Case Study

USGS - Albuquerque Seismological Laboratory

When your facility spans the globe you need a unique system designed for reliability, integration, and expandability. With escalating troubleshooting and repair costs for their global network of outposts, the USGS/ASL turns to RLE for a comprehensive, anticipatory monitoring solution.

A Global Network Of Information

When the United States Geological Survey at the Albuquerque Seismological Laboratory (USGS/ASL) needs reliable equipment to monitor their seismic stations across the globe, they turn to RLE Technologies' Falcon FMS for efficient, dependable facilities monitoring.

The Albuquerque Seismological Laboratory (ASL) helps maintain the Global Seismographic Network (GSN), a network of seismological and geophysical sensors that provide worldwide monitoring of the Earth with over 150 modern seismic stations distributed globally. Station upkeep and maintenance are mandatory to ensure data is being processed and recorded at all times.

Monitoring Is A Necessity, Especially In Extremely Remote Locations

Since most of the GSN stations are remotely located, repairing problem equipment is time consuming and gets expensive—fast. According to field engineer, Ted Kromer, "A typical visit to replace a Data Acquisition Unit consists of: shipping equipment, airfare, lodging, food, and pay of the field engineer… Some maintenance trips last from 1 to 3 weeks. Sometimes it takes a week's worth of traveling just to get to the station."

In fact, while new equipment can cost up to $20,000, maintenance trips can cost up to $30,000 per visit. Not only are maintenance trips expensive and time consuming, but in many cases the engineers find more problems than originally reported. While the majority of problems that occur are environmental— such as lightning, wind, and humidity— some locations suffer from power surges, vandalism, and even controlled fires that unintentionally burn cables.

Kromer explains, "Since our stations are remote locations, most problems are out of our hands. We have to send a local host operator to inspect what went wrong with the station. It could take a week to get someone to look at our equipment and up to a month to troubleshoot, get parts to that country, and have the host operator replace the failed part."

A Flexible Solution Monitoring A Wide Range of Inputs

These problems and the extended repair process causes the ASL to loose data points at their labs making it difficult for them to record essential information about earthquakes— the lost data is immeasurable. To help decrease downtime, ASL selected the Falcon Facilities Monitoring System (FMS) from RLE Technologies. According to Kromer, "Our goal is to keep every seismic station up and transmitting data 100% of the time."

And RLE's FMS helps them achieve this goal. The FMS allows ASL to monitor:

- DC outputs of UPSs
- Commercial AC power
- UPS battery temperatures
- Ambient facility temperature
- Solar panel DC output voltage
- UPS battery voltage
- Door sensors (intrusion alarms)

- Flood sensors for seismometer vaults
- Solar radiation to detect the sun's intensity on solar panels
- Wind speed for stations powered by wind generators

Anticipation Is Key

Not only can ASL monitor all of these factors, but engineers can now fix problems remotely and anticipate the needs of remote locations. Kromer explains, "Using the Falcon, we can see when AC power has failed and have it investigated locally. If batteries are starting to fail we can send replacements before they do. The Falcon lets us see if there has been unauthorized entry to a station that stopped transmitting data, and even allows us to reset a hung computer remotely by cycling the power."

Immeasurable Savings

With the flexibility and breadth that the FMS offers, the ASL has saved time, money, and important data from being lost. Their labs are running more efficiently than ever with longer uptime and faster solutions when problems do occur. Kromer's very pleased with the reliability and responsiveness of the FMS, "Being able to remotely monitor all of these sensors increases our ability to troubleshoot problems faster and more accurately."

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