones, pagers, and two-way radios. Now imagine that very company is not satisfied with one of its own internal communication systems—an e-mail infrastructure that provides only average availability.

At Motorola, reliable communications are not only critical to the smooth function of the company—they are also a cornerstone of the company's own value proposition. But the e-mail system on which Motorola relied provided only 99 percent availability—not high enough for a global technology leader whose success partly depends on the ability of employees to communicate quickly and effectively. Created from a hodgepodge of 18 different platforms on nearly 600 servers, the Motorola e-mail system was a nightmare for support staff.

The first step in Motorola's e-mail overhaul was to standardize on Microsoft® Exchange as its messaging platform. Although platform standardization dramatically reduced the number of e-mail servers from 600 to 350, it created a new problem: The server consolidation demanded more disk space, which could only be satisfied by purchasing more servers—a move that would nearly defeat the purpose of platform standardization.

Jerry Hunt, enterprise architect at Motorola, says allowing each group to purchase new servers on its own would complicate the maintenance problem, just as this practice had done in the past. "Every business unit bought whatever kind of e-mail server it

wanted; we had no standards," Hunt says. "Supporting these servers was both time-consuming and expensive, and resulted in very sloppy change-control and testing procedures. We wanted to implement a standard hardware platform and storage area network to solve our storage management problems."

Motorola sends Dell an SOS

Motorola evaluated several vendors of standard Intel® processor-based servers and storage systems. The company chose Intel processor-based Dell™ PowerEdge™ servers and storage area networks (SANs) because of the Dell commitment to competitive prices, leading-edge technology, and—especially—fast ordering and delivery.

"Competitors used to take 8 to 12 weeks to deliver, which plays havoc with implementation planning, manpower planning, airline ticket prices, and everything else," Hunt says. "We have 109 Exchange sites around the world. Dell allows us to order equipment from anywhere in the world, and in two weeks, it's there."

Motorola recognizes Dell as its standard provider of desktops and laptops, and the company was able to leverage those purchase agreements to get great deals on Dell servers and SANs.

As its e-mail servers, Motorola chose a combination of Intel Xeon™ processor-based Dell PowerEdge 6300¹ and 6400¹ tower

¹ Newer models are available at <http://www.dell.com>.

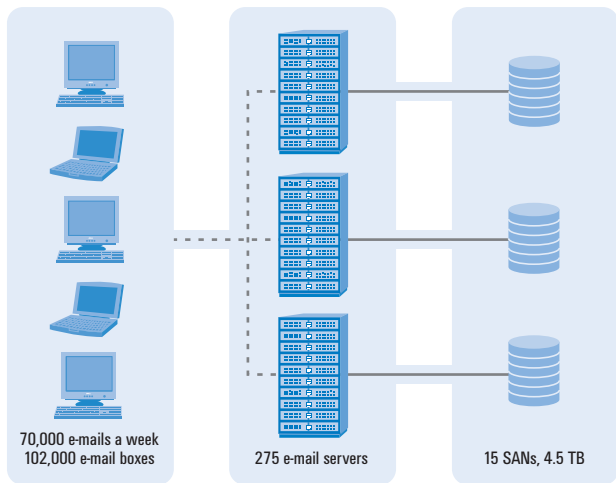
servers and PowerEdge 4400 rack-mount servers, as well as Dell PowerEdge 8450 servers. All have redundant fans, power supplies, and CPUs, along with mirrored hard drives and other failover features. Motorola has created 15 SANs, each consisting of 2 to 17 PowerEdge servers and various combinations of Dell storage systems.

These servers currently run the Microsoft Windows NT® 4.0 operating system and Microsoft Exchange version 5.5. Motorola is standardizing on Microsoft Windows® 2000 and Microsoft Active Directory® directory service as its domain controller and is currently in the process of collapsing nearly 800 Windows NT domains into one global Active Directory domain. Dell PowerEdge servers will host these domain controllers as well.

High-performance servers prove less is more

Since standardizing on Dell PowerEdge servers for its e-mail infrastructure, Motorola has managed to consolidate most of the servers in a few large sites by connecting them to Dell SANs. As Dell helped Motorola to reduce its number of servers from 350 to 210, the number of mailboxes on Exchange has doubled to 102,000. In fact, more than 70 million e-mails now traverse the network each week.

Dell SANs have given Motorola the capability to manage its rapidly growing e-mail database—now 4.5 terabytes in size. “SANs have made it easier for us to add storage to a location or move storage to another location to support consolidations or changing needs,” Hunt says. “The number of mailboxes per server is no longer tied to the amount of internal disk space that a server can hold. We can capitalize on cheaper, smaller, more powerful servers.”



An infrastructure based on Dell servers and SANs creates a more stable, available e-mail environment at Motorola

No more messages in a bottleneck

Of all the benefits Motorola has realized since implementing an Intel Xeon processor-based Dell system, Hunt says the most important advantage is the increased reliability of the e-mail infrastructure.



“We’re proudest of the fact that we have increased availability across the board to 99.99 percent,” Hunt says. “We attribute that to the more reliable and standardized Dell hardware, and strict change-control and testing procedures.”

Standard hardware and software also simplified deployment and reduced the configuration errors that plagued the system in the past. “The biggest source of e-mail failure used to be running out of disk space because of Exchange configuration errors,” Hunt says. “We fixed that by implementing standard installation procedures and greatly expanding storage with the Dell SANs.” Motorola’s e-mail support team created an Enterprise Messaging Automated Server Install (EMASI) CD that provides fast, consistent server installation at the company’s 91 e-mail server locations. To perform an automated installation of Windows and Exchange, administrators simply enter the server name and IP address.

Simplified administration and the reduction in servers have allowed Motorola to dramatically decrease its Exchange support staff from approximately 200 to 35. This allowed Motorola to refocus 165 people on other important areas. The ability to consolidate more mailboxes on fewer servers has also saved Motorola money on software licensing costs.

Motorola grants Dell a stamp of approval

The fact that its worldwide e-mail infrastructure now comprises standard components, such as Intel processor-based Dell servers, allows Motorola to allocate resources more flexibly and economically. “As the business changes—and the number of users increases at one location, another location shuts down, and so forth—I can move servers and storage units around,” Hunt says. “All parts are standard, so we can mix and match freely. This provides more efficient resource allocation and allows our e-mail infrastructure to flex with the business.”

Over the next year, Motorola will roll out Exchange 2000 or its successor. That move will allow Motorola to further consolidate the number of users per server and divide its large Exchange databases across multiple servers for easier backup and restore. As it brings on new servers, Motorola will move to the Dell PowerEdge 2650 servers that feature a compact 2U design and 2 GHz Intel Xeon processors.

“Dell hardware gets faster, smaller, and better with every generation,” Hunt says. “It gives us plenty of bang for our buck, a lot of growing room, and the availability we need for business-critical applications.”