

Making the grade

IS GAINING CERTIFICATIONS, QUALIFICATIONS AND ACCREDITATIONS REALLY WORTH IT?

Prevention is better than cure

HOW CUSTOMER REQUIREMENTS ARE DRIVING CHANGE IN DATA CENTRE SECURITY AND ACCESS CONTROL

Sizing it up

DOES THE GROWTH OF EDGE DATA CENTRES MARK THE BEGINNING OF THE END FOR HYPERSCALE FACILITIES?



Staying ahead of **the curve**

Ashish Moondra of Chatsworth Products (CPI) looks at how to enhance data centre efficiency and security with predictive power modelling

▶ In the quest for improved energy efficiency and sustainability, data centres are increasingly focusing on intelligent technologies to monitor, manage and predict power usage. The integration of intelligent power distribution units (PDUs), long-lasting uninterruptible power supply (UPS) battery back-up and robust data centre infrastructure management (DCIM) software offers a holistic solution that minimises downtime, aids in budget forecasting and ensures the availability of skilled personnel.

48 TAKING ADVANTAGE

To fully leverage these benefits, it is crucial for businesses to grasp the concept of predictive power modelling and its implications. This article aims to provide a comprehensive understanding of predictive power modelling, emphasising its significance in enhancing data centre performance, capacity planning, resource optimisation and security.

Predictive power modelling leverages power and environmental data obtained from intelligent power devices within the data centre's power chain, such as intelligent rack PDUs, remote power panels and UPS systems. By analysing and interpreting this information, it enables the optimisation of data centres, network rooms and edge compute sites, leading to improved availability, efficiency, capacity planning and resource utilisation. Moreover, it enables data centre managers and network operators to make informed decisions that not only impact the present

but also pave the way for a more proactive and efficient future.



A COHESIVE ECOSYSTEM

To establish a successful predictive power modelling system, it is crucial to ensure the seamless integration and collaboration of various components. Each element within the ecosystem should possess the following characteristics – usability, manageability, integrability and high security.

• Usability

Intelligent power devices should be designed with user friendly interfaces, intuitive controls and comprehensive monitoring capabilities. This empowers data centre personnel to access real time information and make data driven decisions effortlessly.

• Manageability

Centralised management platforms play a vital role in overseeing and controlling intelligent power devices. These platforms should offer features such as remote monitoring, configuration management and proactive notifications to simplify operations and troubleshooting processes.

• Integrability

To maximise the benefits of predictive power modelling, it is essential for intelligent power devices to seamlessly integrate with other data centre infrastructure components. This integration allows for a comprehensive view of the entire facility, enabling holistic optimisation and coordination of power, space and cooling resources.

• High security

With the increasing significance of data security, intelligent power devices should

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prioritise robust security measures. This includes encryption of data transmission, role based access control and support for industry standard security protocols. By ensuring the integrity and confidentiality of power related data, potential vulnerabilities and risks can be mitigated effectively.

MODEL BEHAVIOUR

Implementing predictive power modelling brings numerous benefits to data centre operations.

• Enhanced efficiency and availability

By leveraging real time power and environmental data, data centres can proactively identify and rectify potential issues before they lead to downtime. Predictive analytics enable predictive maintenance, ensuring optimal performance and higher availability.

• Improved capacity planning

Accurate forecasting of power usage and capacity requirements allows data centre managers to optimise space, power and cooling resources. By understanding

future demands, organisations can make informed decisions regarding infrastructure expansion, preventing costly overprovisioning or underutilisation.

• Resource optimisation

Predictive power modelling enables granular visibility into power consumption, identifying areas of inefficiency and enabling targeted optimisations. Through load balancing, workload consolidation and intelligent provisioning, data centres can maximise resource utilisation, while minimising wastage.

• Enhanced security and access control

Intelligent power devices contribute to the overall security posture of a data centre. By integrating with existing access control systems,

intelligent PDUs can restrict physical access to critical infrastructure, ensuring only authorised personnel can interact with power devices. Furthermore, comprehensive logging and audit trails help track and investigate any suspicious activities.

JUST THE BEGINNING

Predictive power modelling offers data centre operators and network managers

a comprehensive approach to optimise efficiency, availability and security. By harnessing the power of intelligent power devices and leveraging predictive analytics, data centres can make proactive decisions, enhance capacity planning, and optimise resource utilisation. The integration of these technologies into a cohesive ecosystem enables organisations to stay one step ahead and shape a more efficient and secure future for their data centres. With the continuous advancement of intelligent and emerging technologies, the potential for further innovation in predictive power modelling is vast, promising even greater efficiency gains and security enhancements for data centres worldwide. ■



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