

## 2016 in a Nutshell

By Steve Hone, CEO of the DCA, Data Centre Trade Association



WELL, I think most would agree that this year has been far from boring. Whether on the world stage or within our own sector, there was certainly enough to keep everyone fully occupied. As for the Trade Association which exists to support you there was definitely no time to even draw a breath in what has been a roller coaster of a year. Here is just a quick recap in a nutshell...

### 2016 conferences and events

Wow, the conference season was really jam packed this year! Events supported and promoted by the Trade Association included: DCN, DCSS, DCW, DCE, DCI, and DCD. The DCA has also co-hosted additional separate knowledge sharing events in Milan, Amsterdam, Riga, Frankfurt, Paris and Dublin this year. Finally, and by no means last, the DCA hosted its very own conference in Manchester. The Data Centre Transformation Conference is organised for the DCA by DCS in association with Angel Business Communications. Year 2016 saw a completely new workshop format for the event which was refreshingly different from the more 'traditional' conference format we are all used to. It was a great success and very well received both by delegates and sponsors alike; the same format is planned for 2017 which I am sure will build on what is clearly a winning format.

### Strong media partnerships

The DCA has continued to grow its collaboration with its many media partners of the past 12 months. The DCA now regularly publish original member content in 5 of the top 7 channels ensuring your thought leadership articles reach out to over 120,000+ subscribers in print and electronic format. New media initiative in 2017 are planned to reach out to even more end users in the year ahead so lots to look forward to.

### Research and development

Progress continues at a pace on the EURECA EU Commission project. By way of a reminder this is a 30 month project which is designed to empower and assist the public sector to identify and procure environmentally sound energy efficient

data centre products and services. This includes benchmarking tools, business case support and consultative advice. All DCA members, wherever you are located in Europe, can benefit from involvement. Ensuring your organisation is listed on the public sector supplier directory, which will come online early in the New Year, would be a great start. Support is also on hand for you as suppliers to further help strengthen the business case on existing Public Sector projects you are working on; which could help to quickly move them from a prospect to win status; so for more information visit [www.dceureca.eu](http://www.dceureca.eu) or contact a member of the DCA team to find out more.

### Specialist interest steering groups

One of the primary roles of any Trade Association is to support its members and the sector as a whole, and ensure that members are empowered to effect positive change as a collective. These specialist interest steering groups which are organised by the DCA throughout the year are designed to help effect change and/or educate the market on everything from energy efficient best practice, to workforce development to ensure the continued health and sustainability of our sector.

Standards, Regulations and Compliance There continued to be plenty of activity on the Standards and Recommended Best Practice front in 2016. The DCA recognises that it not always practical for you to attend workshops in person so the DCA team has made sure that members interests have been fully represented at all major workshops and group meetings throughout the year, including the continued development of Cen Genelec EN50600 suite of European Data Centre Standards, The EU Code of Conduct, the proposed ISO KPIs for PUE, WUE etc. and the EMAS Initiative in conjunction with the JRC (Joint Research Council).

### Charity

The DCA's Membership Manager, Kelly Edmond, embarked on setting up another



charity fundraising campaign in 2016 which was the London to Brighton cycle ride in aid for Bike 4 Cancer. Fellow colleagues from the data centre industry joined her on this journey and managed to raise nearly £3,000 for the charity! Great congratulations and thank you to all that took part, supported and donated throughout, it meant so much.

### More support for Members

The DCA Trade Association continues to grow in size and influence and I am delighted to announce that we have two new members of staff joining the DCA team to support you. Kieran Howse will be joining the team as Member Engagement Executive and Amanda McFarlane will be joining us in January as Marketing/PR Executive. The new roles demonstrate the DCA's continued commitment to its members and the sector as a whole and I hope you will all join me in welcoming them both to the team.

As of the 1st January I am also pleased to announce that the DCA's main office, which has been based in Newbury for the past 6 years, will be relocating down the road to the new office in Marlborough. The new location will provide far more scalability moving forward as the DCA continues to grow and due to this growth the New Year will also see a new member's portal which is something I will have been working on over the Christmas break, in between too many mince pies and leftover turkey.

That just leaves me with one task left to perform on behalf of the DCA team and that is to extend a massive thank you for all your support over the past year. I am hoping everyone has managed to recharge their batteries over the festive holidays and here's wishing you all a happy and very successful 2017.

## People, privacy and rising temperatures: A year of change and possibilities in the data centre



By Steve Weiner, Senior Lead Product Manager, Global Colocation Services, CenturyLink

2016 has been a time of great change in the data centre industry, with many business, regulatory and technical developments set to have a positive and significant effect on how organisations will operate in 2017 and beyond.

