

Driving Data Center Cooling Efficiency

Customer Story: Driving Efficiency, Stability & Long-Term Performance Through Intelligent Cooling Control.

An intelligent cooling control model powered by Schneider Electric Cooling Optimize delivers measurable efficiency gains, improved stability, and long-term equipment performance across mission-critical data centers.

Advancing
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A Partner Committed to Smarter, More Sustainable Data Centers

When a major Mission Critical, Enterprise Data Center Operator sought to modernize its cooling infrastructure across its mission critical data center, they turned to Power Conditioning Computer Services (PCCS Inc.), a trusted Schneider Electric partner known for deep technical expertise and hands on collaboration.

“From day one, this customer had already done an excellent job with their data center layout and airflow management,” explained John Kossett, Senior Engineer at PCCS Inc. “That meant the challenge wasn’t fixing a broken environment, it was pushing a good one to become exceptional.”

To achieve this, PCCS Inc. deployed Cooling Optimize, supported by Schneider Electric Services and Vigilent. The goal was not only efficiency but better control, stability, and long-term equipment health.

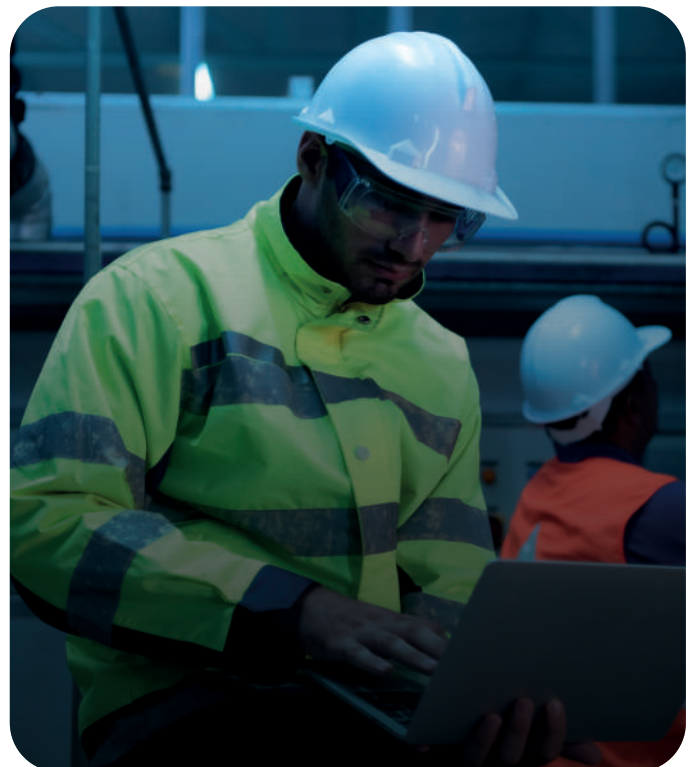
The Challenge: Optimizing an Already High-Performing Environment

The data center was already well designed, with effective airflow management and a stable cooling layout. However, rising energy costs, sustainability objectives, and long-term equipment health required a more intelligent and adaptive approach. The challenge was not correcting failures but improving efficiency and control without compromising stability or availability.

Key challenges included:

1. Reducing cooling energy consumption while maintaining strict thermal compliance.
2. Improving Delta T to operate within optimal efficiency ranges.
3. Minimizing unnecessary equipment runtime to extend asset lifespan.
4. Gaining deeper, continuous visibility to identify inefficiencies not visible through manual monitoring.

To move from a “good” cooling environment to an exceptional one, the customer needed a solution capable of delivering fine-grained control, real-time insight, and continuous optimization without introducing operational risk.



Goal

Improve cooling efficiency, operational stability, and long-term equipment performance in a mission critical data center without redesigning an already well optimized environment.

Story

The data center was performing well, but rising energy costs, sustainability goals, and asset longevity targets called for a smarter cooling approach.

Working with PCCS Inc. and Schneider Electric, the customer aimed to elevate performance from optimized to intelligent, data driven operations.

Solution

PCCS Inc., supported by Schneider Electric Services and Vigilent, deployed Cooling Optimize, combining intelligent control with deep preengineering, system tuning, and continuous “Co Pilot” audits to drive ongoing optimization.

Results

- 50% reduction in cooling energy use, delivering ~\$57K annual savings.
- Delta T improved into the optimal operating range.
- Significantly reduced equipment runtime, extending asset life.
- Actionable insights revealed hidden inefficiencies.
- Scalable foundation for expansion across additional data centers.



