



Power Protection in Today's Cloud Computing World

The Growth of Data Centers

More than ever, companies are transitioning IT infrastructure to data centers. According to International Data Corporation (IDC), there are approximately 13,000 large data centers around the world with 7,000 of those data centers in the U.S. alone. Although segment growth stalled during the recession, IDC estimates about \$22 billion will be spent on new data center development worldwide in this year alone.

The Problem

With the sheer value and scale of cloud computing being leveraged more aggressively we now expect our business's critical information to be stored in, and to be moved to and from, data centers. As a result, IT managers must pay a premium to provide the most robust and stable environment for servers and network equipment to ensure uptime and performance, but must also juggle the major issues of rising capital and operating expenses to maintain competitive in the market. One of the largest expenses these IT managers face is the purchase and maintenance of expensive UPS battery back-up technology to protect equipment from power disturbances and outages should the data center's power go down. More and more, these IT professionals are recognizing that with the redundancy they've adopted as a best-practice, the chance of losing power at multiple centers simultaneously is near zero, and only a minority of equipment actually requires this type of protection.

The less known fact is that while downtime is extremely low at data centers, damaging power disturbances are a very common, and costly, occurrence. To make matters worse, according to a data center report in 2010, problems with UPS equipment and configuration are the most frequently cited cause of data center outages. Because of this, there is growing movement to find and implement a solution to protect electronic assets without the cost, size and service requirements of a battery-based system.

These statistics demonstrate two trends: data centers continue to grow and companies are spending too much money on electronics protection with UPS technology and the associated and unavoidable costs of configuration, service and replacement and disposal. Both trends considered, operators must continue to deploy and manage a growing asset-base of electronic equipment while simultaneously establishing a cost-effective power protection strategy that is more practical, manageable and cost-effective.

Current Technology Choices

Historically, electronics power protection choices have been limited to either under-functioning surge protectors for aftermarket consumer use or unwieldy and expensive technologies such as UPS, for use by large enterprise systems. Traditionally, UPS technology has proven to be an effective technical solution for power protection. The technology protects against disturbances by physically isolating electronics from the grid and powering them by battery. However, UPSs are prohibitively expensive to acquire, costly to maintain and are increasingly difficult and expensive to dispose of when replaced—which is required every two to four years—bringing about an additional environmental burden these facilities must manage. Because of these limitations, most assets in data centers are either protected at too great of cost or are not protected at all.

The Best Solution

The current protection landscape for enterprise and data center electronics points to a void in available protection technology. Experts are realizing current technologies are limited and that grid events—both inside and outside of data centers—are more complex and frequent than once thought, elevating the need for the development of effective and affordable 21st century protection for the mass-majority of the world’s electronic assets.

To bridge this gap, Innovolt has developed an intelligent electronics protection platform that meets this need. Compared to inexpensive surge protection and filtering technologies, this new type of protection is cost-effective and is a meaningful and proven long-term safeguard for electronics. Similar to UPS systems, the technology provides immunity from grid and line disturbances, but with a greater success rate, more functional form-factor and far more affordable design.

Innovolt’s patented technology, which resides between the power grid and the equipment that is being protected, uses a series of patented algorithms and protocols to recognize potential power issues, and quickly and intelligently remediates issues before any damaging effects occur. This platform has three major components:

- 1) Measurement and Signature Creation – monitors and measures details of incoming power to create power signatures, which can be profiled in real-time against known disturbances.
- 2) Predictive Processing – compares real-time power signatures to profiles that are known to cause damage to electronics. With millions of potential combinations of profile and signatures, a central microprocessor system then determines the most effective steps for remediation and activates a Core Protection Circuitry.
- 3) Core Protection Circuitry – provides a buffer between a damaging power event, its effects and the protected electronics. Using a series of internationally patented techniques, this circuitry executes the best-prescribed protection strategy.

Not only is this new technology data driven, it’s flexible. It can either be placed in front of the electronics as a power-protection device to shield the equipment from all power anomalies, or integrated into the electronics themselves. The technology is accessible to and effective for all electronics, regardless of size, deployment or industry. Innovolt’s electronics protection platform provides the first holistic and intelligent approach to protect and manage electronics, resulting in equipment that performs better, lasts longer and requires fewer service calls.

In addition to this, the Innovolt solution provides a data framework that allows the user to both control the protection profiles to meet the equipment or application needs and collect all power consumption and disturbance data from each device to help the user better manage the facility and assets.

What this means to Data Centers

This approach to power protection can easily save millions of dollars in expenses in the construction, configuration and maintenance of electronic assets in a single enterprise data center. Across an enterprise, the potential savings from both a capital and operating expense standpoint is game changing for IT organizations. As such, Innovolt is focused on providing new and improved cloud-computing-specific product and technology solutions to benefit the economics of data centers worldwide.