### Looking back at 2016

In the past year, there have been a number of mergers and acquisitions, including CenturyLink's recent sale of its datacentre and colocation business to BC Partners and Medina Capital (CenturyLink will retain a minority stake). Organisations may worry that this consolidation will drive out competition between data centre suppliers, but not only are there still a large number of smaller owner-operators in the market, but economies of scale, variety and availability will undoubtedly provide a spectrum of different services and price points depending on needs.

The key factor for many end-user organisations is connectivity – indeed, there have been many partnerships this year between cloud vendors, allowing direct connectivity between cloud estates. This development cements the future of cloud and enables organisations to ensure rapid access to data, technological agility and fast scalability.

The regulatory environment has been in flux in 2016, with Privacy Shield replacing Safe Harbor. This decision was not an easy or straightforward one. In April, the Article 29 Data Protection Working Party raised a number of concerns around factors such as the right to object and automated decisions made by the Privacy Shield infrastructure. There are still many discussions regarding whether Privacy Shield will be adequate – and the working party will be reviewing the progress of Privacy Shield annually, so we expect to see further coverage of the matter in April 2017.

### Looking forward to 2017

Furthermore, we expect to see a significant



amount of focus on the human side of the data centre next year. There has already been a large amount of progress in terms of establishing a baseline of skills and standards for data centre operational staff in the Uptime Institute's M&O certification. However, the industry has room for a greater adoption of standards. 2017 will continue to see a focus on skills, competencies and how human staff manage the mission critical environments.

Within the technical arena, we anticipate that 2017 will see a number of environmental developments in the data centre. For example, although a lot of progress has been made, we expect to see a number of energy efficiency developments, such as how temperature is handled in the data centre. There have already been considerable gains in terms of ambient air cooling, temperature 'zoning' and other developments, but there is still considerable room for growth. Similarly, there have been a number of interesting developments for data centre security which will no doubt have a positive impact on how data centres are run. For example, physical and virtual technologies are emerging and in use which can help data centre operators

to reduce the amount of caging in the raised floor environment but still allow customers to meet compliance and regulatory demands.

Looking further ahead, it would be good to see further development and leverage from the potential that DCIM (Data centre infrastructure management) offers, when thinking in terms of the data centre environment, the IT and automation. DCIM still has a lot of untapped potential. There is significant scope for data centres to play a key role in the evolution of smart cities.

After all, there have already been a large number of exciting changes in how information within urban environments is gathered, helping to improve aspects such as traffic flow efficiency, pollution control and urban area usage.

Data centres – particularly 'edge' facilities – are key in processing this information, and it is certain that smart cities and the internet of things will be significant drivers of space usage in data centres of the future.

In short, 2017 promises to be a very eventful year!

## Key Drivers of the intelligent PDU market in 2017



By Ashish Moondra, Senior Product Manager for Power, Electronics and Software at Chatsworth Products (CPI).

THE GLOBAL PDU MARKET is forecasted to grow 5.6 percent year-over-year, reaching almost 1 billion by the end of 2016, according to a recent power distribution (PDU) study by research and analysis firm IHS.

Higher virtualization, equipment consolidation (higher rack power density) and more efficient computing mean that increasing demands are being placed on the PDU industry. Today's cabinets typically draw 9-15 kW (with some even exceeding this) when it was only a few years ago that an average cabinet supported 3-4 kW, a power load only considered in a low-density environment today.

The modern data centre requires intelligent products that not only meet the minimum market requirements but exceed expectations in reliability, capability and quality. New products with more intelligent features such as remote control and switching, enterprise reporting and monitoring capabilities are now becoming available.

### So what will be the key drivers of the PDU market in 2017?

#### High power ratings

High-density environments require more input power from the PDU. Extending three-phase connections to the rack boosts the amount of power you can deliver through each PDU, increasing rack density. It also simplifies load balancing across the three

input phases coming into the data centre leading to improved efficiencies.

Increasing voltage allows lower amperage circuits, which use smaller conductors to deliver more power. Therefore, for 'green field' opportunities, it's important to consider the deployment of three-phase PDUs that can take an input of 415V as against the traditional 208V.

#### More intelligent products

As the need for availability continues to rise, data centre operators need to constantly monitor power across the entire power chain including Rack PDUs. Most Intelligent PDUs provide monitoring of voltage, amperage, power and energy at the input and branch circuit levels with threshold and notification capabilities. To be able to gain visibility and take proactive steps to reducing IT equipment energy consumption, there is also a growing trend to invest in Intelligent PDUs that provide monitoring capabilities down to the outlet level.

