NetBotz in Healthcare

The Problem:

Scott Rich, the IS director for the Department of Pediatrics, has a day job. Among other things, he oversees: desktop support for some 1,500 users and 4,250 accounts; server support for a number of departments within the medical school besides Pediatrics; and 75 remote distributed sites, all equipped with the usual IT equipment and infrastructure. But a recent incident brought him a new responsibility.

The department had been having issues with the industrial strength freezers they used to store precious cell and tissue samples. Unlike home freezers, this equipment typically runs at between -70° to -80°F, the threshold required to preserve the delicate and priceless research material inside. A number of times, the freezers had failed-going out of the proper temperature range to safely store the delicate cell samples inside. That's when sensors on the freezer would trigger an audible alarm. Hearing these alarms, facilities staffers would quickly respond to correct the problem.

"Then, during a meeting, I heard about a researcher who had lost his experiments because a freezer went down and no one came to fix it." The cause, Rich said, "Was a perfect storm." At close of business on a Friday, a cleaning crew had unplugged the freezer to plug in their floor buffer. Unfortunately, they forgot to plug the freezer back in. Security, which typically does a floor by floor check every hour, didn't come by over the weekend. So no one was around to hear the alarm go off.

By Monday, when employees returned to work, there was "water all over the floor," said Rich. Worse, all the cell samples stored in the freezer had been destroyed, along with "a lifetime of work."

"Although the problem was totally outside of IS responsibility or even on our radar screen," said Rich, "I decided to investigate further to find a way we could avoid this happening again." The key, he said, was finding out that the freezers had dry contacts. This opened the door to the possibility of attaching a monitoring device to the dry contacts on the freezer. The hope was that the device could send an alert if the temperature thresholds were violated, so even if no one could hear the audible alarm, the monitoring device would and immediately notify appropriate personnel by pager, phone or email.

"Within the first three months of deploying NetBotz, we had recouped the cost of our investment," said Rich. "NetBotz showed us we had a higher rate of freezer failure than we had assumed."

Washington University in St. Louis

Washington University School of Medicine

The Washington University School of Medicine, Department of Pediatrics in St. Louis is part of the nation's second best medical school, an honor bestowed by U.S. News & World Report. With research a key focus of the department, protecting priceless cell samples on which much of that research is based is critical.

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The Solution:

After doing an Internet search on monitoring solutions, he came upon NetBotz. A live demo then convinced him that "these little things [appliances] are amazing." Rich purchased five NetBotz 500 monitoring appliances, one for each floor on which the freezers were located. (There are six freezers to a floor.) He also purchased two additional sensor pods and two camera pods for each floor.

The NetBotz appliances monitor the freezers in a number of ways. He's attached them via dry contact cables to the freezers. They're set to read the internal freezer temperature off the freezer's temperature (thermocouple) sensor. If temperatures dip above or below a threshold that has been established, the NetBotz solution will instantly alert facilities. His implementation includes policies on how/when to react. For example, if an alert goes off, it may just mean a researcher opened the door to retrieve a sample. If, however, another alert is sent 15 minutes later, then a facilities staffer will go the freezer sending alerts. The principal investigator in charge of the research project is also alerted further down the alert cycle.

The integrated SSL-encrypted cameras and camera pods on and attached to the appliance via cabling actively monitor the physical area. If they detect motion, they'll send an alert that someone has entered the area. Looking through the camera itself via a url, appropriate personnel can see who's in the area. Rich has set up the NetBotz to alert his facility technician at home via the Web, so that if something happens during off hours or weekends, the technician can look through the NetBotz camera to see what's going on. For example: Did someone open the refrigerator door or did the temperature rise because the freezer's failing? Answers to these questions can save needless trips to the facility.

The Benefits:

"Within the first three months of deploying NetBotz, we had recouped the cost of our investment," said Rich. "NetBotz showed us we had a higher rate of freezer failure than we had assumed." By detecting and alerting freezer failure early, NetBotz gave personnel time to move the tissue and cell samples to another freezer.

"The fact that it has prevented priceless research from literally going down the drain is fantastic. Everything else it does for us is a bonus."

Future plans call for NetBotz to monitor labs for environmental issues. "There are toxic gases used in our research facilities," he said. "I see us using NetBotz to help us create an even safer work environment."

"All our 'human' processes had failed us. But NetBotz never takes a vacation day or sick day. It's there, always on. That's very reassuring to know."

Back to his day job: Rich is planning to put NetBotz to work in the school's data center. He plans to use appliances to monitor access to the room as well as integrate it into his Microsoft SMS to get real time alerts about his equipment.

"How we use NetBotz is limited only by our imagination," he said.

Core Benefits:

- ROI within three months
- Alerted about repeated freezer failures, giving personnel time to save priceless cell samples stored inside
- Provides information about cause of rise in freezer temperature
- Saves time and money by preventing needless weekend service calls
- Protects research assets from consequences of human error
- Significantly reduces response to resolution times

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