

Overview

A typical data center power distribution has multiple elements where hundreds of circuit breakers are distributed using a redundant architecture. Site power distribution is facilitated through different pieces of equipment that take the power conditioned by an uninterruptible power supply (UPS), send it to Remote Power Panels (RPPs) or busways and then use branch circuits to distribute power to IT equipment in the rack. This level of complexity involves many data center organizations to coordinate their efforts to ensure status quo with an overall goal to maintain business continuity and IT equipment uptime at the rack.

Information provided by the IT administrators on rack level power monitoring determines how power is being consumed, how it is utilized and if there are issues that require attention. Maintaining IT equipment uptime depends on delivering adequate power conditions for the application load actively running. Determining which rack power metrics are important for a particular configuration requires information about the equipment in the rack, the site power distribution, and preference for additional functionality, such as power redundancy and available power capacity.

Challenges

In many existing data centers provisioning new infrastructure such as network cables or power whips to existing racks may be prohibitive and costly. Leaving IT managers in quandary on how to effectively monitor the health of IT equipment. Without access to real-time data, IT Managers use antiquated processes to gather power metric information manually and feed the data into spreadsheets. The raw data must be turned into meaningful metrics before informed decisions can be made to improve efficiencies for rack power and energy usage, maintain redundancy and secure uptime. By which time, the power consumption profile will have changed.

Often, IT managers use name plate ratings of the IT equipment to manage their power budget. Which leads to over provisioning and stranded power that can be utilized in other areas. It is important to know how much power rack equipment is using, how much power is available and where it is possible to increase capacity if necessary. This includes peak power based upon historical data and power trends to ensure equipment and business critical applications will not be affected or exceed predefined policies for power consumption and uptime.

Issues that do arise are the responsibility of the IT manager to troubleshoot, identify problems at a rack and determine what equipment is affected. They must be able to monitor the status of the rack including rPDUs to determine if breakers, alarms and high warnings or potential load balance issues that may impact uptime of services, applications and access to critical IT systems. Then, recommend the action required to remedy the situation.

Introducing the Vertiv™ Geist™ rPDU Power Monitoring Using RF Code Power Sensors

The joint solution provides effective monitoring by utilizing integrated power information for Vertiv™ Geist™ intelligent rPDUs utilizing the RF Code R175 RPDU sensor. The R175 offers wireless communication for use in data centers, equipment room racks and cabinets providing continuous, automated monitoring of each rPDU for power metrics at the rack level.

Power metrics and rPDU information is transmitted utilizing RF Code's "wire-free" radio frequency infrastructure via the rPDU sensor. This results in a comprehensive power monitoring solution made available in RF Code's CenterScope platform or passed to Vertiv's Environet™ Alert software.

R175-0010 Rack PDU Sensor

for Vertiv™ Geist™ rPDU

A Vertiv and RF Code Application Brief



RF CODE

How Does It Work

The R175 rPDU sensor simply plugs into the Ethernet port of the rPDU and identifies the Geist™ model and capabilities then relays that information to CenterScape. No manual configuration required. The R175 sensor auto-configures rPDUs as Array Manager units or implemented such that one sensor can monitor up to three (3) additional rPDUs (Array Devices) daisy-chained through an Array Manager rPDU.

Data collection at the sensor starts automatically and once the sensor is imported in CenterScape and assigned to a rack, actionable power metrics are available for dashboards and reports. The information includes:

- rPDU model numbers (Vertiv™ Geist™ Upgradeable and Legacy R-Series are supported) along with rPDU type; single phase, three-phase (delta or wye)
- Total power usage vs. budgeted capacity at the rack level
- Monitor rack level power usage trends over time
- Total Rack Power Consumption per phase and at each outlet*
- Power information that provides insight and ability to manage energy needs based upon trends and historical data
- Capacity planning with accurate information by tracking actual power load within a rack, available power at the rack and load balancing of IT devices under computing stress
- Real-time alerts and alarms along with periodic updates on power metrics and historical data

**Only available on Outlet Level Monitored or Switched and Outlet Level Monitored Units*

Conclusion

The integrated solution from Vertiv™ Geist™ and RF Code for rack power monitoring allows customers to take a proactive role in managing rack power consumption while maximizing efficiency and rack capacity. Utilizing actual power and correlating information from historical trends and other sensors helps to maintain uptime, provides better capacity planning and facilitates a dramatic reduction in cost of ownership. There is no security compromise as the power sensor provides a secure one-way access for "wire-free" power monitoring utilizing a single pane of glass (CenterScape) for configuration. Automated data collection and analytics provides meaningful metrics where operations and finance teams can manage IT equipment uptime, reduce power consumption and costs with smarter energy management strategies and increase transparency for accurate power consumption usage costs to organizations and clients.

For more information about RF Code's R175 Sensor or CenterScape software, visit the **RF Code website or see RF Code contact information below.**

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