

CUSTOMER CASE STUDY

GLOBAL COLOCATION COMPANY

A **Global Colocation Company** with a diverse portfolio of data centers – ranging from small, legacy facilities to large, state-of-the-art data halls – contacted Vigilent with one question in mind: how can we make our existing assets more competitive in today’s ever-changing colocation market?

- Competitors and cloud computing are putting pressure on profit margins
- Customers are increasing rack densities
- Customers are increasing scrutiny of service level agreements

To solve these challenges, the cooling system was identified as a candidate for optimization, because it offers an opportunity to reduce operating costs, boost utilization and profitability of existing assets, and increase reliability.

Across the colocation portfolio, **cooling accounted for over 30% of annual energy costs**. The complexity of the cooling system, in particular the non-linear nature of airflow, was making it difficult to identify where higher density cabinets could safely be located, especially in popular sites that appeared to be near capacity. Management of cooling was placing strain on operations resources, because hot spots were appearing that threatened SLA temperature commitments.

*“This is the **single, best upgrade** our site has ever received.”*

Lead Facility Engineer

Identifying the Right Solution

A team was assigned to identify and evaluate various cooling optimization technologies, with several important requirements in mind:

- Installation could not disrupt data center operations
- The purchase had to meet stringent investment criteria
- The technology had to scale across their entire portfolio to support diverse cooling architectures

One of the technologies considered was the Vigilent Dynamic Cooling Management® System, which uses a predictive control algorithm to optimize cooling operations. In particular, the team liked the Vigilent system’s ability to **dynamically balance data center airflow**, because airflow complexity was the source of many cooling-related challenges.

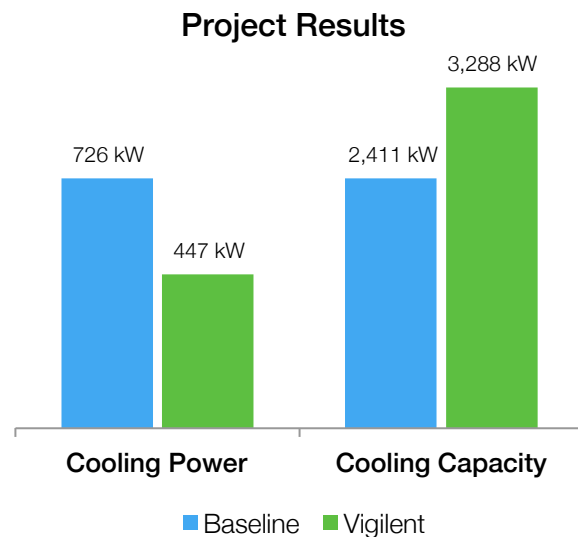
The First Vigilent Project

To validate the Vigilent technology, a 43,610 square foot data center with over one megawatt of IT load was identified on the West Coast of the US. The facility was chosen because of its cooling management challenges: it was a legacy data center with physical cooling restrictions.

The Vigilent deployment included 250 wireless temperature sensors and 44 wireless control modules on the cooling units, some of which were also fitted with variable speed drives. The project spanned 4 months from start to finish, with 4 weeks spent on-site.

Within hours of turning on the Vigilent software, its predictive algorithm optimized data center airflow and reduced facility power use by 279 kW – instantly dropping the PUE by 12%. As a result, the **operating costs for the facility were reduced by \$163,000 per year.**

The facility team was trained to use the advanced analytics and one-click reporting built into the Vigilent system. Emphasis was placed on using the real-time data trending and airflow maps to locate racks with available cooling capacity. These tools helped to identify and release stranded cooling capacity.



The Vigilent system also helped the operations team remediate all of the hot spots in the facility. In many cases, the predictive control algorithm automatically eliminated high temperatures. For areas with physical airflow problems, the Vigilent software helped the facility team design airflow management solutions, often using only blanking panels.

Since the initial deployment, the Vigilent system has increased the effectiveness of the facility team. The lead facilities engineer said, "Using the Vigilent system, we learned things about our data center that we would have never discovered. This is the single best upgrade our site has ever received."

Portfolio Rollout

Based on the success of the first project, a program has been put in place to roll out the Vigilent technology across the customer portfolio. Sites were identified in North America, Europe and Asia-Pacific, and the Vigilent Dynamic Cooling Management System has been installed in 12 additional data centers. The Vigilent system has transformed the profitability of those data centers, **reducing operating costs by \$1.844 million per year, unlocking an estimated 750 kW in stranded cooling capacity**, and eliminating hot spots.

In 2015, an additional 16 projects are planned, and the vision is to install the Vigilent Dynamic Cooling Management System in even more facilities by the end of 2016.