A Collaborative Deployment Designed for Long Term Value

The project began with in depth preengineering work: validating computer room layout, refining cooling strategy, and aligning closely with the customer's engineering team.

According to Rod Braaten, President of Mission-Critical Services at PCCS Inc:

"We worked jointly with Schneider's Services team and Vigilent's specialists. It was a full collaboration managing sensor placement, system integration, configuration, all the way through tuning and verification."

After installation, Vigilent experts conducted on site and remote audits, internally referred to as the "co pilot" service, providing detailed recommendations to further optimize system performance.

This ongoing feedback loop quickly became a core part of the customer's operational strategy.

The Co-Pilot Report delivered four key findings that resulted in the following business outcomes:

1.

Energy Performance: A 50% Reduction and \$57,000 Annualized Savings based on energy cost of \$0.10 per kWh

The most striking result came from cooling energy performance. Prior to Cooling Optimize activation, the facility's Modular Cooling Units (MCUs) operated at 120 kW. Once the system was fully deployed and tuned, consumption dropped to 55 kW, delivering nearly a 50% reduction.

This translated into approximately \$57,000 in first year energy savings.

"The energy savings were significant" said John Kossett, PCCS Inc., Senior Engineer. "And because the units are working less, there's less wear and tear. That directly extends the life of the equipment."

For a company deeply committed to sustainability, this impact was as valuable as the financial savings.

"Older data centers were designed around brute-force cooling, just make everything cold. Cooling Optimize lets them run warmer, safely. That's a major operational win."

- Rod Braaten, Director of Mission-Critical Services, PCCS Inc.

2.

Cooling Performance: Increasing Delta T Into the Optimal Range

Cooling Optimize also significantly improved the facility's Delta T; a critical measure of how effectively heat is removed.

Before deployment, Delta T measured 11.7°F, below the optimal range of 16–22°F. After optimization, Cooling Optimize elevated Delta T to 17.4°F, bringing the system squarely into the ideal operating band. Beyond the measured improvement, operating at a higher Delta T is also widely associated with improved chiller efficiency, representing an additional, unquantified benefit of the optimization.

Additional benefits included:

- Improved heat removal efficiency
- Lower mechanical strain
- Reduced outside refrigeration demand
- Longer equipment lifespan
- Modern, data-driven approach to cooling

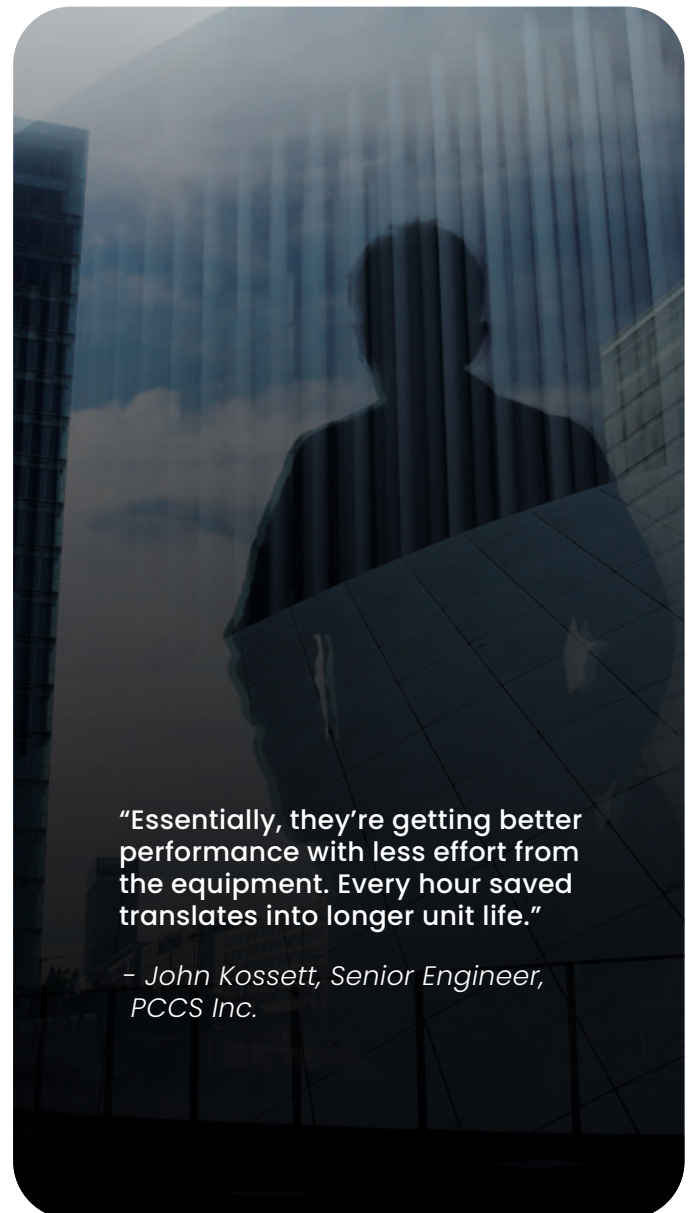
3.

