

SETTING THE PACE

Southern Company, the premier energy company serving the southeastern United States, saves an estimated US\$1.3 million and sets an example for energy efficiency using Dell servers to consolidate its data centers.



Atlanta-based Southern Company is the premier energy provider in one of America's fastest-growing regions, serving nearly 4.4 million customers across the Southeast. Even as its customer base has expanded, Southern Company has been able to keep its retail electric prices significantly below the national average while maintaining exceptional customer service. In fact, Southern Company has been listed as the top-ranking U.S. electric service provider for nine consecutive years by the American Customer Satisfaction Index.

SOLUTIONS

- CONSOLIDATION
- GREEN COMPUTING
- VIRTUALIZATION



CUSTOMER PROFILE

COUNTRY: United States

INDUSTRY: Energy

FOUNDED: 1945

NUMBER OF EMPLOYEES: 26,000

WEB ADDRESS: www.southerncompany.com

CHALLENGE

Rapid business growth creates server sprawl, threatening to outstrip the available space in Southern Company's data centers and driving up costs by consuming more energy each year.

SOLUTION

Virtualizing and consolidating on Dell™ PowerEdge™ servers enables the Southern Company IT team to save data center space, reduce costs, and increase energy efficiency.

BENEFITS

Get IT Faster

- Dell virtual infrastructure helps speed new server deployment time by a week

Grow IT Smarter

- Dell virtual infrastructure enables IT to accommodate future growth while slowing the pace of energy consumption
- Dell PowerEdge servers enable up to 26:1 server consolidation to save data center space
- Southern Company avoids over 2 million kilowatt hours with virtualized Dell servers
- Consolidating on Dell servers enables IT to avoid an estimated US\$1.3 million in capital expenditures





HOW IT WORKS

HARDWARE

- Dell™ PowerEdge™ R900 servers with the Intel® Xeon® processor 7300 series

SOFTWARE

- Microsoft® Windows Server®
- VMware® ESX 3.5
- VMware Virtual Center 2.5

SERVICES

- Dell Support

“WE’VE ELIMINATED OVER 1,340 TONS OF CO₂ EMISSIONS, WHICH HAVE A SIGNIFICANT IMPACT ON THE ENVIRONMENT. THAT’S A PRETTY BIG DEAL.”

Dan Traynor, IT infrastructure director, Southern Company

One of the secrets of Southern Company’s success is continually exploring new technologies that can increase efficiency and reduce costs. “As a power company, we know that one of the best ways to hold down costs is through energy efficiency,” says Dan Traynor, IT infrastructure director at Southern Company. “We’re committed to keeping our own house in order from a green perspective and providing technology that can help our customers save energy as well.”

SOUTHERN COMPANY LEADS ON ENERGY CONSERVATION

By establishing high standards for itself, Southern Company has helped set the pace for energy conservation among the nation’s utilities. Southern Company is one of the first, for example, to adopt automated metering infrastructure (AMI) on a large scale. The company is putting more than four million smart meters into the field at homes and businesses throughout its service area, with over a million installed to date. The meters send power usage information via radio towers to Southern Company’s data centers for processing.

The company anticipates the program will deliver huge benefits, as there is no longer a need to dispatch meter readers to businesses and residences where the AMI units have been installed. “When the system is fully implemented, not only will we see significant labor savings, we also estimate we’re going to get about 500 vehicles off the road and save

about 12.5 million miles of driving annually,” says Traynor. “That will contribute to cleaner air, reduce energy use for travel, and lower our costs.”

SERVER SPRAWL AND ENERGY CONSUMPTION POSE CHALLENGES IN THE DATA CENTER

Southern Company found one of the biggest opportunities to save energy and reduce costs in its own data centers. Rapid annual business growth was causing the Southern Company IT team to add approximately 30 percent more servers to its two main data centers each year, resulting in a mounting problem of server sprawl. Consolidation was difficult because many of the IT team’s internal customers required their own dedicated servers—concern about application conflicts kept most business units from sharing space on the same physical machines. “We needed to continually add more servers, and at the same time we weren’t able to fully utilize the resources we had,” says Traynor.

The Southern Company IT team realized that the pace of growth in the data center wasn’t sustainable. Although the team had not yet run out of space, they could see that problem coming if they kept growing at the same rate. What also caught the team’s attention was the rising power usage. “With more servers, the monthly bill we were paying our sister company, Georgia Power, was steadily increasing,” says Traynor. “So was the environmental impact. When the company

instituted a green data center program, we saw that we were consuming as much as 15 percent more kilowatt hours and producing more of the corresponding CO₂ emissions every year.”

The IT team decided to ask Dell for ideas on optimizing the servers and reducing server proliferation in the data centers. “We standardized on Dell servers to power our Microsoft Windows–based systems several years ago and have had a very positive experience,” says Traynor. “Any time we’ve asked for advice in the past, the Dell team has been very knowledgeable and provided useful suggestions that helped us achieve our goals.”

