

How do I use SPM to improve efficiency?

APPLICATION NOTE SPM-003 | June 2014

Sentry Power Manager (SPM) gives data center managers the necessary tools to make decisions for improved efficiency.

Typical Application

I run a data center for an organization keen on both environmental responsibility and the bottom line. I have power monitoring at every distribution point within the data center. I need a system that is cost effective and easy to deploy which will provide information to me as I study the effects of various efficiency improvements within the facilities that I manage.

Our Solution

With rackable IT equipment being responsible for the bulk of data center power usage, intelligent PDUs have become standard fare in almost all data center deployments for the purpose of measuring that power usage. Sentry Power Manager (SPM) is an ideal, cost-effective way to aggregate all of those measurement points for purposes of maximizing uptime, improving efficiency, and analyzing capacity.

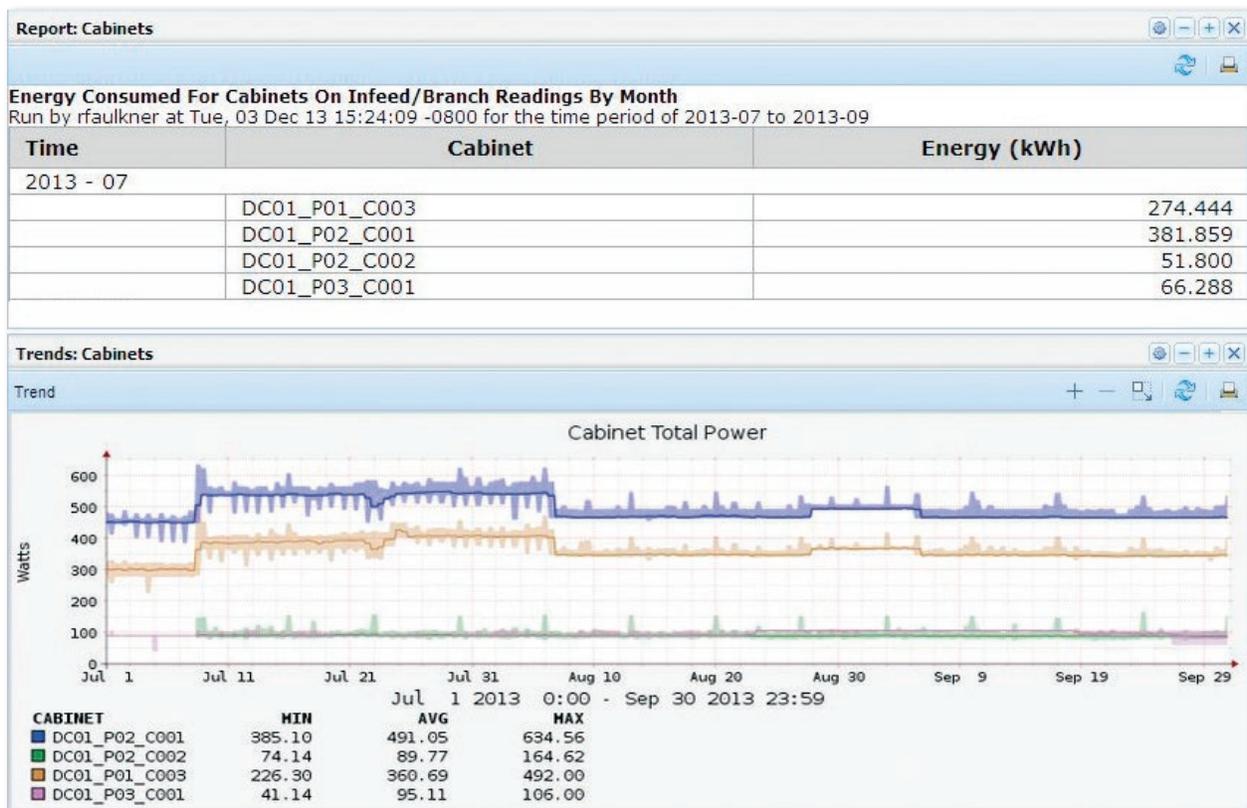


Data Trending & Reporting with SPM

It is not sufficient to take measurements occasionally and claim an understanding of the power usage in the data center.