Equipment Longevity: 814 Fewer Run Hours in Two Weeks

Through intelligent modulation and fan-speed optimization, Cooling Optimize reduced equipment runtime by 814 hours across the MCU fleet over two weeks, resulting in 14 hours saved per unit.

This reduced runtime translates directly into:

- Less mechanical wear
- Lower maintenance cost
- Longer asset life
- Less risk of unplanned failures



"Essentially, they're getting better performance with less effort from the equipment. Every hour saved translates into longer unit life."

*– John Kossett, Senior Engineer,
PCCS Inc.*

4.

Operational Insights & Data Driven Decisions

Cooling Optimize also provided visibility that helped identify inefficiencies that were not easily detectable through manual checks.

System analytics identified a rack that was requiring additional effort from the cooling system. Upon inspection, short circuiting exhaust air was found reaching the cold aisle. Adjustments were made at this rack which resulted in an immediate reduction in cooling output required to maintain temperature compliance.

“Without Cooling Optimize, they might never have spotted that issue,” noted Braaten. “This shows what continuous environmental intelligence can do for operations.”

The customer now uses Cooling Optimize insights alongside broader plans to integrate:

- EcoStruxure Building Advisor, for chiller and mechanical analytics
- EcoStruxure IT, for PUE tracking, power monitoring, and predictive visibility

A Foundation for Scaling Across Multiple Data Centers

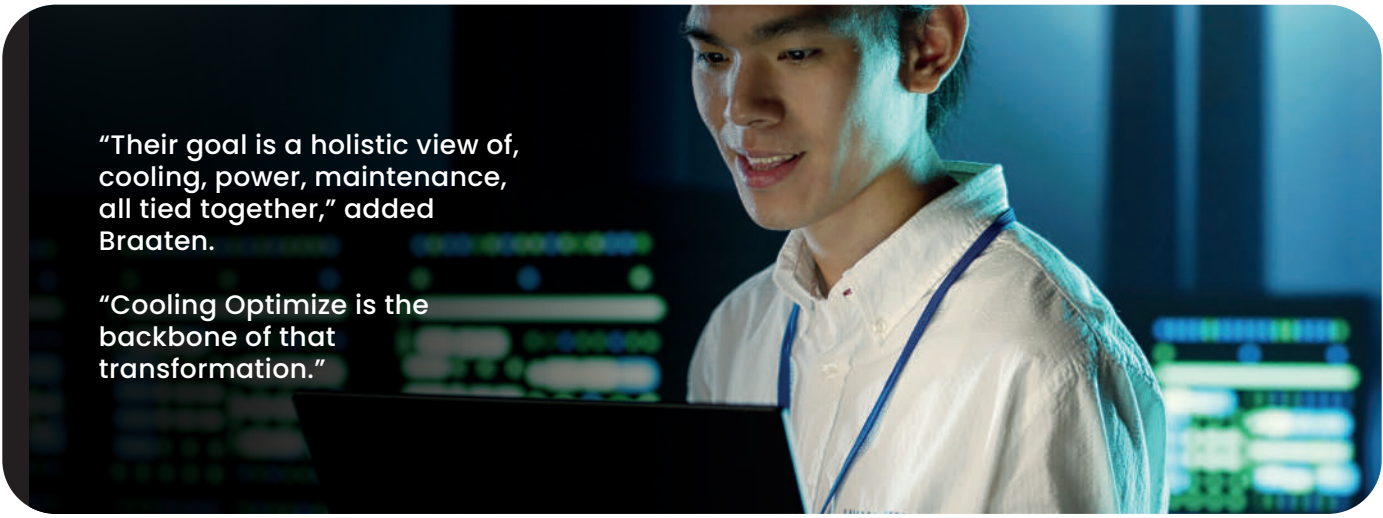
Following the success of this deployment, the customer is evaluating expansion to:

- A larger secondary data center
- A test facility
- Additional sites within their portfolio

“They want all their data centers speaking the same language,” said Braaten. “Cooling Optimize gives them the visibility and control to scale effectively.”

A Trusted Partnership for Advanced Cooling Strategies

By combining Schneider Electric’s Cooling Optimize solution with the technical expertise of PCCS Inc. and support from Vigilent, the customer transformed data center cooling into a measurable, continuously optimized operation, improving overall efficiency, stability, and sustainability.



