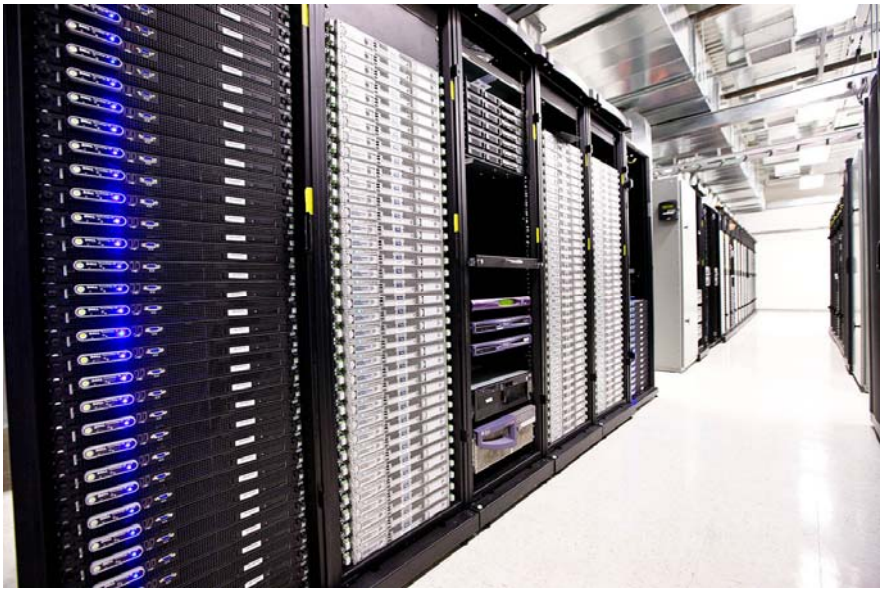
COMPLEX DATA CENTERS REQUIRE COMPREHENSIVE MONITORING

Data centers are the beating heart of a modern economy. Banking and finance would be in the dark ages of paper ledgers without them. Healthcare management depends on them. Cloud computing and search engines are defined by them.

Complex data centers are difficult to build and maintain. What's more, there's no margin for error. When the equipment and software is turned on, it has to stay on. If it goes off, a backup system has to kick in within seconds.

When the data center at Delta Airlines failed recently, it cost the company about $150 million a day until it was up and running again. And that figure doesn't include the incalculable cost of customer satisfaction.

Global Power Technologies (GPT) plays a vital role in the creation of data centers by providing software and expertise to not only monitor the completed power distribution system but to also make the testing and commissioning of the electrical system before they go online more efficient, robust and comprehensive. Owners of the center can't wait until operations are in full swing to find and correct any flaws. That's why the initial commissioning of the system is so important.



Typical data center construction passes through five levels of commissioning. The first two involve designing and building the facility and putting the equipment in place. Even at this early stage power monitoring needs to be taken into consideration, particularly with respect to factory testing and integration

with other supplier's equipment. GPT becomes heavily involved during Level 3 or pre-functional commissioning, which begins the integration and testing of all equipment mechanical and electrical. This is to enable the commissioning agent hired by the owner to be ready to manage this process when functional (L4) and integrated system testing takes place.

At this level GPT becomes an essential partner to the commissioning agent and electrical installer by providing the Electrical Power Monitoring System (EPMS) to verify system performance. During a test, it's not enough to say, "The generator failed." Equipment can fail for any number of reasons. It's vital to know exactly why. The ability to see multiple pieces of equipment, their interaction and their real-time data from a single pane of glass gives the commissioning agent a tremendous advantage to verify everything is working properly.

Think of a simple switch. It can be in one of three states, called status points — on, off or not functioning. In power distribution it's common to have equipment with thousands of status points to check. In theory you could do that manually, but doing so would be prohibitively expensive. Nor would it be error-free.

The EPMS designed by GPT can record a detailed data snapshot of system-wide loading conditions and thereby recognize unexpected results. It can also provide a time-stamped sequence of events for any failure in order to identify which piece of equipment is causing the problem. This automatic detective work facilitates the repairs and corrections.

In order to use the EPMS for these features, a critical path for the installation of the EPMS must be established at the beginning of the project. If you don't prioritize the EPMS, there is not the opportunity to fully test equipment in the multiple configurations of the power distribution system, verify its status and record the data. In addition to assisting with the commissioning, the power monitoring system can be used as a powerful training tool for the incoming facility engineers charged with maintaining and managing the data center.

An EPMS can also contribute reports that monitor a facility's power signature during higher levels of commissioning, including peak demand, maximum total harmonic distortion and power anomalies.

Integrating the EPMS into the commissioning process from the beginning means that all the electrical systems in the facility undergo scrutiny in proper order. Breakers, for example, are tested early on, when they should be, not late in the process when repairs become time consuming and expensive.

GPT has a reputation for having the specifically configured EPMS ready and available for the first steps of commissioning, thus giving the commissioning agents and end users all the data they need to verify performance.