One of the biggest challenges associated with deployment of intelligent PDUs is the additional costs of networking all of the PDUs within the data centre. PDUs with Secure Array technology can help reduce these costs significantly by consolidating up to 32 PDUs under a single IP address with failover capabilities.

Environmental and security features

Increased temperatures in data centres improve cooling system efficiencies and lower cooling costs, but the exhaust temperature is also increasing. To prevent equipment failure due to overheating, it is necessary to deploy PDUs with high ambient temperature ratings.

From a security aspect, find a solution that supports network protocols with integrated security and various user authentication methods including HTTP/HTTPS, SNMP v1/v2/v3, RADIUS and LDAP integration and Secure Socket Layer (SSL). At the physical level, it is possible to prevent accidental disconnections with the use of locking outlet features, that click straight cords into place, and do not unplug during moves or when additions and changes are being made.

#### Power provisioning, capacity planning and remote control

By measuring power at the rack or device level, operators can identify under-utilized or over-utilized capacity. PDUs with special switching capabilities also allow remote outlet control (ON/OFF) capability for every outlet, so that unused outlets can be turned off when not in use. Furthermore, by integrating intelligent PDUs with a centralised power management software solution, for example, operators can track power use over time and report costs of activities. For more information on the key considerations for deploying intelligent PDUs in high-density environments, including how each feature plays an important role in the success of your power system, please click here to download Considerations for Intelligent Power Management within High-Density Deployment white paper from Chatsworth Products Inc (CPI).

Ashish Moondra is the Senior Product Manager for Power, Electronics and Software at Chatsworth Products (CPI). He has 20 years of experience developing, selling and managing rack power distribution, uninterruptible power supplies, energy storage and DCIM solutions. Ashish has previously worked with American Power Conversion, Emerson Network Power and Active Power.



## Hyper simplification: The art of symplifying complexity for a google-like data centre experience



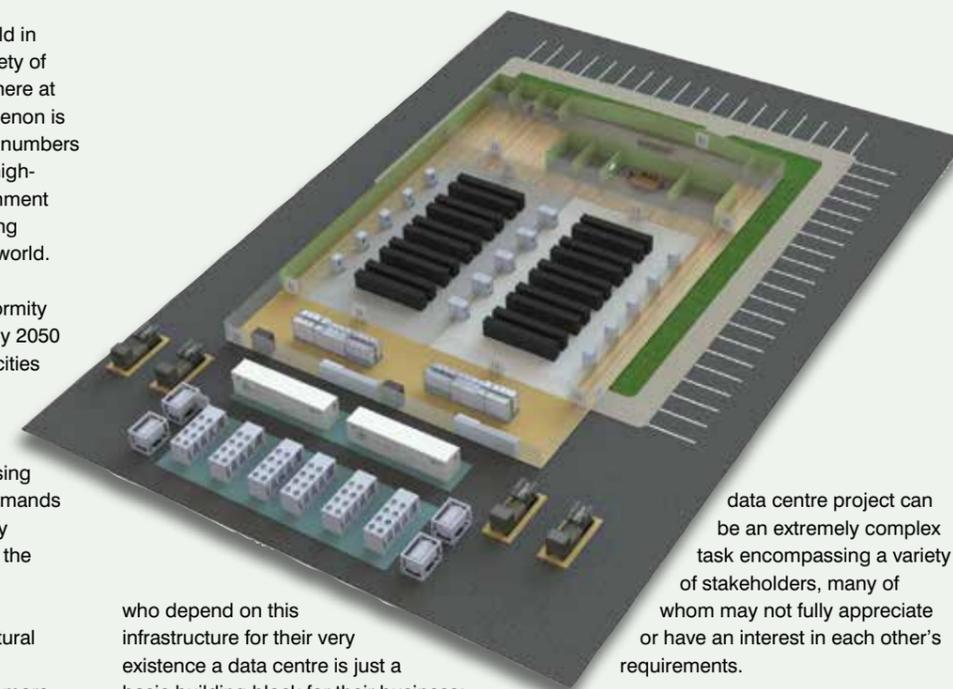
Whether or not Albert Einstein really said "we cannot solve our problems with the same level of thinking that created them," it is a germane thought for those designing and building our data centres today. One response to the increasing challenges of complexity in both data centre load and infrastructure is hyper-simplification. By: Arun Shenoy, Vice President IT & DC Business, Schneider Electric UK

WE LIVE in a digital 'always-on' world in which data is accessible from a variety of increasingly portable devices anywhere at any time. Furthermore, this phenomenon is expanding rapidly with ever greater numbers of internet-connected devices and high-bandwidth information and entertainment services being delivered to increasing numbers of consumers around the world.

