



SkyPort International

SkyPort International, Inc. is a world leader in satellite and terrestrial communication services. The company's extremely reliable and secure solutions are trusted by multi-national corporations, governments, military and emergency response agencies.

Background

SkyPort's goal was to "raise the bar" in terms of efficiency, reliability, redundancy and customer service in the traditional satellite industry. Accomplishing that required developing a world-class data center and teleport facility. That was difficult enough in itself, but in order to capitalize on growing market demand for satellite-based telephony service, the company was on an extremely ambitious schedule—150 days from groundbreaking to first transmission.

Case Summary

Location: Houston, Texas

Products/Services:

- Liebert Series 600T multi-module UPS system
- Liebert Precision Power Centers
- Liebert Static Transfer Switches
- Liebert SmartSwitches
- Liebert Interceptor II surge suppressors
- Emerson Energy Systems Candeo XL DC power system
- Liebert Deluxe System precision air conditioners
- Liebert Intelecool air conditioners with Tele2 controllers
- Liebert SiteLink Modbus interface panels
- Liebert SiteNet Integrator and Load Control

Critical Need: Enable emerging teleport services provider to deliver carrier-class reliability

The Results

- Local service and support enabled SkyPort to develop the entire facility in just 150 days
- High availability power and cooling systems deliver the 99.9999 percent availability critical to telecommunications success
- The World Teleport Association named SkyPort the "Teleport Developer of the Year" in the year following the opening of its new facility



The Situation

“One thing our customers have in common is the vital importance they place on secure and efficient availability of their critical data,” says Guy Fielder, chief operations officer for SkyPort International, Inc.

SkyPort designed and built its teleport to deliver 99.99 percent reliability through seamless integration of satellite and terrestrial networks. Accomplishing that required a power system that could deliver 99.9999 percent availability.

SkyPort has combined the right technologies in a strategic location to deliver reliable broadband voice, video, data and Internet services to virtually anywhere in the world. The company established its teleport at Houston’s Ellington Field, a Joint Reserve Base, to take advantage of the physical security and many fiber networks and power grids that support nearby NASA Johnson Space Center. In addition to the satellite communications capability, SkyPort’s facility has access to three SONET fiber ring networks, two separate electrical power grids, and battery and diesel backup.

Liebert is SkyPort’s supplier of choice for clean, uninterrupted power, precision cooling and monitoring of the critical electrical and environmental infrastructure.

“We deliver services that allow our customers to extend their networks,” explains Fielder. “Like all service providers, the success of our business is ultimately dependent on the reliability of our network.”

Fielder was responsible for developing the network and infrastructure on which the company’s success would depend. He brought to the task an impressive track record of managing complex technology developments. A member of the team that founded Compaq Computer, Fielder had led successful development



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SkyPort International*

efforts for everything from PCs to chip testers. In the process, he learned the value of a best-of-breed approach to project development.

“Our approach on this project was to identify the best-of-breed suppliers in areas that were critical to the project’s success and rely on them to perform,” says Fielder. “In the area of critical infrastructure support, that was clearly Liebert.”

That approach led Fielder to Liebert representative Bud Griffin & Associates (BGA) in Bellaire, Texas.

“Having knowledgeable experts right in our backyard turned out to be a big asset,” says Fielder. “BGA came into the process early and brought a great deal of design and engineering expertise to the table.”

The Solution

Fielder met with Kenneth Holloway and Eric Blahuta of BGA to discuss the critical support system requirements for SkyPort's new network operations center. BGA not only evaluated the requirements as originally intended, they also recommended changes that improved the reliability of the teleport.

"BGA and Liebert were able to address our issues as I expected," says Fielder. "That simplified construction of the facility and enabled us to stay on a very aggressive schedule."