Continual measurement of the IT device load, as recommended by the Green Grid (Level 3 measurements) for PUE and DcEP, is important to truly understand capacity used and to gain insight into the future trending of power usage at every step in the power chain. A well-designed energy management system will provide data output in such a way as to reduce workload in daily, weekly, and monthly tasks without adding onerous upkeep tasks.

SPM, in conjunction with POPS® CDU®s, provide the data center manager the IT device loading in multiple trends and reports so that comparisons can be made with the total facility power to result in a PUE calculation. Through analysis of power and energy usage per cabinet and per device, a greater understanding of small scale and large scale efficiency can be had. The figure below shows that a comparison of energy usage to power usage over time can be used to identify potential for improvement.



Key Intelligent PDU Benefits:

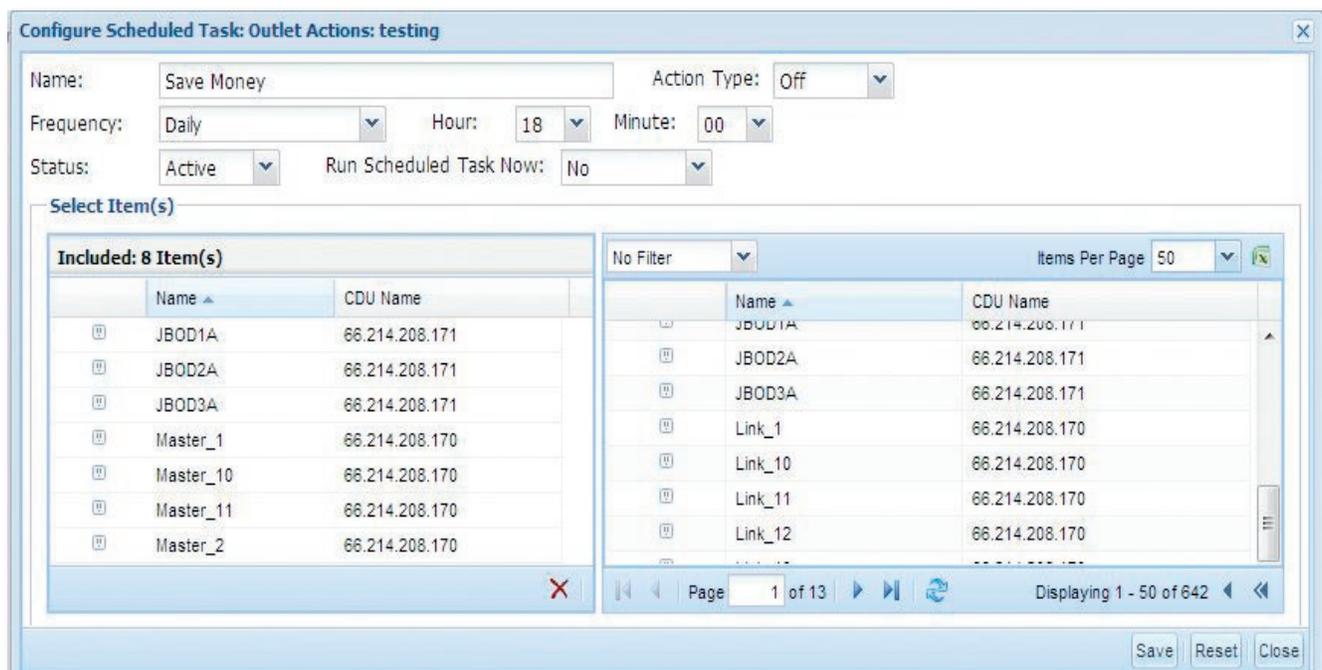
- > PIPS® and/or POPS® high-accuracy measurements of current, voltage, power, etc.
- > Environmental measurements via plug-and-play probes
- > SNMP traps and email alerts
- > Master-Expansion linking allows single-IP access to the cabinet pair of PDUs

Power Management with SPM

The ability to control the power state of outlets in the data center is controversial in some industries while essential in others.

Whether rebooting locked up servers or switches in remote locations, turning off unused outlets to avoid accidental overloading of circuits in the data center, or providing scheduled outlet usage in lab applications, switching outlets has its place and certainly has its value. With high levels of security and user authentication, some cabinet PDUs are up to this challenge, incorporating a Secured Outlet-State Control feature. Selecting an energy management system with basic asset management can allow for convenient On/Off/Reboot commands of individual outlets, groups of outlets representing a single device, and clusters of outlets representing groups of devices.