Some bold figures underpin the enormity of change likely in the near future: by 2050 some 2.5bn people will be living in cities throughout the world, according to the UN; by 2020 some 50 billion devices will be connected to the internet, according to Cisco; increasing industrialisation and connectivity demands will require a 50% increase in energy consumption by 2050, according to the International Energy Authority (IEA).

One of the most essential infrastructural building blocks for the information-based society is the data centre. Or more accurately, data centres because the variety and location of these diverse facilities is also growing rapidly in response to the many customer requirements and services that need to be delivered. By 2020, it is estimated, there will be a worldwide need for some 45.6 million square metres of data centre space to feed the services our global digital society expects.

Data centre design is a complex task with many different and often contradictory variables necessary for consideration: bandwidth, capacity, performance and security vie with cooling, power resilience and systems-management software for priority. All are restrained inevitably by cost considerations. Yet for the service providers



who depend on this infrastructure for their very existence a data centre is just a basic building block for their business; what they most require is simplicity—of selection, deployment and operation.

A useful analogy is the Google experience. Google's search engine and productivity tools are simple to access and use, customisable to each user's specific needs and can be described as cost-efficient, whatever their level of use. Similarly, users of data centres want to be presented with "Google-like" simple choices, tailored to their own highly individual needs but which are easy to access and use, based on accepted standards and highly predictable in terms of total cost of ownership.

The trouble is that it typically takes a lot of effort to deliver something so simple. A

data centre project can be an extremely complex task encompassing a variety of stakeholders, many of whom may not fully appreciate or have an interest in each other's requirements.

A new site may require a myriad of expert contractors, including architects, prime building contractors, specialist tradesmen and technicians, planners, lawyers, telecoms infrastructure providers, waste-management agencies and environmental consultants. All of whom will only be peripherally involved with the IT and networking contractors that will fit out the data centre with the infrastructure to provide its core function; equipment which in the nature of things will evolve and change rapidly thanks to developments in technology and which may have implications for the design of the data centre that were not considered at the outset.

Additionally, the more complex a project, the more likely it is to experience the problem of

over-engineering. The unnecessary inclusion of infrastructure, products and procedures that are superfluous to the purpose of the project as a whole is not to be confused with scalability or design for expansion. Over-engineering incurs unnecessary cost and may hinder future expansion by locking in commitments to a particular approach or design, which may not offer the most flexible upgrade options.

A new trend in the data centre industry is moving to alleviate this problem by tackling the challenge of DC hyper-simplification. In this Vendors such as Schneider Electric are exploiting lessons learned in the automotive and other manufacturing industries where simplification and customisation—two inherently contradictory requirements—are delivered through a 'platform' approach.

The platform approach is based on standardisation and modularity, where essential components, designed from the outset for easy integration with a wide variety of options, allow many customisable end products to be produced quickly, and simply tailored to individual customers' particular requirements.

Most recently, Schneider Electric have embraced a prefabricated, modular approach to drive hyper-simplification into decision-making and deployment of facilities that match the exact requirements of their customers. This is only partly a strategy of product selection; hyper-simplification is a process that spans the entire data centre construction cycle from specification to design, deployment and ongoing development.

To assist that process from the outset, Schneider Electric makes available an array of software tools aimed at those engaged in infrastructure design so that they can calculate the effects of the inevitable trade-

offs necessary when choosing one building block over another. These include trade-off calculators, budgetary tools and interactive 3D models which enable designers to visualise the layout of a data room before construction.

In addition, the company has utilised much of its R&D in creating a readily available set of digital tools to educate the customer and provide freedom in designing and finding user-references.

The literature, by Schneider Electric's Data Centre Science Center, can be accessed online and includes white papers, training material and reference designs which identify real-world examples of data centres using both standardised and customised prefabricated, modular infrastructure.

Starting from a standardised platform, using fewer building blocks and with a wide choice of well documented modules it is possible to build scalable data centre infrastructure that is both personalised, in terms of meeting the specific challenges of the business, and predictable in terms of cost and performance.

Changes necessary to cope with expansion or emerging requirements such as increased cooling and power redundancy are easier to implement following a modular approach using products that are designed to be interoperable and supported with all the necessary documentation and implementation tools. Not only is over-engineering of the product infrastructure avoided, but the simpler the

upgrade process, the lower the cost of implementation because the number of specialist subcontractors needed to install and maintain additional infrastructure can be greatly reduced.

The simplification process is applicable to data centres of all sizes. For a small office-based facility a portable prefabricated "micro data centres" can be produced in a wheeled cabinet that can be installed in any available space whilst still providing resilient power, cooling and physical security.