The Power to Succeed

SkyPort's power system was designed to take advantage of two independent power feeds at the facility. The power feeds are connected to a redundant, multi-module 150kVA Liebert Series 600T UPS system. Load sharing and communications between the modules within each system is managed by Liebert System Control Cabinets. Liebert Static Transfer Switches (STS) provide fast, seamless switching between the modules within each system. A Liebert STS also sits upstream from the UPSs to provide power source control and load and capacity balancing between the A and B power feeds. Additional Liebert SmartSwitches bring power system redundancy to the point-of-use, preventing problems downstream of the UPS from affecting operations.

Each of the power feeds is also equipped with a Liebert Interceptor Surge Suppressor at the service entrance to provide a first line of defense against equipment-damaging surges. The Liebert Interceptor II provides 80 to 1000 kA of surge protection and EMI/RFI filtering for facility-wide protection.

"This design enables any component in the power system to be taken down for scheduled maintenance with no disruption to our operation and no impact on our customers," said Fielder. "It also provides exceptional fault tolerance."

The system is designed to manage a potential, but rare, double fault in the power room. If that were to occur, the Static Transfer Switch would switch power from the power room to separate power generation equipment in the equipment room with no impact on operations.

Liebert's power protection infrastructure also provides carrier-class protection for SkyPort's Internet Protocol (IP) telephony system, which is based on Cisco Call Manager and enhanced by Corvero Network's suite of IP telephony applications. A Candeo XL DC power system from Emerson Energy Systems is used as a backup power source for the IP telephony system. The Candeo XL delivers telco-grade -48V DC power in a flexible configuration that allows SkyPort to easily add capacity to the system as the requirements change.

"The entire power system was designed to readily scale so that we can easily accommodate growth," says Fielder. "We can add UPS or DC power capacity without disrupting operations."

Keeping Critical Systems Cool

Two 30-ton Liebert Deluxe precision air units keep critical computer and communications systems cool in the network center. Using two 30-ton systems saves valuable floorspace compared to multiple smaller systems. Two additional 10-ton Deluxe Systems cool the power room.

Each Deluxe System features redundant compressors and refrigeration circuits, which assure continuous cooling in the event of a compressor failure. The units run in a lead/lag configuration to even runtime between

each Deluxe System pair, extending compressor life. A hot gas bypass option helps balance the system to the load, further reducing compressor cycling and increasing compressor life.

Two 3-ton Liebert Intelecool air conditioners are used to cool telecommunications shelters at the facility. Intelecool is designed specifically for telecommunications shelters, providing flexible, reliable precision cooling for these demanding environments. Intelecool mounts to the exterior of the shelter, saving internal floor space.

Tying it All Together

The Liebert SiteLink ModBus Interface Panel is used to connect all Liebert equipment throughout the facility with SkyPort's intelligent building management system, Metasys. Through SiteLink, SkyPort benefits from centralized monitoring and alarm management of critical support systems.

Liebert Global Services provides regular maintenance of all the UPS, power distribution units and switches in the facility.

"The Liebert service has been very responsive. When we've needed them, they've been here," says Fielder. "But their biggest value is in keeping problems from happening. Their preventive maintenance services give us the peace of mind that our power systems are in peak operating condition."

The Results

SkyPort broke ground for its teleport and global network operations center on March 12, 2003 and completed its first encrypted Voice over Internet Protocol (VoIP) via satellite transmission 150 days later.

In March 2004, the World Teleport Association named SkyPort the "Teleport Developer of the Year" in the Ninth Annual Teleport Awards for Excellence program.

"The design and quality of our infrastructure certainly played a role in our recognition by the World Teleport Association," says Fielder. "It was clear that we had created the foundation to differentiate SkyPort from the traditional satellite service providers."

That foundation has been tested during several storm-related outages and brownouts that have occurred since the facility began operation. In each case, business operations were unaffected by the outages and disturbances.

"The combination of Liebert's reliable, fail safe systems and BGA's expertise gave SkyPort the best-of-breed solution we were looking for," Fielder concludes. "Thanks in large part to quality suppliers like Liebert, our operating environment is as ideal as the real world will allow."

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