CASE STUDY

The Real-Time Data Center

RagingWire Data Centers Uses TrendPoint EnerSure & A Technology Partnership With Schneider Electric To Deliver 100% Availability & The Highest Customer Loyalty In The Industry

Data centers are like any other business—you can't manage what you don't measure. But power delivery in a data center can be particularly challenging. The difficulty is in translating raw data into actionable analytics when it comes to real power consumption and power management.

In addition to efficient operations, enterprise data centers are under increased pressure to adopt green initiatives with the primary desire to save electricity. Corona, Calif.,-based TrendPoint Systems recognized this need early on and developed the EnerSure branch circuit power meter to measure power consumption in markets where power is a major expense—namely, data centers, says Lisa Mandell, president of TrendPoint.

"In keeping with the theme of 'you must measure in order to manage' (in our case power consumption), the need we are fulfilling is to do just that—measure power consumption at the branch circuit level," she says.

The Smart Choice In Data Centers

RagingWire is a data center company with a long history of 100% availability, technical innovation, and superior customer service. It is unique in the industry because it designs, builds, and operates its own facilities. With more than 650,000 square feet of data center space, RagingWire has the largest commercial multitenant data center in the state of California and recently opened an industry-leading data center in Ashburn, Va. (pictured). In 2012, the company was awarded two patents on power delivery systems and was recognized as having the highest customer loyalty in the data center industry as measured by the Net Promoter Score.

RagingWire recognized early on the potential of TrendPoint's EnerSure system.

"TrendPoint enables us to give our customers something that most other data center companies can't," says Annie George, product marketing programs manager for RagingWire. "We provide our customers their power consumption data in real-time, anytime they want, via our customer portal. Some data center providers have that data but don't share it with customers as it's not integrated into a customer-facing application. Other data centers don't collect the data at all. We use TrendPoint data for billing, power management, and energy efficiency analysis. Even more than that, customers can use this data as part of their capacity planning and budgeting."

N-Matrix: Real-Time DCIM

One key to offering these capabilities to customers is the work Schneider Electric and RagingWire did to integrate TrendPoint with RagingWire's comprehensive portfolio of DCIM (data center infrastructure management) tools called N-Matrix™.

N-Matrix, which RagingWire developed in-house, provides the comprehensive monitoring, management, optimization, and operation of the data center. Every piece of critical infrastructure being measured at RagingWire plugs into an Ethernet backbone and becomes part of the overall N-Matrix system. The N-Matrix infrastructure monitors battery performance, branch circuits, chiller plant temperatures, data floor temperature and humidity, chiller plant line-up, and electrical plant configuration. Based on that data, the system can automatically respond to changes, such as the outside temperature, loss of utility power, or a UPS fault, providing customers the best PUE (power usage effectiveness) and lowest costs.

Rich Fennimore, executive account manager at Schneider Electric, was involved in the system from the start. "RagingWire and Schneider Electric co-developed the early prototypes of N-Matrix," he says, collaborating and doing research on what the RagingWire network should look like and what software needed to be used. After working with a crew to assemble a pilot system, including mounting the circuit boards and modifying the panel, Fennimore says, the group worked to complete the production level N-Matrix system which today leads the industry.

The TrendPoint EnerSure branch circuit meter serves as the lifeblood of the N-Matrix system. EnerSure gathers precise performance data from IT and cooling loads, including amps, volts, power factor, watts, and kWh energy. Each EnerSure Data Gathering Module has 22 power meter-on-a-chip units.

EnerSure is the only product certified by ANSI and IEC to provide utility-grade data per circuit. "No other vendor has our level of accuracy," Mandell says. In addition, she says, EnerSure accommodates any combination of one-, two-, or three-pole circuits. It features onboard Ethernet (Modbus, TCP, SNMP, and BACnetIP) and offers onboard alarms and data logging.

The ability to install the product "hot," without having to take down power, also makes the product unique in the industry, Mandell says. Plus, the product works with power distribution systems from any manufacturer. In fact, TrendPoint has a UL-listed panel shop that can assemble EnerSure meters into enclosures, which can be customized to any size.

"RagingWire is our flagship customer in the data center space," Mandell says. "They lead the industry in innovation, availability, and service. We are proud to be part of the award-winning RagingWire data center colocation solution."

100% Availability & High-Density Power

Schneider Electric's Fennimore says the N-Matrix DCIM system in place at RagingWire collects and processes more data than any other DCIM in production today. "N-Matrix is very unique. Lots of systems take algorithms and put it all together," he says. "With N-Matrix, we are working with real-time data, real circuit loads, and real alarms. These circuits go to server racks, to specific customers, and with the integrated monitoring, customers can tell exactly what they are using."

Kyle Klaus, systems design engineer at RagingWire, describes N-Matrix as "an integrated suite of data collection, monitoring, analytics, and operations tools with RagingWire patents, Schneider technology, and TrendPoint EnerSure as the core." He says RagingWire has about 100 EnerSure meters installed at this point, monitoring about 8,400 circuits, with similar setups at both its California and Virginia locations.


The RagingWire data center in Virginia.

"TrendPoint provides raw data that we can do just about anything we need with, which has been a critical input for us to continuously improve our data center operations and deliver on our industry-leading 100% availability SLA (service level agreement)," Klaus says.

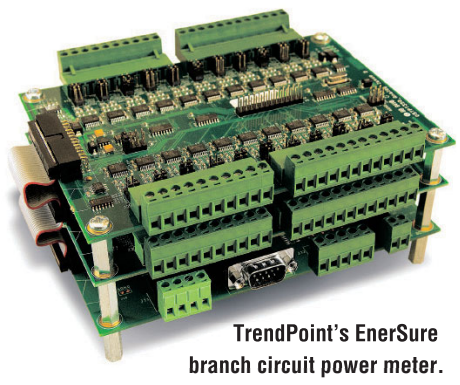
RagingWire was one of the first data center providers to offer a metered power billing model. In this way, customers only pay for what they use. One of the major advantages of EnerSure to RagingWire is its ability for EnerSure to provide an actual kW number for power use. "That's important since that's what we bill," Klaus says. "Other data center companies have to estimate a power factor or assume a number."

Strong Customer Loyalty

In December 2012, RagingWire was recognized as having the highest customer loyalty in the industry as measured by the Net Promoter Score. The monitoring and data from TrendPoint's EnerSure helped RagingWire achieve that significant award.

"We can use the TrendPoint system to look for problems such as a circuit dropping below a certain point," Klaus says. "We can track it right to the individual rack that it's tied to, which becomes really key in reacting quickly," he says.

RagingWire also uses TrendPoint's EnerSure to predict failover scenarios and keep a continuous eye on power management at all levels of RagingWire's patented electrical distribution system, Klaus says. Plus, RagingWire operations professionals can monitor at the individual client level for abnormal conditions, such as circuit power overdraw, through the automated alarming features of the system. For example, if a client inadvertently plugs in too much equipment to a circuit, he says, TrendPoint automatically creates a ticket, allowing the RagingWire team to track down the issue and resolve it before it impacts service levels.


TrendPoint's EnerSure branch circuit power meter.

"Our customers count on RagingWire to keep their businesses up and running all the time," George says. "TrendPoint provides us actionable data that empowers us to deliver superior service." P