

A RADICAL REMODEL

Emerson virtualizes on Dell servers, eliminating 3,600 servers, reducing approximately 135 data centers down to 4, and decreasing the operating cost of its Windows server environment by 15 percent per year



Innovation has been a hallmark of Emerson since the company was founded in 1890, and the company is continuing that commitment to innovation as it remakes its worldwide IT infrastructure on a massive scale. A leader in developing technology to make data centers operate more efficiently, Emerson is taking a fresh approach to its own data centers to capitalize on evolving business opportunities.

SOLUTIONS

- CONSOLIDATION
- VIRTUALIZATION



EMERSON

CUSTOMER PROFILE

COUNTRY: United States

INDUSTRY: Technology

FOUNDED: 1890

WEB ADDRESS: www.Emerson.com

CHALLENGE

Emerson's long-term business growth strategy called for fast, flexible computing and communications across all of its businesses, but the legacy IT infrastructure was made up of disparate systems.

SOLUTION

Standardizing and virtualizing the IT environment on Dell™ PowerEdge™ blade servers is enabling Emerson to consolidate approximately 135 data centers down to 4, reduce costs, and align its infrastructure with business goals.

BENEFITS

Run IT Better

- New server deployment time is reduced from weeks to minutes

Grow IT Smarter

- Consolidating on Dell helps to eliminate 3,600 physical servers
- Server footprint is reduced by 50 percent with Dell blades
- Emerson can reduce approximately 135 data centers worldwide to just 4
- IT team expects to decrease the operating cost of its Windows server environment by 15 percent per year
- Dell servers help make Emerson's new global production data center in St. Louis 31 percent more energy efficient than traditional data centers

- Virtualizing on Dell is expected to double data center life

The Dell logo, featuring the word "DELL" in a stylized, bold font with a diagonal slash through the letter "E". The logo is set against a dark circular background with a light blue border.



HOW IT WORKS

HARDWARE

- Dell™ PowerEdge™ M710 and M610 blade servers with the Intel® Xeon® processor 5500 series
- Dell/EMC CX4-960 SAN

SOFTWARE

- VMware® ESX

SERVICES

- Dell ProSupport

“WE LOOKED AT PRODUCTS FROM MANY MANUFACTURERS, AND THE DELL POWEREDGE M710 AND POWEREDGE M610 BLADE SERVERS REALLY STOOD OUT.”

Steve Hassell, vice president and chief information officer, Emerson

As a global technology company that specializes in infrastructure, Emerson’s long-term success is based on rapidly delivering customer solutions anywhere in the world. More and more, those solutions take the form of services as well as products. “Increasingly, we have mobile field people performing service on everything from in-store refrigeration to oil-field management systems,” says Steve Hassell, vice president and chief information officer at Emerson. “They’re not only monitoring and maintaining our own products but also contracting with our customers to service other equipment brands. Service is one of our fastest-growing segments.”

The Emerson IT team realized that the growth in the company’s service business required an interconnected, global IT infrastructure for long-term success. “To diagnose problems in the field,

technicians need to access shared information and resources, including diagnostic applications running in our data centers,” says Hassell. “They need that access instantly and from anywhere in the world—for example, an oil field could be located in North America, Africa, or the North Sea.”

The IT team evaluated its existing infrastructure in light of those requirements and found it would not support the higher level of services, interconnectedness, and quick response times required for the company’s future growth. Emerson had historically grown through acquisition, and the various component parts of the company had differing IT infrastructures and services. “Upgrading diverse systems in our approximately 135 data centers around the world would be too inefficient and costly,” says Hassell.

Hassell’s team decided that a better solution was to eliminate most of the company’s legacy data centers and consolidate operations into a few highly capable facilities. With virtualization enabling massive consolidation, Emerson was free to eliminate thousands of older servers and move to the next generation of technology. “We adopted a strategy of creating a very strong core of virtualized computing resources, a private cloud that over time everyone in the company would leverage,” says Hassell.

Emerson set the goal of consolidating approximately 135 data centers down to just four major facilities, with new virtualized infrastructure running everything from the Microsoft® Office Suite and SQL Server® databases to specialized manufacturing and engineering applications used by the company’s various businesses.

