
AT A GLANCE

Tele Atlas
Lebanon, NH
www.teleatlas.com

Industry
Information Technology

Annual Revenue
€ 264.3 million



PROJECT

**Next Generation
Data Center**

“LED performed a professional ‘As-Is Discovery of the Tele Atlas infrastructure, quickly and efficiently assimilating the information into a thoroughly designed data center solution. A myriad of cooling issues were addressed by LED’s design, resulting in a predictable, scalable, highly-managed, data center operating environment.”

— Wayne St. Jacques, Senior
‘Director of Global IT & Data
Center Operations

Tele Atlas Reduces Data Center Operating Costs, Increases Energy Efficiency and Scalability

Background

The utilization of virtualization technologies through blade server deployment continues to increase at a rapid rate as organizations attempt to maximize server density per rack. Although these technologies optimize rack space, they also significantly increase the power and cooling requirements of the data center. Organizations are faced with a continuous struggle to provide ample power and cooling to support these high-density server deployments on legacy data center infrastructures.

This case study discusses the challenges Tele Atlas faced in meeting the power and cooling requirements of their blade server deployment. Tele Atlas was able to facilitate rapid growth by leveraging blade server technologies but quickly realized that their existing data center CRAC units were incapable of providing sufficient cooling to support their operation.

Challenge

Tele Atlas is a leading global provider of digital maps and dynamic content for navigation and location based solutions. To support their significant requirements for storage, online customer data, and more, they chose to leverage server virtualization technologies utilizing VMWare. This implementation allowed the IT team to consolidate servers at a ratio as high as 15 to 1, helping them maximize rack space, while reducing their overall carbon footprint. However, these high-density applications presented substantial infrastructure challenges due to the tremendous amount of heat they generate. Quickly after implementation, data center temperatures were continually exceeding 90°, providing a high-risk operating environment for the existing IT equipment. In an effort to rectify these dangerous conditions, Tele Atlas added an additional 52.5 kW of cooling capacity to their existing 175 kW CRAC unit infrastructure. Unfortunately, the issues were not resolved and Tele Atlas was forced to resort to fans and other drastic measures to prevent equipment failure.



LEADING EDGE DESIGN GROUP



Project

Tele Atlas was running all CRAC units in their data center 24 hours a day at 100% capacity, but was still unsuccessful in controlling temperatures and effectively cooling their IT equipment. They soon realized that a new strategy was imperative. Tele Atlas chose Leading Edge Design Group to design a data center solution that would not only solve their immediate problems, but would also provide an infrastructure to support their rapid growth and planned deployment of additional blade servers.

Leading Edge Design Group immediately saw the shortcomings of the existing data center infrastructure, and also noted the excess electrical costs Tele Atlas was incurring to support an inadequate cooling system. Leading Edge Design Group quantified these wasted electrical costs as follows:

A. Existing Load on UPS	100 kW
B. Total CRAC Unit Cooling Output Operating 24/7	227 kW
C. Excess cooling consumption (A-B)	127 kW
D. Average cost of electricity per kWh	\$0.10
Total Wasted Electric Cost per Year (C*D) * 24 hrs/day * 365 days /yr	\$111,252

Leading Edge Design Group recognized the need for an immediate solution, but placed equal emphasis on understanding Tele Atlas’ future growth plans. Through this requirements collection process, it was evident that Tele Atlas’ rapid growth projections and increasing utilization of blade server technologies demanded an integrated solution with energy efficient power and cooling infrastructures.



Solution

Integrated Data Center Design

It was obvious to all parties involved that the legacy cooling strategy of installing oversized CRAC units was 1) unsuccessful in effectively cooling high density server applications and 2) was creating unnecessary operating costs totaling over \$100,000 annually. After performing a detailed site assessment of the existing data center environment and IT growth plans, it was clear to Leading Edge Design Group that Tele Atlas required an integrated data center design that was uniquely equipped to support their large installation of blade server technologies. Leading Edge Design Group chose to utilize APC's Infrastructure solution as they believed it was the best fit for Tele Atlas' unique application. The integrated data center design created by Leading Edge Design Group incorporated APC RC Chilled Water cooling units, which include variable speed fans and were installed in-row, placing the cooling adjacent to the blade servers. The RC cooling units have the capability to increase or decrease cooling capacity based on actual load of the equipment, providing a more efficient and on-demand means for Tele Atlas to cool this high-density environment. Additionally, new power and communication systems were designed, providing redundant power feeds and a 10 Gigabit fiber optic infrastructure to each piece of equipment. Most importantly, an integrated management platform was incorporated, allowing Tele Atlas to proactively manage their data center by establishing environmental thresholds and alerting mechanisms that inform key staff members if a threshold had been exceeded. Based on the complexity and variety of systems in the data center, Leading Edge Design Group facilitated the implementation of APC's Infrastructure Central, which provides Tele Atlas with centralized management and reporting of their critical data center infrastructures.



Increased Efficiency, Reduced Operating Costs

Immediately after implementation, Tele Atlas was able to consolidate all high-density loads into one area, and leverage the efficiency of an integrated solution. Temperature issues were resolved with the RC chilled water in-row cooling units easily supporting the demanding heat loads generated by the blade server equipment. Wasted recurring electrical costs were eliminated as the cooling units automatically adjust their cooling output to match the actual heat load produced by the equipment. The significant increase in efficiency recognized through this "green" solution helped Tele Atlas continue to reduce their carbon footprint.

St. Jacques continues, "LED's design allows Tele Atlas to grow its infrastructure on the fly, providing solutions to address business requirements at a component level. This allows us to maximize our investments and maintain our environmental responsibility by only using the electrical resources we need to address the immediate problem at hand."

Tele Atlas was left with a scalable, reliable infrastructure that is designed to handle the demands of a high-density environment, and facilitates seamless expansion as they continue to grow into the future.



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About

Leading Edge Design Group is a leading national provider of energy optimization services that delivers significant energy savings to the public and private marketplaces through efficient data center designs and emerging LED lighting and wireless lighting control technologies. Founded in 2007 with the goal of pursuing, promoting, and providing the finest energy optimization solutions available, we help our customers minimize the environmental impact of their businesses while improving operational reliability and reducing costs. Leading Edge Design Group is dedicated to encouraging, challenging, and contributing to energy industry innovation with an ongoing commitment to our community and our environment. Visit us at www.ledesigngroup.com and connect with us on Twitter @ledesigngroup.