Knowledge is power – maximizing FlexPod uptime with Eaton’s power management solutions

NetApp and Cisco’s market leading FlexPod platform has propelled interest in integrated infrastructures due to its flexibility and functionality. However, to realise its full potential, power management is vital and Eaton offers fully integrated, scalable solutions that ensure maximum levels of uptime in the virtualized environment.

Integrated infrastructure's ability to bring together server, storage, networking and virtualization software in a convenient, integrated and centrally managed ‘building block’ is becoming increasingly popular in data centers across the world. It allows IT managers to reconfigure and expand their operations quickly, easily and cost effectively. Eaton provides intelligent, scalable solutions designed to organise, protect and manage integrated infrastructures to ensure business continuity.

Your flexible friend

At the forefront of this revolution is NetApp and Cisco’s pioneering FlexPod solution — an integrated infrastructure solution that delivers pre-validated storage, networking and server technologies that work together as an integrated infrastructure stack. It is designed to increase IT responsiveness to business demands and reduce the overall cost of computing, and is now deployed with more than 5,000 customers in over 100 countries.

In today’s high availability server environments, unplanned power outages or line quality irregularities can have a detrimental impact on data centres and enterprise network infrastructures. To illustrate this, during a recent survey 37% of IT professionals said they had suffered an unplanned outage in the past 12 months, with 32% saying those outages had lasted more than four hours. According to our research, the cost of network downtime averages €6,170 per hour for small businesses (1-100 employees), and €66,170 per hour for medium businesses (100-1000 employees), and integrated infrastructures are not immune to its potentially devastating consequences. These include poor business continuity, operational downtime and reputational damage — all of which could be impossible to recover from.

Everything possible should be done to avoid this type of situation occurring, yet there is a dangerous misconception that if the software layers of an IT system can handle equipment failures in the physical layer, power protection and power management become optional or even completely unnecessary. The truth is that power protection remains essential in every type of system, regardless of where resiliency is achieved.

Eaton helps enhance the value of FlexPod by offering fully integrated, scalable infrastructure solutions including power protection, power distribution, IT racks and power management software. With Eaton's solutions, FlexPod users can manage their entire IT application, including power devices, from a single dashboard, as well as ensuring integrity of valuable data and continuity of the entire business by implementing effective disaster recovery policies.
Adding value

A power management system must communicate and integrate with the virtualization layer and be capable of monitoring and reporting the power used by each server or outlet. Ultimately, maximizing resiliency involves providing a strong foundation on which application, operating system and other layers can rely.

Eaton's award-winning power protection and distribution solutions seamlessly integrate into FlexPod. It offers a diverse range of server-class uninterruptible power supply (UPS) systems to provide reliable and redundant power solutions, while the company’s rack and cable management options maintain the integrity of hardware equipment, improve airflow and reduce cooling costs.

The role of power distribution units (PDU) has evolved so that they can now give a detailed snapshot of the operation of the data centre server rack as a whole. In fact, according to the IHS Rack Power Distribution Units 2015 report, the increase in demand for intelligent PDUs “is driven by the need to monitor power usage, report efficiency metrics, decrease power use in the data centre, and enable capacity planning.” A PDU is no longer solely about power distribution, but is a valuable source of operational data.

Eaton’s ePDU G3 third-generation rack power distribution units combine best-in-class efficiency and reliability with technological advances that include a new patent-pending grip feature for International Electrotechnical Commission (IEC) connectors. The range is available in four different versions. Basic provides reliable power distribution. Metered Input offers Volts (V), Watts (W), Amp (A) and kilowatt-hour (kWh) metering of the ePDU and branch breaker. In-Line Metered allows users to upgrade any basic PDU installations to include Eaton’s advanced metering. Finally, the Managed model offers advanced precision control including the ability to measure power consumption at the outlet level and turn off unused outlets.

Monitor and manage

As well as using state-of-the-art hardware, devising a power management infrastructure system requires software that can monitor and measure power consumption. Power management software can also be used to initiate disaster recovery policies such as data replication, initiate load shedding, and facilitate live migration of virtual machines to a back-up site or the cloud, in addition to providing a smooth shutdown during extended power outages to protect data integrity.

Designed to offer FlexPod users an effective method of achieving these objectives, Eaton's Intelligent Power Manager (IPM) software extends network runtime, protects critical equipment, and allows personnel to view and manage an entire power infrastructure from an existing virtualization dashboard.

IPM works with the NetApp Data ONTAP operating system to monitor and manage FAS systems. Its plug-in for the VMware vCenter Server also simplifies data center management by providing the ability to protect an entire power infrastructure directly from the vCenter dashboard, in order to get a streamlined view of IT assets. IPM also works with Cisco UCS server management, so users can prioritise and predetermine a power consumption limit on each server to extend battery runtime during an event.

The Uptime Institute claims that nearly three per cent of all power in the world now flows into data centers — so lowering energy consumption continues to be a major issue. To meet this need, Eaton has developed its IPM software and metered ePDUs to help reduce integrated infrastructure energy use through outlet level metering.

The next step

It’s essential to make the right choices about power management and configuring a system to support an integrated infrastructure will ensure continuity of an entire business.

NetApp’s performance driven storage technology and Cisco’s advanced compute and networking ability have been combined with Eaton’s industry-leading power management solutions to provide the premier integrated solution to reduce deployment time, limit risk, lower total cost of ownership and ensure the data integrity of the FlexPod platform. Eaton reference designs are available for small and medium FlexPod Express configurations with redundant power.

1 Source: Eaton and Tech Target survey: How “software defined” is redefining the data center.