“DELL AND INTEL HAVE TEAMED UP TO ELIMINATE THE MEMORY CONSTRAINTS THAT PREVIOUSLY WOULD HAVE PREVENTED US FROM ACHIEVING THIS KIND OF DENSITY.”

Steve Hassell, vice president and chief information officer, Emerson

Once the decision was made to virtualize, the IT team faced the challenge of finding the right equipment for the job. “We stepped back and asked ourselves how we could raise the bar in terms of performance, scalability, reliability, and low operating cost,” says Hassell. “We also had to dramatically reduce our server footprint and power envelope if we were going to eliminate our approximately 135 data centers.”

EMERSON CHOOSES DELL BLADE SERVERS FOR GLOBAL STANDARDIZATION

After considering multiple options, the Emerson team selected Dell blade servers with the Intel® Xeon® processor 5500 series to power all of the company’s x86 platform-based systems. “We’ve been users of Dell products in several of our businesses, so we knew and trusted Dell reliability and service,” says Hassell. “We looked at products from many manufacturers, and the Dell PowerEdge M710 and PowerEdge M610 blade servers really stood out. It was clear to us that Dell had thought through the virtualization requirements and created blades that directly addressed those challenges.”

The IT team also saw exceptional value in the Intel Xeon processor 5500 series, particularly with regard to energy efficiency and power savings. “The Intel processors give us policy-based control over frequency and power,” says Hassell. “We can designate which applications need high-frequency processing and which should be executed at lower frequencies to save energy. That means a lot more processing capability within our data center power envelope.”

DELL SERVERS MAKE THE MOST OF ADVANCED INTEL XEON PROCESSORS

With multiple processing cores and a high-speed link between processors, the Dell servers have the performance to run multiple instances of the Microsoft and Oracle applications that Emerson relies on. Further, Hassell’s team was impressed with the way the Dell servers enhanced the capabilities of the Intel Xeon processor 5500 series. “Fast access to memory is a huge gating factor in how many virtual servers and applications we can run on a physical server,” says Hassell. “With the large memory capacity of the Dell servers and the new memory architecture in the Intel processors, we can comfortably scale up to 72 GB of memory for each blade.”

Dell provided prerelease evaluation units that enabled the Emerson IT team to test the new servers in action. “The Dell team members were very good partners in helping us test our consolidation scenarios,” says Hassell. “We chose the full-height Dell PowerEdge M710 blades with 18 dual in-line memory module (DIMM) slots for virtualization, and the half-height PowerEdge M610 blades with 12 slots for applications that aren’t candidates for virtualization.”

EMERSON CENTRALIZES STORAGE WITH DELL/EMC SAN

For storage, the Emerson IT team standardized on the Dell/EMC CX4-960 storage area network (SAN). “Previously, we relied heavily on network attached storage, and we used several different brands across our network,”

says Hassell. “We needed to move to a storage area network to dynamically manage storage resources in support of our virtual servers. The Dell/EMC SAN gave us the performance and reliability to support the 600 TB of critical enterprise data we’ve centralized.”

Emerson is currently implementing the first phase of the virtualization and consolidation initiative, with full implementation slated for completion over the next four months. In the meantime, testing and planning have enabled the Emerson IT team to project a variety of results for the initiative, including savings in data center space and power usage.

CONSOLIDATION WILL ELIMINATE 3,600 PHYSICAL SERVERS

Virtualizing on Dell will result in an 18:1 ratio of virtual to physical servers, according to the Emerson IT team’s projections. “We have more than 6,000 x86 servers across Emerson, and about 3,800 of them are good candidates for the virtualized environment,” says Hassell. “Those 3,800 physical servers will be consolidated down to a little over 200 new, more powerful Dell servers that are capable of delivering worldwide IT services for the entire company.”

