



Coleman Technologies

Coleman Technologies Inc. (CTI) provides computer and network systems engineering, Internet services and customized engineering solutions for sensor, communication and information management problems. Services focus on the analysis, design, modeling, integration, testing, and evaluation of complex hardware/software systems in the areas of network architecture, network security, distributed information processing, RF communication and remote monitoring systems.

Background

Reliable, mission-critical power protection is essential to the success of Coleman Technologies Inc. (CTI). According to Kirk Sawyer, CTI chief financial officer, the company relies heavily on its IP communications network. In addition to traditional network functions, CTI's network supports the IP phone system and network monitoring business. When the company started experiencing disruptions in its IP communications network, it analyzed the performance of servers, routers and switches before identifying the problem as a malfunctioning UPS.

Case Summary

Location: Orlando, Florida

Products/Services:

- Liebert GXT UPS

Critical Needs: Eliminate power problems affecting network and IP telephony operations.

Results

- Uninterrupted network operation through a series of four hurricanes that struck Florida in 2004.
- Elimination of power problems affecting IP telephony.

The Situation

At the time CTI started experiencing network problems, the network backbone was supported by two non-Liebert 5 kVA line-interactive UPS units. Dual-corded devices were connected to both UPS units while single-corded devices, including the switches, were load-balanced across the two UPS units to prevent a UPS failure from taking down the entire network.

IP phones are powered by a network switch, and network connectivity goes from the switch to the IP phone to the PC. Early in the summer of 2004, the switches started rebooting unexpectedly, causing the phones and computers to reboot.

“If someone was on a call and the switch rebooted, the person would lose the call with a minute or two passing before the phone would become operational,” says Sawyer. “We also could lose our connection to the e-mail and file server.”

“Because some of the phones were rebooting, we suspected that one of the switches was defective,” says Chris Ireland, CTI network administrator.

After troubleshooting, CTI engineers determined the problem was not with the switch but with the UPS connected to the switch. One of the line-interactive UPS units was not delivering power when utility power was lost. The UPS also had a circuitry problem that would occasionally cause the unit to reboot on its own, interrupting power. Because of the inconsistencies in the power delivered by the UPS, CTI lost two switches and two servers before swapping out the UPS.



“The Liebert UPS system proved to be the savior for the CTI network when central Florida was hit with four hurricanes in less than six weeks...we did not experience a single interruption. In fact, since we installed the Liebert UPS system, we have not had any network reboots.”

*Chris Ireland, network administrator,
Coleman Technologies*

The Solution

After isolating the problem to the UPS, CTI contacted the local Liebert Representative for assistance in selecting a power backup system. The Liebert Representative had previously conducted a demonstration for the company showing how line-interactive UPS technologies operating under varying power conditions will experience voltage drops, but double-conversion UPS systems can handle the same variations without voltage drops.

“The demonstration was so compelling that we decided we not only had to replace the faulty UPS in our network, we had to upgrade to UPS technology that ensures network availability for our customers,” Ireland says.

CTI replaced its existing UPS systems and battery strings with 6 kVA Liebert GXT UPS systems. The Liebert GXT is a double-conversion system that converts incoming power from AC to DC then back to AC to provide a completely isolated power source to the critical load. The result is a clean and stable 120-volt source to the connected load—even when input power is subjected to extended brownout conditions.

After the Liebert UPS units were installed, CTI removed the batteries from their old UPS units and found that four of the eight batteries were bubbled and cracked. The UPS system had not indicated any of the batteries in the cabinet needed to be replaced, even though the systems had LCD screens that provide battery status.

“When I removed the batteries, they were so hot that I could have fried an egg on them,” Ireland says. “And the batteries were located in an air-conditioned room.”

The Results

Once the Liebert system was in place, CTI did not experience any problems with its network equipment. Fortunately for CTI, the new Liebert UPS system was installed before a series of hurricanes tore through Florida.

The hurricanes—Charley, Frances, Ivan and Jeanne—pounded Florida within a span of 38 days, causing an

estimated \$42 billion in damage. Wind forces reached 145 miles per hour with Charley, which was classified as a three/four hurricane. Ivan had winds up to 150 miles per hour and was classified as a category four/five hurricane.

“The Liebert UPS system proved to be the savior for the CTI network when central Florida was hit with four hurricanes in less than six weeks,” says Ireland. “Our building lost power eight to 10 times during the storms, but we did not experience a single interruption. In fact, since we installed the Liebert UPS system, we have not had any network reboots.”

“Our network monitoring customers were very dependent on the CTI network during the numerous hurricanes that struck Orlando,” says Sawyer. “The Liebert systems played a critical role in enabling us to deliver the monitoring services our customers required. Based on our own experience, we are convinced that mission-critical networks require mission-critical online UPS technology. We will only recommend Liebert UPS units to our customers.”

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