SPM provides the lab or data center manager a means to power down not essential devices in times of no use such as nights or weekends. By letting unused equipment run idle, as much as 40% of the energy used by a lab or office data center is pure waste. By scheduling outlets to automatically turn off when the equipment is not in use, efficiency can be significantly improved.



Key SPM Benefits:

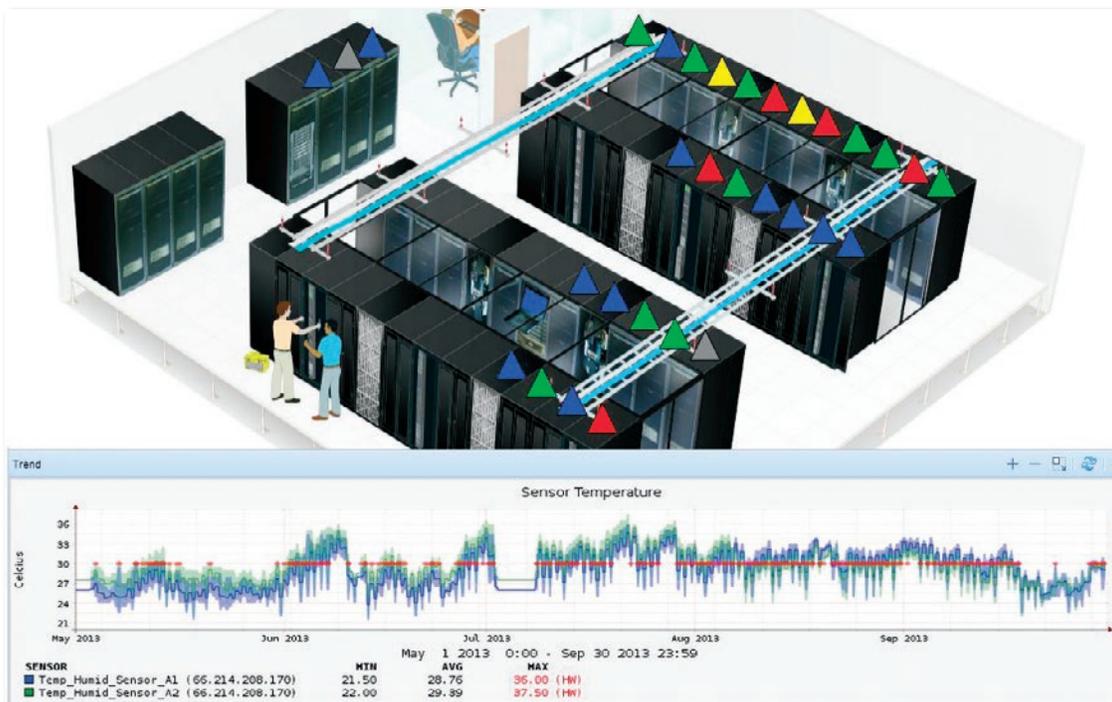
- > Custom Views for each user for quick access to relevant data
- > Alarm monitoring and management from the data center level down to the outlet
- > Mass configuration of Server Technology PDUs through secure SNAP™ feature
- > Easy to use for capacity planning and power monitoring
- > Setup cabinet-level redundancy checks
- > Identify temperature variation across the data center
- > Manage user rights to access and control equipment power
- > Convert continual data polling from all cabinets into actionable information in a variety of forms

Environmental Monitoring with SPM

Temperature in the data center is a "hot" topic when it comes to efficiency.

By some accounts, raising the server inlet temperature by 1°C can result in a reduction in cooling load by 4%. This sound nice in theory, but must be proven in practice for any particular installation. By measuring and tracking temperature at multiple points within a cabinet, the facilities manager can continually verify this reduction in cooling load is not a threat to the equipment reliability.

SPM provides the facilities and data center managers with a means to compare the relative temperature variation within racks and between racks. Additionally, the potential for increase in power usage due to increases in fan speeds can be monitored and compared with the temperature variation. The figure below indicates that a loaded cabinet's temperature can vary over time, repeatedly breaking a set threshold. This information must be considered in life-cycle analysis as well as the efficiency analysis being targeted.



Interested in learning more about how SPM can help you with Improving Efficiency? Visit us online and download a FREE Demo at: www.servertech.com/products/sentry-power-manager



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