SERVER FOOTPRINT REDUCED BY 50 PERCENT WITH DELL BLADES

The Emerson IT team calculates that virtualizing on the Dell PowerEdge M710 blade servers with the Intel Xeon processor 5500 series will reduce the server footprint by 50 percent compared to virtualizing on the team’s previous rack servers. “The same amount of virtual computing would have taken twice as much data center space if



“VIRTUALIZING ON DELL GIVES US THE AGILITY TO HELP OUR INTERNAL CUSTOMERS RESPOND MORE QUICKLY TO NEW BUSINESS OPPORTUNITIES.”

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we had used our older technology,” says Hassell. “Dell and Intel have teamed up to eliminate the memory constraints that previously would have prevented us from achieving this kind of density. The result is a big savings for the company in data center real estate costs.”

VIRTUALIZING ON DELL EXPECTED TO DOUBLE DATA CENTER LIFE

The IT team also estimates that the new, consolidated data centers will last at least twice as long before running out of space, thanks to the new Dell blade servers and Intel processors. “We’re opening one of our new facilities with 6,000 square feet of raised-floor computing space, with the capability of adding another 6,000,” says Hassell. “When we first began planning the facility, we thought that 12,000 square feet would accommodate about 10 years of growth. Now we think we’ll be able to go at least twice as long supporting the company’s growth. A major reason for that is the capacity and scalability of the Dell servers.”

DELL SERVERS HELP EMERSON IMPROVE ENERGY EFFICIENCY

Emerson’s new data center infrastructure will be much more power efficient as well, the IT team calculates. “We’re getting quite a bit of

increase in processing capacity and memory addressability, yet with lower energy use than our previous equipment,” says Hassell. “By combining energy-efficient Dell servers, optimized data center airflow, and high-efficiency cooling technology, our new global production data center in St. Louis is 31 percent more energy efficient than traditional data centers, which ultimately contributes to the company’s bottom line.”

NEW SERVER DEPLOYMENT TIME REDUCED FROM WEEKS TO MINUTES

With infrastructure concentrated in a few centralized locations, Emerson businesses that previously had their own infrastructures worried that IT would not be as responsive to their requests for new applications and services. But the new virtualized Dell infrastructure will actually reduce the time required to bring up new servers and applications. “In the past, the time between receiving a request and having the server in operation was measured in weeks,” says Hassell. “Now we’re building an environment where getting a new server up and provisioned takes no more than hours. Virtualizing on Dell gives us the agility to help our internal customers respond more quickly to new business opportunities.”

DELL SERVERS AND SUPPORT COMBINE FOR HIGH RELIABILITY

With the new Dell infrastructure in place, Emerson’s team is able to establish an anticipated 99.982 percent uptime standard in its global production data center in St. Louis. “Many of our businesses met that standard previously, but with consolidated, centralized resources, we can apply it worldwide,” says Hassell. “Part of meeting that goal is the reliability of the server itself, which we have found to be outstanding with Dell,” says Hassell. “If a problem does occur, the VMware ESX software allows us to quickly transfer virtual servers to a different physical machine that’s already running—and with Dell ProSupport, we can have full redundancy restored in less than 24 hours. So Emerson employees around the world can access the services they need to work productively.”

EMERSON EXPECTS TO LOWER OPERATING COSTS BY 15 PERCENT WITH NEW SERVERS

While Emerson is gaining increased processing capacity and reliability, the IT team projects that 2010 operating costs for the Windows server environment will be approximately 15 percent lower than it would be using alternate hardware.

In addition to increased energy efficiency, savings will also come from reduced support costs. "With far less physical equipment to manage, our total cost of ownership is much lower," says Hassell. "Standardizing on Dell is also a big cost saver because having a common infrastructure allows us to simplify administration and training. The IT staff can concentrate on one type of system instead of having to go an inch deep and a mile wide."

BUILDING A SUCCESSFUL FUTURE

Hassell credits Dell with helping to build a powerful and efficient IT infrastructure that will take Emerson into the future with global access to flexible IT services. The IT team plans to keep building on Dell infrastructure as Emerson continues to grow and expand its service-related businesses. Says Hassell, "The scope of our

virtualization and consolidation project gave us the opportunity to step back and find the best, most innovative technology to achieve the company's overall business strategies and goals. For us, that technology was Dell. We believe in meeting the future with innovation, and Dell is a great fit for us because they're an innovation leader in computing platforms."

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