Top **10** Reasons Why Hardware Intelligence is Critical for Your Data Center Rack

Y OUR DATA CENTER IS AN ABSOLUTELY CRITICAL PART OF THE BUSINESS. In fact, the data center of today has evolved into an entity which is tasked with handling more services than ever before. Today, we are seeing entire platforms and new services being born directly within cloud-ready data center platforms.

This is why data center operations are more critical than ever before. And, what makes a data center run efficiently and resiliently? Data and Rack Intelligence.

Data center managers are doing a good job conserving energy – decreasing PUE, raising data center temperatures, using air-side economizers to reduce energy consumption for cooling – but average power consumption at the rack is still going up. In fact, the increased efficiency means more power is available for servers to support data center growth. Data centers are finding that they must deploy more and more power to their racks. Why is this happening? Data center managers are deploying more and more power to their IT equipment racks to keep up with power-hungry devices.

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According to this whitepaper from Raritan, nearly half (49%) of the data center managers polled had a maximum rack power density of 12kW or less. Their expectations were that two years later, only one-third (33%) would have a maximum rack power density of 12kW or less. Some data centers today have racks wired to provide as much as 30kVA. Furthermore, in a recent Green Grid research into European data center usage, energy efficiency and operating costs are the most common areas of the data center reported as requiring improvement. This means administrators must examine cost as well as availability as critical design factors. Business are asking managers to ensure uptime and availability at all times. So, how are you supposed to perform at an optimum level if you can't collect and analyze the right data from your rack infrastructure hardware? How do you manage what you can't see?

Here are the top 10 reasons why you need hardware intelligence for your data center rack:

1. Maintain uptime: Businesses rely on intelligent PDUs to make sure that the IT equipment stays up and maintains critical business applications. Leveraging 3 levels of metering at the inlet, circuit breaker level, and outlet/device level, IPDUs will provide continuous visibility into the rack power utilization, and alert you in case of a power loss, surge, or imbalance leading to potential defects. They are the center of the intelligence in the rack to ensure uptime.

2. Lower the total cost of ownership: In order to decrease the cost of deploying and operating the IT equipment, environmental sensors linked to intelligent PDUs will provide a comprehensive vision on all parameters impacting the good use of your hardware. By leveraging granular data inside and outside the rack, in order to safely raise operating temperatures and save on energy costs, a business will lower its TCO.

3. Better operational efficiency: Intelligent rack hardware like sensors, KVM Switches and iPDUs provide extended alerting and centralized access capabilities to the IT equipment, allowing data center operators to manage their infrastructure from afar through a single pane of glass.

4. Lower the cost of downtime: In case of an unplanned outage, intelligent PDUs with remote outlet switching that leverage bi state latching relays will allow the user to remotely power cycle outlets in a specific order to minimize inrush current and avoid tripping the overcurrent protection.

5. Shorter MTTR in case of an outage: With sophisticated alerting capabilities and native DCIM interoperability, intelligent PDUs will allow data center managers to be alerted quicker and act with more insight to identify the root cause of an outage, which will decrease the time to repair.

6.   Better capacity management: Leveraging tools like intelligent Branch Circuit monitoring at the rack, busway or remote panel will enable clear visibility on available power capacity and utilization. Outlet level monitoring will grant the capacity to identify stranded capacity at the device level and save costs.

7. **Asset management and tracking:** Using Intelligent asset management strips and tags connected to the IT equipment in each rack will empower data center managers to develop a single source of truth for their equipment deployed, and efficiently track ownership, status and location of their critical equipment, inside and outside the data center, while reporting efficiently to management.

8. **Rack physical security and compliance:** Using smart rack door handles linked to iPDUs allows data center operators to control and manage physical access to the IT racks under strict compliance from HIPAA or PCI, set permissions and report as needed. Moreover, operators are able to capture footage of everyone accessing critical racks by linking USB cameras and proximity sensors their iPDUs.

9. **Workflow management:** Leveraging the same intelligent infrastructure allows a clear organization of field technicians in the white space, defining access permissions to specific racks at a specific time, and escalading appropriate alerts when the wrong equipment is plugged into the wrong outlet or phase, increasing uptime and efficiency.

10. **Go beyond rack power distribution.** Leveraging the capabilities of intelligent PDUs, sensors, security and asset management tools, users are able to set up sophisticated alerting and reporting routines, providing them with a higher level of automation. These tools enable quick remediation in the case of unplanned events leading to downtime. Depending on the application, intelligent rack hardware allows you to select the right communication protocol to alert your field service team and provide the key metrics needed to solve power, environmental and security related issues.

Powering the Data Centers of the Future

Change is inevitable, and data centers should be designed with this undeniable precept in mind. Companies that cannot shift with the times or trends because of antiquated technology and infrastructure lose business to more agile competitors.

Power management solutions play a fundamental role in implementing more versatile data centers that can quickly evolve to address the demands and challenges of the future.

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