

All Eyes on the Internal Environment

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Several months ago, Al Gore announced a \$300 million advertising campaign to increase environmental awareness, particularly in terms of global warming. IT staffs must also raise their environmental awareness, starting with the warming and humidity issues right inside their data centers.

"You really have to have a strategy as you approach the monitoring of the data center," said **Steve Yellen, vice president of product market strategies for Aperture Technologies** (Stamford, Conn.), which sells software for visualization and real-time monitoring of the data center physical infrastructure. "You have to look at it as a holistic entity, as opposed to let me just look at this rack or that rack."

Although power and cooling has traditionally been the province of facility managers, data center managers are also gaining greater ability to monitor and manage these areas. Intelligent Building Systems are replacing discrete, proprietary monitoring and control systems with ones that communicate using the standard network and protocols. This enables IT staff members to monitor the facilities through the same interface they use for network or server management.

"When you get that holistic picture you can see everything together, do a root cause analysis to see what problem is causing all these alarms, and even do an impact analysis," said **Yellen**.

At Wright Patterson Air Force Base, for example, the staff uses the open source [Nagios](#) network monitoring program for its air handlers, chillers and PDUs, as well as environmental sensors placed throughout the floor. Commercial products specifically designed for data center infrastructure include **Aperture's Vista** and American Power Conversion Corporation's Change Manager and Capacity Manager. The past year has also seen the release of a new generation of appliances that combine environmental monitoring with security functions.

Ravica

Ravica (Sanford, Maine) has two main lines of sensorProbe boxes: BitSight and SecurityProbe. BitSight2, which is priced at \$250, is a 2-port sensor device with an embedded Linux-like [operating system](#) that includes a [TCP/IP](#) stack, Web server, e-mail

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and [SNMP](#). The BitSight8-x60 (\$1,250) is a 2U rackmount box that has eight ports and 60 dry contact points to receive alarm signals from remote panels, monitoring systems or building management systems. This enables the administrator to monitor items such as HVAC systems, security equipment, [UPSes](#) and generators. Data on any of the probes can be displayed on a Web page. Notification is sent by e-mail, SMS and SNMP traps. Last fall, Ravica released the SecurityProbe product line. The SecurityProbe-60 (\$1,995) has eight sensor ports and 60 dry contacts along with connections for 4 external analog cameras.

"These breach the line between just environmental monitoring and complementary security monitoring," said Jon Mills, product marketing manager for Ravica. "They are useful in any situation where data or equipment needs protection from the elements or people."

All of the sensorProbe boxes work with Ravica's complete line of sensors, including ones for temperature, temperature and humidity, thermocouple, water, security, airflow, AC voltage, digital voltmeter, power monitor, smoke detector and motion detector. Sensors are priced between \$45 and \$250.

NetBotz

American Power Conversion Corporation (APC) acquired Texas-based NetBotz in fall 2005. It has been integrating it into its InfraStruXure architecture. Three NetBotz appliances are available — the NetBotz 320, 420 and 500.

The NetBotz 320, which sells for around \$1,000, comes in a rackmount or wall mount format. It has a built-in camera as well as built-in sensors for temperature, humidity, dew point, airflow, door and audio. There are also four ports for external sensors. The 420, which has a configuration similar to the 320, is expandable to allow connection to one additional camera and four additional sensors. It supports wireless and modem connections, in addition to Ethernet. It is priced around \$1,600.

The top of the line NetBotz 500 has a base station, a detachable camera and a sensor pod. The camera records 1280 x 1024 video at 30 frames per second, rather than 640 x 480, 20 fps video of the 320 and 420. It sells for around \$2,500.

Asentria

Asentria Corporation (Seattle, Wash.) formerly known as Omnitronix, sells remote environmental and equipment monitoring modules. The SiteBoss product line, announced in October 2007, is designed for remote monitoring and management of network equipment sites. The SiteBoss 570 provides environmental and voltage monitoring and control interfaces to non-networked serial devices via a secure network or modem connection. It can power cycle up to 10 different 500 watt DC circuits. Prices range from \$800 to \$5,450.

The TeleBoss series, also announced in October, is designed for monitoring [PBXs](#), voicemail systems and other voice and data equipment at remote customer premises. The

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devices include environmental, battery condition and power monitoring. Administrators can remotely send commands to enable or disable power systems and manage devices, including servers and routers. The series has three products, which range in price from \$1,895 to \$2,645.

Both the SiteBoss and TeleBoss lines started shipping to customers in March 2008.

Alarming News

While the sensor probes continue to add new functions, as **Yellen** said, it isn't good enough to just throw in a bunch of new features. They must support and integrate with the company's overall data center management strategy.

"What is critical is making sure you define well what elements of the monitoring system mean the most to you," said Matt Hartle, Project Manager in the Monitoring Group for Lee Technologies (Fairfax, Virg.). "A lot of places just throw them into one bucket and treat a high humidity alarm the same way they treat a UPS discharge alarm."

Combining the data from the infrastructure vendors' management software with data from your environmental probes into a single interface can give you the insight necessary to deal quickly with problems as they arise.

"Don't look at it as monitoring equipment or monitoring temperature," said **Yellen**. "Look at it as monitoring the data center as a living entity."