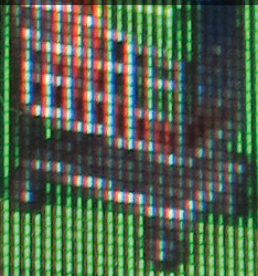


COMPETING ON COOLING

AN ONLINE RETAIL
DATA CENTER FACILITY
CASE STUDY

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With
OPTI-VISOR™
the efficiency
savings were
so substantial
that the
retrofit
installation
'paid for itself'
in under two
months.

"The OPTI-VISOR™ has been working well and the customer is very pleased with the results. We've not had to make any adjustments or changes since the commissioning."

Walter Wadkins
Project Manager
& Senior Technical
Advisor, Setpoint
Systems Corporation

TORONTO
+1 416 755 2291

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+1 716 693 8813

BIRMINGHAM
+44 (0) 8444 145 145

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+44 (0) 8444 145 145

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+91 (0) 80 4906 3555

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OPTI-VISOR™ installation at a major online retailer

The Armstrong OPTI-VISOR™ is a chilled water plant control solution that provides optimized control advice to system components. Through a data exchange with the building automation system (BAS) the OPTI-VISOR™ raises plant performance to ultra-efficient levels.

Background

Data centers operate in a highly competitive industry, where performance metrics such as uptime are of paramount importance. A datacenter is also a very expensive facility to operate, with equipment cooling requirements that account for a large percentage of overall costs.

Setpoint Systems Corporation is a controls contractor operating in the US, primarily in the Midwestern states. In late 2011, Setpoint approached Armstrong for assistance in improving the cooling efficiency of a data center for a prominent online retailer. Setpoint and Armstrong determined that the customer could improve HVAC efficiencies and reduce their energy costs. It was estimated that they could reach an efficiency level of 0.45 kW per ton. The existing system already included an industry-standard BAS, with installed sensors. Based on a review of the equipment and control systems installed, and discussions with the customer to understand their requirements, Armstrong recommended installation of an OPTI-VISOR™. The Armstrong OPTI-VISOR™ is a chiller plant control solution that's compatible with a host of industry-standard BAS systems. Linked to the BAS network, the OPTI-VISOR™ receives chiller plant operating data, determines the optimal equipment settings and communicates these optimal settings to the BAS.

Installation

One key challenge around the installation involved the timing. Armstrong and Setpoint had to be certain to avoid the Christmas season, and that allowed

only a very limited window of time for installation. Another challenge involved the calculation of efficiencies for the installed HVAC components. No records were available concerning the performance characteristics of the existing chillers.

To address the issue of performance characteristics, Armstrong generated operating parameters using estimates drawn from industry defaults, and created the required performance profile for the OPTI-VISOR™ settings.

Installation and commissioning was scheduled for the first week of January 2012. With Armstrong providing technical support as needed, Setpoint completed the work in just three days

Benefits

Examining the operating data after the installation, it turned out that the calculated operating points for the control curves were extremely accurate. As a result of the accuracy and performance of the OPTI-VISOR™, the installation improved the HVAC efficiency to 0.38 kW per ton — 15% better than the original estimate.

With this efficiency improvement, the retrofit project was cash-positive within two months and the savings continue to accumulate. Both Setpoint Systems and their customer were understandably delighted with the results.