SOUTHERN COMPANY SELECTS DELL POWEREDGE SERVERS TO POWER VIRTUALIZATION PROJECT

With help from Dell, the IT team decided to virtualize and consolidate its data center servers using VMware® ESX technology. The powerful partitioning provided by VMware would eliminate application conflicts and enable servers to be shared. But the team also determined it would need more powerful servers to achieve a sufficiently high density of virtual machines. The Dell team recommended that Southern Company replace its aging dual-processor servers with a quad-processor architecture. “We’re on a lease agreement for our servers and have a regular refresh cycle, so we were able to begin replacing them right away,” says Traynor.

“THE NEW DELL SERVERS HAVE ENABLED US TO CREATE APPROXIMATELY 390 VIRTUAL SERVERS OVER A YEAR AND A HALF, AVOIDING AN ESTIMATED US\$1.3 MILLION IN CAPITAL EXPENDITURES FOR EQUIPMENT.”

Dan Traynor, IT infrastructure director, Southern Company



The team decided to use Dell PowerEdge R900 servers with the Intel® Xeon® processor 7300 series to build a virtual server farm—the team had already used PowerEdge R900 servers for high transaction volume applications, and was impressed by the servers’ performance. “With four processors and 16 cores each, we knew the Dell PowerEdge R900 was powerful enough to host a large number of virtual servers while ensuring fast server response for our users,” says Traynor. “The R900 is also more energy efficient than the servers we were replacing.”

DELL POWEREDGE SERVERS ENABLE UP TO 26:1 CONSOLIDATION

The Southern Company IT team has been able to place as many as 26 virtual machines on each of the new Dell PowerEdge R900 servers. As a result, the team has eliminated hundreds of its older physical machines, alleviating overcrowding and creating space in the data centers for future growth. “The increased performance provided by

the Dell servers enables high consolidation ratios and gives us much better utilization of our data center resources,” says Traynor.

ENERGY USE REDUCED BY 2 MILLION KILOWATT HOURS WITH VIRTUALIZED DELL SERVERS

With fewer physical servers in the data centers, and the energy efficiency of the new Dell servers, the Southern Company IT team has achieved big energy savings. As part of the company’s green data center program, the team has created a software tool to aggregate all of the kilowatt hour savings and the corresponding CO₂ emission reductions. “As a result of the virtualization, we avoided more than 2 million kilowatt hours worth approximately US\$200,000 over a period of a year and a half,” says Traynor. “We’ve eliminated over 1,340 tons of CO₂ emissions, which have a significant impact on the environment. That’s a pretty big deal.”

CONSOLIDATING ON DELL SERVERS SAVES AN ESTIMATED US\$1.3 MILLION

Southern Company also saves money because consolidating on Dell servers reduces the need to purchase new hardware. “The new Dell servers have enabled us to create approximately 390 virtual servers over a year and a half, avoiding an estimated US\$1.3 million in capital expenditures for equipment,” says Traynor. “The efficiencies we’ve gained by consolidating on Dell contribute to the company’s bottom line and ultimately help keep electric rates low for Southern Company customers.”

SOUTHERN COMPANY SHAVES NEW SERVER DEPLOYMENT TIME BY A WEEK

The IT team can now deploy a new virtual server in one or two days instead of spending more than a week to deploy a new physical server. “Virtualizing the data center enabled us to

“THE EFFICIENCIES WE’VE GAINED BY CONSOLIDATING ON DELL CONTRIBUTE TO THE COMPANY’S BOTTOM LINE AND ULTIMATELY HELP KEEP ELECTRIC RATES LOW FOR SOUTHERN COMPANY CUSTOMERS.”

Dan Traynor, IT infrastructure director, Southern Company

automate the server build process, and we’re also more efficient because we don’t have to order a physical machine,” says Traynor. “By configuring new virtual machines on the Dell servers, we can more easily keep up with internal demand as the company grows—which helps keep the business unit managers happy with IT.”

DELL HELPS EQUIP SOUTHERN COMPANY FOR FUTURE GROWTH

Traynor feels that the company is now well equipped for the future. “With help from Dell, we’ve been able to head off potential data center space and power supply problems,” says Traynor. “That gives us room to grow while saving energy and reducing costs.”

Southern Company is still seeing rapid growth in business demand, but only modest growth in data center power usage year on year. “We still have growth in our network, so we’re not seeing an actual drop in the monthly power bill,” says Traynor. “But we certainly have slowed the rate of increase. Today the IT department is down to single-digit growth in kilowatt hours. Before, we were well into double digits.”

As an energy utility, Southern Company is always looking for ways to use energy more efficiently and to set examples for its partners and business customers for achieving greater energy sustainability. Virtualizing on Dell servers has been a success on both counts.

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