Advanced management solution for greater energy efficiency in data centres

29.11.2011 As of now, companies can monitor, actively regulate and reduce their data centre's energy consumption by more than 10 percent. This is made possible by the smooth interaction of Rittal RiZone and IBM's MMT (Management and Measurement Tool).

Data centres sometimes account for half the power consumption of a company. On average, a further 37 percent of this proportion is then used for cooling, which means that an ideally customised system saves a lot of money. The integration of Rittal RiZone in IBM's MMT means that server and storage systems can be ideally assigned so they are suited to the needs of the applications. At the same time, cooling is adapted to the environmental parameters.

"Now, for the first time, a comprehensive energy management solution is available for all parts of a data centre", says Bernd Hanstein, Vice-President for Product Management System Solutions at Rittal in Herborn. "To make this possible, the two market leaders Rittal and IBM have coordinated their solutions in a number of steps. Since 2009, we have been offering a comprehensive reporting function for busbars and sensors in racks in the form of Rittal's CMC monitoring solution and IBM's Systems Director Active Energy Manager."

Linking Rittal RiZone to the IBM MMT enables cooling power to be adjusted. Climate control is steered actively and automatically based on comprehensive rules and control loops. The energy-efficient arrangement of the dynamic IT infrastructure is performed while the system runs through a systematic diagnosis and analysis of all infrastructure parameters such as temperature, humidity or CPU usage.

Vastly reduced energy consumption
IBM already employs its MMT solution worldwide at more than 80 customers and IBM data centres, and the company has been able to cut energy consumption by more than 10%. For one thing, it has led to savings of over 12 million kWh so far in IBM data centres, while more than 150 climate control units have been shut down.

Before introducing the RiZone-enhanced solution, IBM tested the behaviour of the systems and controls in part of its own data centre containing 84 servers, two blade centres, 10 TB of SAN storage, and four switches. The systems were working at up to 70 percent of their capacity with a constant workload. Through the use of IBM MMT and Rittal RiZone, the energy consumed for cooling has been reduced from 24.1 to 17.8 kWh and it has been possible to change the ideal set point for the ambient temperature from 20°C to 24.63°C on the cooling system.

Perfect interaction
Rittal RiZone recognises IBM MMT as an SNMP-enabled terminal device. While RiZone monitors the data from the data centre, MMT ensures the optimisation. The interaction of both solutions provides a complete view of the entire infrastructure and enables MMT to regulate and control active processes such as the server standby function via IBM Systems Director Active Energy Manager or the cooling units. This way, data centre operators can perform integrated trend analyses and evaluations, as well as optimise the load on their system in terms of energy and, for example, assign IT resources to the cooling capacity that is still available in the various data centre zones.

"Right now, no comparable, integrated and modular solution is commercially available. It is technically, environmentally and economically highly promising", adds Dr. Hendrik Hamann, Chief Developer of MMT, at IBM Research in the USA.

Rittal RiZone
Apart from climate control, RiZone also monitors, regulates, and manages access, power supply and security of data centres in a modular and scalable way. This means that the solution can be used in applications ranging from an individual rack in a data centre to a company's complete information technology setup. It can also be combined with a management system such as IBM MMT.

IBM MMT
MMT is based on real-time sensor networks and summarises the data from various sensors such as those for temperature, air flow, compressed air, power and corrosion to a physical analysis application. The data are used to create specific and comprehensive models for analysis, which then represent a vital foundation for optimization. The integration of vendor solutions such as Rittal RiZone now allows MMT comprehensive management in the data centre.
Rittal GmbH & Co. KG

Rittal GmbH & Co. KG, which has its headquarters in Herborn, Germany, is one of the world's leading system suppliers for enclosures, power distribution, climate control, IT infrastructure and software & services. Customers from all sectors of industry, from mechanical engineering, as well as from the IT and telecoms market, are making use of system solutions from Rittal.

Its broad product range also includes complete solutions for modular and energy-efficient data centres: from innovative security concepts for data systems (formerly known as Litcos) through to physical data and system security for IT infrastructures (formerly known as Lampertz). The leading software provider Eplan and the software and consultancy company Mind8 supplement the Rittal product portfolio with interdisciplinary engineering solutions.


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