



SHOWCASE PROJECT: SCHNEIDER ELECTRIC: DISTRIBUTED SITE CONSOLIDATION AND CONTINUOUS ENERGY EFFICIENCY IMPROVEMENT

SOLUTION OVERVIEW

Schneider Electric sought a 30-50 percent reduction in data center operations costs attributed to energy consumption. The company also sought to reduce infrastructure complexity by decommissioning servers and IT assets distributed across North America business assets. Schneider Electric’s energy and cost savings exceeded expectations. Schneider Electric consolidated one primary legacy data center (DC) and multiple distributed data centers into a modern data center that offered greater reliability and energy efficiency.

The new “target” data center is located in St. Louis, Missouri. The legacy “migrate-from” data center in Lexington, Kentucky was built by an outsource partner decades ago, for the purposes of hosting, uptime, and availability. The legacy Distributed Compute Environment consists of mostly older server rooms and data closets. These rooms typically have no specific rack layout, a legacy building cooling system, and in-rack uninterruptible power supply (UPS) units, typically with no specific metering and containing IT equipment of varying ages, mostly over three years. Please see below for information on baseline energy consumption.

Total Baseline IT Load: ~983 kW

Baseline	IT Equipment (kW)	DC Facilities (kW)	Total (kW)
St. Louis DC	166	116	282
Lexington DC	103	185	288
Distributed Sites	172	241	413
Totals	441	542	983

Schneider Electric is a collection of various smaller companies, all with legacy IT environments. The purpose of this project was to virtualize, consolidate, decommission, and centralize IT equipment to a more efficient and stable environment. The St. Louis “target” data center has in-row cooling, hot aisle containment, modular UPSs, and power distribution, as well as a Virtual Private Cloud converged infrastructure. Every aspect of the St. Louis data center’s power consumption is metered and monitored via Schneider Electric’s Power Logic product line.

SECTOR TYPE

Data Centers

LOCATION

St. Louis, Missouri

PROJECT SIZE

4,400 sq. ft. (consolidated from 20,000 sq. ft.)

FINANCIAL OVERVIEW

Total Project Cost ~\$4.5 million

SOLUTIONS

The project had two phases: 1) Transition and 2) Transformation. The Transition phase consisted of the migration of IT equipment from an outsourced, hosted data center in Kentucky to the Schneider Electric-owned St. Louis data center.

The Transformation phase was the centralization of IT equipment from its distributed sites to the St. Louis “target” data center. Where centralization was not an option, Schneider Electric virtualized on-site to a standardized, efficient Virtual End State architecture in the distributed environment, resulting in a sizeable reduction in physical footprint and power consumption. The Virtual End State environment typically contains approximately two or three 1U (Rack Unit) energy-efficient servers directly attached to a storage array, eliminating the need for Storage Area Network (SAN) switch gear (which typically requires more electricity at decreased efficiencies) while retaining all of the benefits of virtualization.

The major efforts of this project were completed in Q3 2015 (beginning in Q1 2012), with some additional cleanup throughout the remainder of the year. Please see below for information on expected annual energy savings.

Data Centers	Before			After		
	IT Equipment (kW)	DC Facilities (kW)	Total (kW)	IT Equipment (kW)	DC Facilities (kW)	Total (kW)
St. Louis DC	166	116	282	150	105	255
Lexington DC	103	185	288	0	0	0
Distributed Sites	172	241	413	100	140	240
Totals	441	542	983	250	245	495

In total, annual energy savings were approximately 3,000 MWh per year, which represents an approximate 50 percent savings from baseline energy consumption. Schneider Electric had a reduction from the baseline energy utilization of approximately 7,000 MWh per year to under 4,000 MWh per year. Schneider Electric continues to investigate solutions to lower power usage effectiveness (PUE) at the St. Louis data center, including installation of a pulley chiller and a dedicated generator sized to match the IT load.

As a result of reduced energy consumption, Schneider realized an annual utility cost savings of approximately \$200,000 at the St. Louis site. No utility cost savings will be realized from the Lexington data center, as it was a third-party-owned facility, but the power utilization reduction is still considered energy or CO2 savings since it was Schneider Electric's computing.

OTHER BENEFITS

Schneider Electric also realized cost savings from decommissioning of servers. The decommissioning of servers/OS (approximately 275) saved Schneider Electric a recurring monthly management cost with the outsource partner, totaling approximately \$400,000 per year. Removal of approximately 350 physical servers from the data center environment resulted in cost avoidance benefits as well. In all, energy efficiency measures implemented in this project correspond to the following shares of the savings produced.

Annual Costs	Before	After
Energy	\$500,552	\$300,727
Mgmt. Fees	\$400,000	\$0
Total	\$900,552	\$300,727

The company plans to increase efficiency through ongoing infrastructure improvements, while ensuring proper management and transforming its computing environment. Schneider plans to conduct an analysis of remaining legacy data center infrastructure in North America to identify other candidates for decommissioning, further virtualization, and centralization to the St. Louis data center.

Annual Energy Use

Baseline(2012)
 2.23 PUE


Actual(2015)
 1.98 PUE

Energy Savings

20% Reduction in PUE-1

Annual Energy Cost

Baseline(2012)
 \$500,000

Actual(2015)
 \$300,000

Cost Savings

\$200,000

