



NASA AMES RESEARCH CENTER



The NASA Ames Research Center, located at Moffett Field in the heart of California's Silicon Valley, supports the science side of NASA's house. Its work is vital; its clients are researchers who demand a network that's available and secure 24/7.

THE PROBLEM

To George Alger, who supports 4,500 users as Ames' IT services manager, the overriding issue was network availability. The concerns at Ames included environmental conditions in mission-critical rooms: inadequate airflow, extreme temperatures, high humidity, water damage and amperage fluctuations. Staff needed warning to avoid damage to equipment and loss of scientific data. Alger and others were also concerned about security.

"People were moving equipment without authorization, and it was causing serious power allocation and management issues," said Lorinda Rodrigues, a senior Windows systems administrator. "When you unplug something you change power distribution patterns. If you move it to another room and you plug it in, you mess up that area as well."

There was an additional challenge: the 160 large storage batteries in Ames' uninterruptible power system (UPS) that buffered brownouts and outages at the 90-building site. If temperatures in the battery storage rooms soared because of, for example, an air conditioning problem, the batteries could overheat and begin emitting hydrogen gas. At anything more than 2 percent hydrogen room air becomes combustible — and hydrogen burns invisibly. This issue had drawn the attention of the fire marshal.

Alger also needed to ensure performance of UPS batteries. If batteries get too cold or too hot, the UPS might not have enough energy to shut down the computers properly during an outage. This could mean damage to equipment worth millions of dollars and loss of scientific data crucial to NASA. "We also had to consider the additional maintenance costs and negative impact on productivity," said Alger. "So there was a lot at stake — a lot of sensitive, sophisticated equipment to protect and a lot of researchers depending on that equipment every minute of every day."

"We here at NASA have always been able to identify leading technologies early," said Alger. "I think it's safe to say that NetBotz falls into that category. We depend on it to help our IT system run properly. It's our eyes and ears."



GOVERNMENT

THE SOLUTION

The deployment started with 10 NetBotz appliances for the dedicated battery rooms and telephone equipment backup environment. Although their primary job at Ames was and is monitoring hydrogen, temperature and humidity, cameras on the NetBotz appliances are also used to watch server rooms and other critical areas for unauthorized entry/and or equipment moves. The NetBotz appliances monitor noise as well: When ambient sounds rise above a preset level, the devices alert the staff to an unheeded server alarm, equipment malfunction or possible break-in. Now NetBotz monitors more than two dozen computer rooms and 90 communications closets.

THE BENEFITS

Days after installing the first NetBotz monitors, there was an air conditioning failure. NetBotz immediately alerted Alger via pager. Because of the early warning provided by NetBotz, technicians were able to get the air conditioning back on before computers were damaged by excessive heat — a “save” that quite possibly prevented hundreds of thousands of dollars in losses.

Using the high-resolution color cameras on the NetBotz appliances, Alger watches the server rooms from anywhere — while he’s away at training, for example. One evening while at home he happened to be watching when the air conditioning unit shut off in the data center. “You could just see the temperature take off,” he said. “Thanks to NetBotz I was able get right on it. I called and had them check it before it got way, way too hot in that room.” That could well have saved equipment in the data center worth some \$750,000.

“The bottom line is that it’s a lot less expensive to watch an equipment room with NetBotz than to pay \$100,000 to replace equipment.”

In the 22 months since the NetBotz appliances have been installed, they have provided early warning dozens of times — again, saving equipment and preventing the loss of productivity and data. NetBotz has enabled the facility to reduce its annual equipment replacement budget, and network “up” time is higher. Additionally, the NetBotz devices have helped mitigate damage from at least a half-dozen power outages and have proved to be easy to use.

“The technical support NetBotz has provided is exceptional,” said Rodrigues.

Alger said NetBotz has cut response times in half and made the IT staff more efficient. Rather than IT professionals spending time babysitting rooms, NetBotz frees staff to concentrate on more strategic issues. “Now we can take action before problems even have time to develop,” Alger said.

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CORE BENEFITS

- ◆ Alerted IT staff to HVAC failure, preventing damage to computer equipment valued at \$750,000.
- ◆ Monitors hydrogen levels in battery rooms, averting possible loss of life.
- ◆ Increases network availability and employee productivity.
- ◆ Serves as an additional layer of security.
- ◆ Significantly reduces response-to-resolution times.
- ◆ Installed and operational in less than one hour.

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