Vigilent shows market awareness with datacenter dynamic cooling update

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Vigilent, formerly known as Federspiel Controls, appears to be pulling ahead in the small yet growing market for dynamic cooling optimization, a potentially important technology for software-driven datacenters. Vigilent focuses on adjusting datacenter environments by analyzing a vast amount of monitoring and sensor data. In 2013 Vigilent rebranded its software suite, expanded its customer mix, and added enhanced functions that enable managers to resolve issues such as hot spots and cooling oversupply. The privately held company does not disclose revenue, but says that it is profitable and that bookings are on track to grow by 100% from a 2013. In 2014 Vigilent hopes to continue to diversify its customer base, and is readying to launch the next version of its software.

The 451 Take

Dynamic cooling optimization, a subsector of the datacenter infrastructure management (DCIM) sector, has not yet been widely adopted. Most operators remain wary of trusting software to control critical systems. But as datacenters become hotter, denser, more virtualized and increasingly dynamic, it is inevitable that more operators will embrace automated systems. There is also growing interest around software-driven datacenters, of which automation is at the core (although there are few datacenters today that rely on software control throughout). Vigilent is a leading cooling optimization supplier, with a sophisticated and comprehensive system, but as interest in the technology grows, much larger suppliers will enter the market.

Context

California-based Vigilent was founded in 2004 as Federspiel Controls, and changed its name in 2011 to reflect its focus on intelligent energy optimization. While there are numerous types of building energy management systems that are targeted at enterprises, Vigilent's system has more specific functionality – to maximize datacenter-cooling efficiency while maintaining service uptime. The company's software used to be called its Intelligent Energy Management System, but to better represent its capabilities, Vigilent renamed it as the Dynamic Cooling Management System in the second half of 2013.

Most of Vigilent's customers are datacenters, although about 10% of its business comes from deploying its system in commercial buildings. The company has some telecommunications customers that use Vigilent in their datacenters as well as central offices; some have mixed-use (datacenter and offices) buildings and are deploying Vigilent throughout. Vigilent says it has about 10 million square feet (roughly 930,000 square meters) and 62.3MW of power under management in total, including datacenters, telco offices and buildings.

The company says overall deployments increased 80% year over year in 2013, and bookings increased by nearly 100%, but it declined to share revenue or deployment numbers. Most revenue is from North America, although the company is currently expanding into new regions. In late 2013, Vigilent moved into a larger headquarters. The privately held company has about 70 employees, and has raised $6.8m in venture capital from Accel Partners and others (the most recent round was in 2012).

Vigilent's customers are mostly telecommunications companies. It has some colocation and enterprise datacenter customers, and plans to add more in 2014, as well as US federal government datacenters. Current customers include Verizon, Digital Realty, NTT Communications, Akamai, TELUS (also a Vigilent investor), Level 3 Communications, Avnet and the State of California. Most sales are direct. Among its sales partners is NTT, a reseller in Japan.

Vigilent's intellectual property lies in its software, yet it supplies optional third-party temperature sensors. (Its system requires one sensor placed on every three to four racks.) The company says it can integrate with other sensors, so long as they are accurate and have an adequate polling frequency. The company does not break out its sensor revenue. The price of its system (including sensors) is based on several factors, including number of sensors, the number and types of cooling units, the type of control, and total cooling capacity.

Technology

Vigilent wants its software to be the primary view of cooling operations (without datacenter management software, most operators rely on limited data from building management systems). The company's agentless software automatically adjusts cooling units, using variable frequency drives (VFDs). Manual overrides are possible, including remotely, and if any given cooling unit has an issue or problem, the system will revert it to full power as a failsafe.

To address security concerns over control and automation, customers often deploy Vigilent's software on a separate network that is dedicated to datacenter facilities instead of a corporate IT network. Also, data collected by its system is stored on a dedicated server device (as opposed to a cloud).

At the heart of Vigilent's system is an 'artificial intelligence' engine that polls data once a minute from carefully placed wireless temperature sensors (typically Vigilent's own). A differentiator is the amount and types of data it collects and analyzes.

Vigilent's is a closed-loop system. While there are real-time controls for each cooling unit and piece of cooling equipment, to adjust fan speeds or power up and down, the system is designed to maintain a constant supply temperature across the computer room. In other words, every device is managed both independently and collectively by the system, with an awareness of their independencies.

Data is reported, including for temperature, verification of compliance with SLAs or set standards, performance, and diagnostics of cooling equipment. Reports are designed to be understood by both operators and nonoperators (with high-level, color-coded graphical diagnostics for individual cooling units, for example).

In October 2013, Vigilent launched a new reporting feature that compares actual cooling delivered versus installed cooling capacity at a site, computer-room and unit level. By understanding available cooling capacity, operators can then determine how best to address operational issues such as hot spots and stranded cooling capacity. The data also helps them weigh their options in having to meet additional requirements from increased IT capacity, among other things. Vigilent has created APIs for customers to connect its data with other systems, including other types of DCIM, on a custom basis.

Major new release and roadmap

New customers are using the latest 5.4 version of Vigilent's Dynamic Cooling Management System, a major release that will soon be made generally available. Among the new features is a subtle but important capability, which Vigilent calls mixed-mode: the ability to control fan speeds on mechanical direct expansion (DX) cooling units, which are commonly used and typically less efficient than chilled-water approaches, using VFDs (most DX units are not designed to be controlled in this way). This feature means potentially far greater power savings for inefficient legacy cooling units. (In earlier versions, DX fan speeds could be either changed or turned off and on – but now both are possible.)

Version 5.4 also includes a new user interface, which requires fewer clicks and has additional visualizations of data. The new UI combines more data, which Vigilent says is actionable for end users, and is designed to be flexible, including for ad hoc reports. Vigilent's system has limited predictive capabilities today (they are heavily used by its control software, but are limited in how data is displayed to end users). A focus for 2014 is broadening its 'what if' scenario planning to include IT capacity, such as predicting the cooling requirements if rack densities are increased or if new racks are added, for example. It is also planning integrations with third-party work management systems so that alarms from its software can automatically trigger work orders.

Competition

Vigilent's most direct rival, in terms of features, is California-based SynapSense. Both deploy advanced wireless networks, sensors and a cooling-optimization engine. Vigilent tends to emphasize its analytical engine more; SynapSense emphasizes its greater breadth and positioning as an optimizing DCIM system. However, both companies are small players in a large but still immature global market. There are still debates over how datacenters should be optimized, and how the differing data-collection tools fit in. Other established DCIM suppliers, such as Schneider Electric and Emerson Network Power, can achieve this using multiple products. Some DCIM companies use monitoring data in different ways, with less direct focus on cooling optimization.

451 Research believes that, in the next five years, the DCIM market will change, with control and automation giants such as Johnson Controls (JCI) competing for business, along with other big suppliers like Schneider, Emerson, ABB and Siemens. Vigilent can certainly compete against these in its core market; equally, any one of these could be an acquirer.

SWOT Analysis

Strengths

Vigilent has strong intellectual property and a growing customer base, and is widely regarded as a forward-thinking specialist of datacenter-cooling optimization.

Weaknesses

Vigilent is a small company with a specialist product, which means it cannot compete against suppliers of more fully featured DCIM software.

Opportunities

Interest in software-driven datacenters and the fact that datacenters – and IT loads – are becoming increasingly variable should help drive demand for Vigilent.

Threats

A growing number of large suppliers from related datacenter sectors are increasingly interested in developing (or acquiring) integrated control systems. As cooling systems become more efficient, the opportunity for cooling-related savings may, eventually, taper off.