Seeing a future with energy efficiency

Case Study

Sector:
Data Centers

Company:
Lighthouse International

Location:
New York, NY

Measures Implemented:
Server consolidation and virtualization

Energy Savings Results:
64,100 kWh per year

Using VMWare technology, Lighthouse International consolidated its physical servers, reducing both energy use and square footage requirements.

Background

For over 100 years, Lighthouse International has led the charge in the fight against vision loss through prevention, treatment, and empowerment. Founded in New York City in 1905 by Winifred and Edith Holt, Lighthouse quickly became a pioneer in the field of vision rehabilitation, and today is a leading resource worldwide in helping people overcome the challenge of vision loss.

Lighthouse's data center headquarters is housed in its 170,000-square-foot building in Manhattan, which serves a staff of more than 200 people and operates 24/7, 365 days a year. The motivation for the project was multifaceted, with cost savings, equipment upgrades, and space consolidation being the primary drivers for project implementation.

Recommendations

Lighthouse International set out to consolidate their data center from approximately 1,000 square feet down to less than 300 square feet. This consolidation would allow Lighthouse to offer more rental space to a tenant in the building and generate income for the organization's mission.

The solution was virtualization: using a VMWare software package, the work of 30 physical servers could be handled by four retrofitted physical servers running at maximized capacity. Lighthouse worked with Con Edison and New York State Energy Research and Development Authority's (NYSERDA) Data Center Efficiency Program team to quantify energy savings from streamlining the server room's footprint and energy use. This consolidation would not only eliminate the need for the current 960-square-foot server room, but would also significantly reduce annual energy use from the array of 30 servers and their associated HVAC demand.

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Before:

- **30 physical servers**
- **960-square-foot server room required**
- **116,480 annual kWh used**

After:

- **4 physical servers**
- **250-square-foot server closet required**
- **52,300 annual kWh used**

Con Edison's data center program contractor, Lockheed Martin, worked with Lighthouse to garner financial support available for this project. Lockheed Martin's engineers first consulted with Lighthouse staff to calculate the project's expected energy savings and conduct a cost-benefit analysis. Through the Data Center Efficiency Program, which pays customers based on their expected annual energy savings, more than $8,000 was provided for Lighthouse's data center upgrade. The project was completed by the organization's IT staff over one weekend; all business systems were up and running by Monday morning.

Results

The Lighthouse project succeeded in reducing costs and increasing available rental space for the organization. The project is calculated to achieve an annual electric energy reduction of 64,100 kWh and a demand reduction of just over 7 kW, which translates into an annual electric bill reduction of $11,500.

An incentive of $8,400 offset 12 percent of the total project costs, which included purchase of virtualization software, new cooling units and installation. Significantly, over $80,000 per year of revenue was brought in by converting the former data room to a rental space — the room was rented to a tenant, who repurposed the space as a broadcasting studio. "The support we received from Con Edison and NYSERDA for our data center consolidation project helped us consolidate space and retire some of the older PCs at our organization," said Paul Garrin, CIO, Lighthouse International. "With fewer servers consuming electricity, and a corresponding reduction in the data center's HVAC usage, we're reducing operating costs for our organization over the long term."