For larger facilities, customised data centres containing all the necessary server racks, cooling equipment, containment systems and power supplies can be prefabricated to order and delivered to a site on the back of a trailer as a temporary or permanent building.

Finally, for large purpose-built data centres serving a variety of customers or business functions, the modular approach provides the best combination of performance, personalisation and predictability at low cost.

Hyper-simplification is a complex process! Fortunately, in putting in all the effort to make their products interoperable, predictable and scalable, we can safely say that Schneider Electric have already done much of the complex work so that those in need of data centre deployments can focus on other challenges. Being on time, on budget, on spec and doing so throughout the data centre's lifecycle should just be 'business as usual'.

## Checking your UPS battery performance whilst maintaining your critical load



By Kristian Weatherley Kaye, Technical UPS Tender Manager, Socomec

THE LATEST BATTERY capacity re-injection functionality from Socomec enables the UPS' own batteries to directly check battery performance without the need to external load bank – the ultimate protection for your critical assets

Batteries are often cited as the most common cause of UPS system failure, the design of the battery system together with battery performance is a key element of any UPS system. Extending UPS battery life and back-up time through a programme of regular maintenance and management is vital for guaranteeing the ongoing performance of UPS systems and providing power security to organisation's critical assets together with optimising the battery investment.

Batteries are the workhorse of every UPS system, they must be operating at peak performance in order for a UPS to guarantee the critical power supply, high temperatures, frequent cycles, deep discharge, high voltage recharge and a lack of regular maintenance will all reduce the lifecycle and performance of a battery.

Preventing outages and minimizing costly downtime are challenges faced by every Facilities Manager, the regular maintenance and replacement of batteries forms a critical element of every business continuity plan.

### When did you last carry out a battery-check?

Although the UPS system plays a significant role in ensuring the availability, reliability and quality of the electrical supply, at the heart of any critical power protection system are the batteries; their effectiveness is essential for mitigating against load downtime. Batteries are, however the most vulnerable and failure-prone component of the UPS system.

One of the most frequent causes of unplanned outages in an UPS system is premature end of life of battery blocks. If undetected, a failing battery block can accelerate aging within the rest of the battery



string, there by jeopardizing the integrity of supply to the critical load. The single most effective way to ensure the reliability of the UPS system is to conduct preventive maintenance including regular battery checks and replacements.

Typically, in order to perform a safe and effective battery check, reviewing the operating environment and main battery parameters at string level - the UPS manufacturer will carry out a series of regular checks in order to keep the equipment operating at optimum levels and to avoid system downtime along with the associated risks of damage to the critical loads. Every Facilities Manager will be familiar with the operating and infrastructure constraints associated with planning and executing regular UPS system checks. The design of the switchboard is one key point; availability and access to connection points for load test banks, as well as the management of high heat dissipation during the tests all require careful review, planning, risk assessments and the associated method statements.

The safety of staff and building security both have to be carefully reviewed and managed during the load bank tests. Furthermore, the costs associated with the test process can be a burden on an already stretched operating budget. Whilst the manpower for such tests may be accounted for indirectly via the wider preventive maintenance budget, it is frequently necessary to incur other significant

costs in terms of load bank and cable hire costs etc.

### Effective, efficient battery checks – online

Socomec's latest innovation with the Delphys Green Power and the Delphys Xtend Green Power range of UPS the process of conducting battery discharge testing is simplified.

Socomec's innovative Battery Capacity Reinjection function enables the battery to be discharged to the upstream mains network through the UPS rectifier. This function is carried out online with the load fully protected. The UPS rectifier acts as a current generator synchronised to the mains voltage; the reinjected power is active power (KW) only, there is no reinjection of reactive power (kVAR). The reinjected current is sinusoidal, and therefore does not affect the LV installation. If mains power is lost during the test, the reinjection is automatically stopped with no effect to the system load. For an N+1 or 2N installation the system autonomy is ensured by the other units.

During a routine Battery Capacity Reinjection test carried out by a Socomec technician, the reinjected power is consumed by the other loads or UPS systems on the site. The reinjection test requires no changes to cabling within the existing installation. The battery discharge power (kW) is constant and configurable. This innovative Socomec UPS function enables the routine maintenance and testing of the critical UPS system and batteries to be easily carried out without the need for additional load banks or cabling. As well as the financial benefit of no longer needing to hire load banks and cabling, the Socomec reinjection function simplifies the operational planning associated with such tests.

To find out how to simplify your battery health checks – and to guarantee optimised performance – call 01285 863300 or email [info.uk@socomec.com](mailto:info.uk@socomec.com) [www.socomec.co.uk](http://www.socomec.co.uk)