“Their goal is a holistic view of, cooling, power, maintenance, all tied together,” added Braaten.

“Cooling Optimize is the backbone of that transformation.”

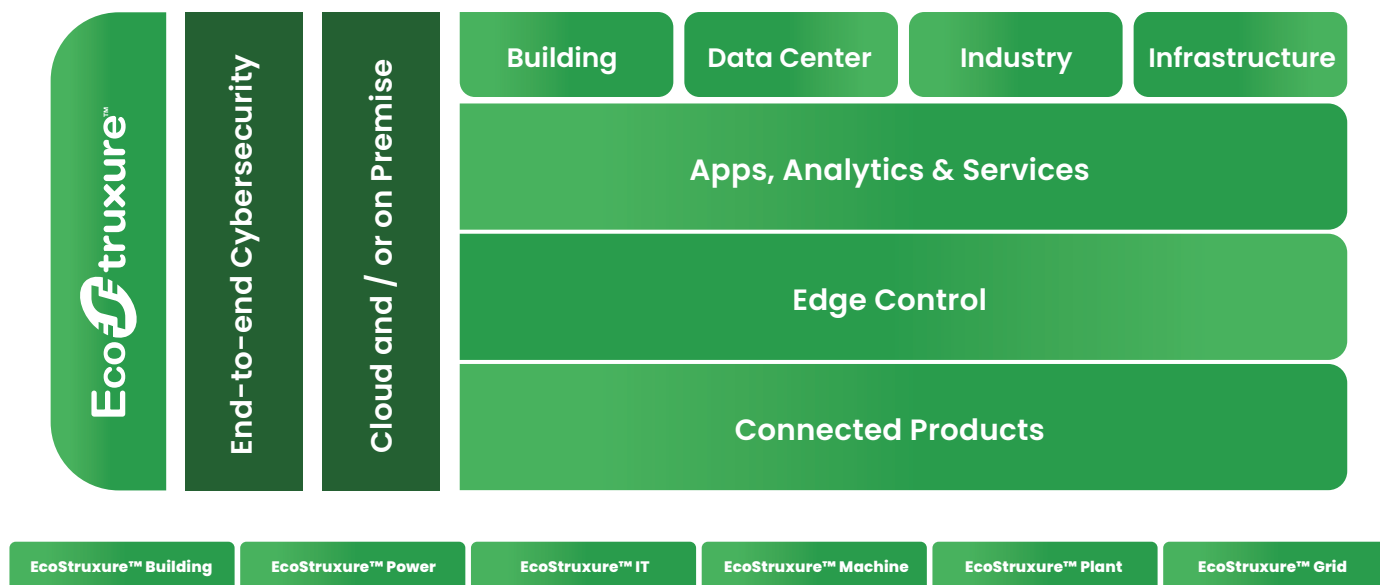
Innovation at every level

IoT-enabled solutions that drive operational and energy efficiency

IoT-enabled solutions that drive operational and energy efficiency

EcoStruxure is our open, interoperable, IoT-enabled system architecture and platform. EcoStruxure delivers enhanced value around safety, reliability, efficiency, sustainability, and connectivity for our customers. EcoStruxure leverages advancements in IoT, mobility, sensing, cloud, analytics, and cybersecurity to deliver Innovation at Every Level.

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Connected Products

The Internet of Things starts with the best things. Our IoT-enabled best-in-class connected products include breakers, drives, UPSs, relays, sensors, and more. Devices with embedded intelligence drive better decision-making throughout operations.

Edge Control

Mission-critical scenarios can be unpredictable, so control of devices at the edge of the IoT network is a must. This essential capability provides real-time solutions that enable local control at the edge, protecting safety and uptime.

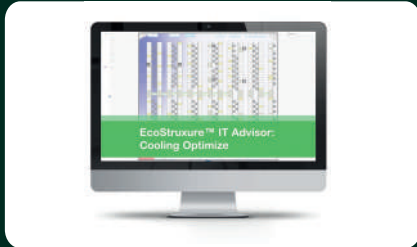
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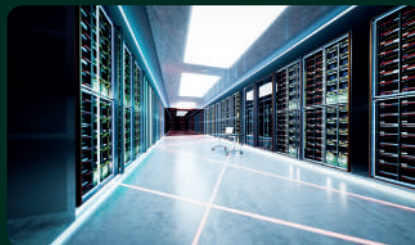
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Why integrated power and liquid cooling systems are critical for high-density AI data centers



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