

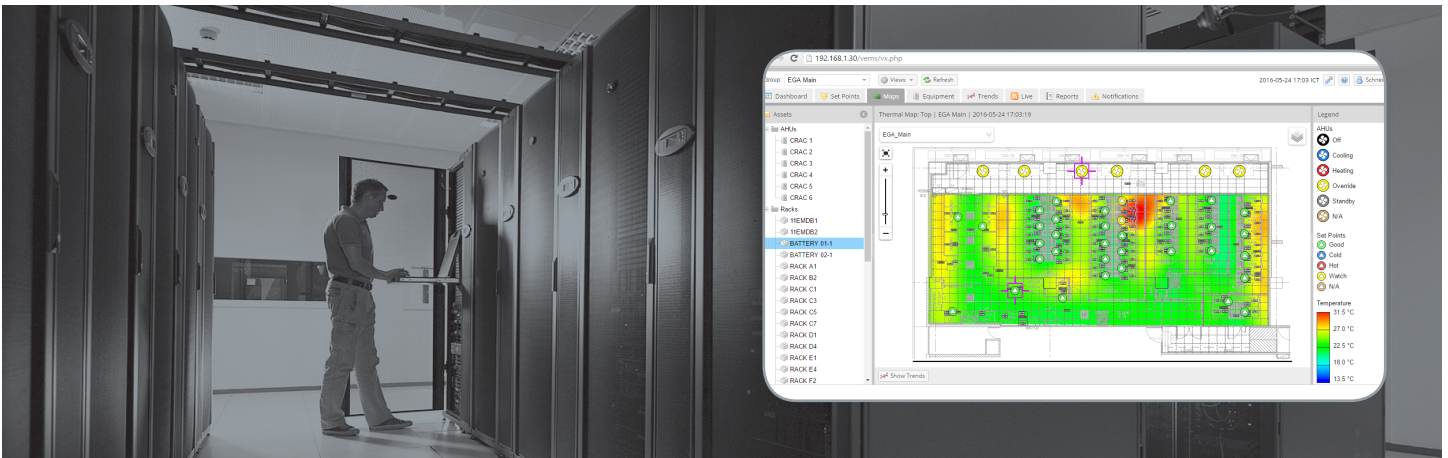
Life Is On

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Optimizing airflow to reduce energy costs and carbon emissions in a data center

Thailand Government Case Study

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Thailand Government implements StruxureWare for Data Centers and gets immediate results in cooling power and greenhouse gas reductions.

StruxureWare for Data Centers

The Thailand Government approached Schneider Electric to help decrease the carbon footprint of a 70 - rack data center. Schneider Electric proposed deployment of its Data Center Infrastructure Management (DCIM) solution specifically incorporating the Data Center Expert, Data Center Operation with Capacity, Energy Efficiency and Cooling Optimize modules with NetBotz Wireless Environmental Sensors as a solution.

In addition to decreasing their carbon footprint, the government's executive management team also wished to reduce the data center's annual costs and cooling power. They also required real-time monitoring and reporting and to have control over desired temperatures and visibility into thermal conditions throughout the data center.

Goal

Implement a DCIM plug and play solution which will reduce annual cost, cooling power and greenhouse gas emissions.

Solution

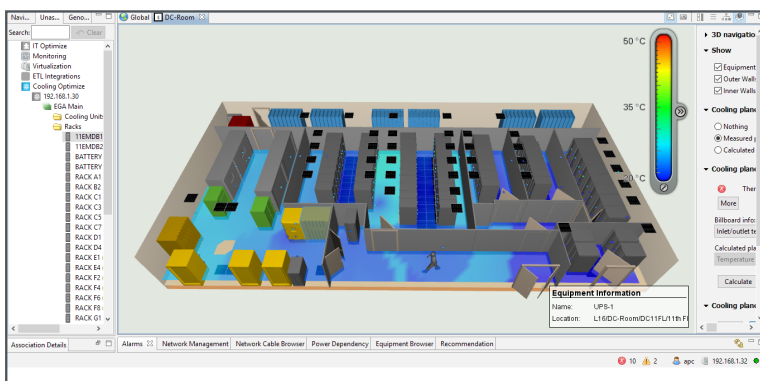
StruxureWare Data Center Operation: Capacity, Energy Efficiency, Cooling Optimize, Data Center Expert and NetBotz Wireless Sensors

Story

70-rack government data center tasked to reduce their carbon footprint using a DCIM turnkey solution

Results

- 342,430 lbs Greenhouse Gas Reduction
- Over \$36,000 in annual cost savings from power reduction
- Immediate 38% reduction in cooling power



DCIM Solution

Schneider Electric deployed a StruxureWare for Data Centers solution with focus on decreasing the data center carbon footprint and power consumption and providing the government with real time monitoring and reporting.

Data Center Expert software was deployed to monitor, manage and control the multiple devices that provide power, cooling, security and environmental monitoring for the data center.

Data Center Operation software and modules were deployed to show data within the physical layout for instant access to device details and asset attributes with an overview of the government's data center operations.

The government wanted to add the ability to have complete visibility of the temperature and humidity for each rack. Schneider Electric's NetBotz Wireless Sensors were deployed, using 2 sensors in the front and 1 in the back of each rack allowing the government to get a complete environmental view of each rack and of the overall data center.

The deployment of the solution went smoothly, despite a very tight deadline for the Schneider Electric Service Team to install, configure and integrate the combined DCIM solution.

A deeper dive into Cooling Optimize

With deployment of the Cooling Optimize module, the government was able to dynamically match cooling to IT load. Cooling Optimize software continuously learns the influence that every cooling unit has on every rack, then uses that information to automatically adjust the cooling unit settings and airflow to deliver just the right amount of cooling to every rack. As a result, hot spots are eliminated and there is a significant reduction in cooling power consumption.

Cooling Optimize also provides the ability to see, in real-time, any temperature-affecting events such as equipment moves, upgrades or IT load swings. This allowed the government facility managers to better understand the thermal environment in the data center and steps they can take to further improve reliability and efficiency.

The savings from implementing Cooling Optimize exceeded customer expectations. The 38% reduction in cooling power and energy cost, combined with the significant reduction in greenhouse gas emissions, reinforced the overall value of the DCIM solution.

"I love that the system constantly adjusts, ensuring that cooling is always balanced with IT load"

Government Facility Manager

38%

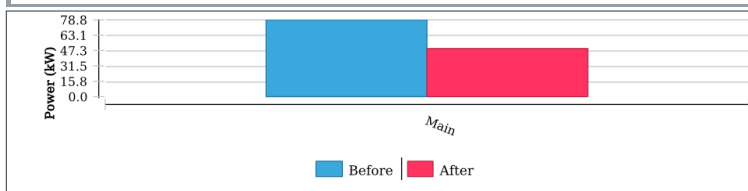
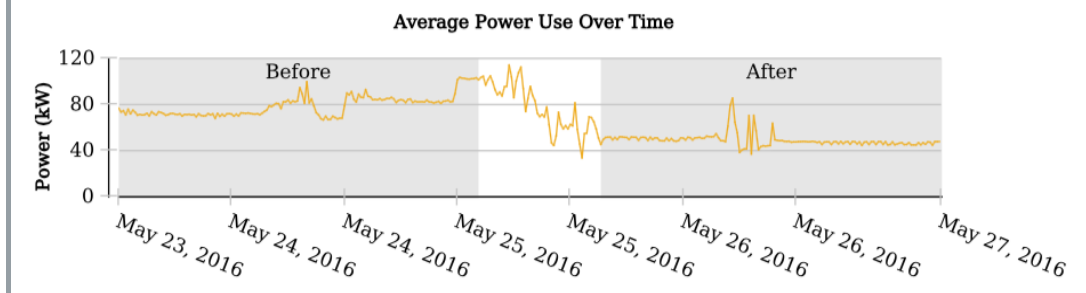
Cooling Power Reduction

342,430lbs

Green House Gas Reduction

Annual Savings and Power Reductions

Control Group	Power				Annual Savings		
	Before kW	After kW	Savings kW	Reduction %	Energy Savings kWh	Cost Savings	Greenhouse Gas Reduction lbs
Main	78.8	49.2	29.6	38%	259,416	1,297,082	342,430
TOTAL	78.8	49.2	29.6	38%	259,416	1,297,082	342,430



Cooling Optimize in action (see user interface screen shot above). On May 25, 2016, Cooling Optimize began to automatically optimize cooling in the data center, and within a few hours achieved a 38% reduction in cooling power while maintaining rack inlet temperature SLAs. On May 26, technicians working in the main server room left a door open, allowing cool air to escape into the hallway. Cooling Optimize compensated by automatically bringing on additional cooling units to maintain the rack temperatures, which caused a temporary spike in cooling power. When the door was closed, Cooling Optimize automatically responded, and was able to again reduce cooling and energy use.

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