

Technical specifications and components visible in the diagram:

- SQ. D SWITCHGEAR AND PLC LINEUP
- APPROX. INTERIOR WALL-TO-WALL
- PLC
- PRIMARY BUS
- SPD
- CRITICAL BUS
- 1030 PERSONNEL ACCESS DOOR
- LOCAL DISTRIBUTION PANEL
- BEACON SOUNDER
- BREAK GLASS
- EXTINGUISHER HOLD OFF
- A/C UNIT CONTROLS
- 120VAC TWIN SOCKET
- TRANSFORMER
- APPROX. WALL
- Schneider Electric logo
- DUAL 120VAC ELECTRICAL OUTLETS
- UPS I/O FRAME
- UPS POWER FRAME
- XBATTERY FRAME
- XBATTERY FRAME
- WALL MOUNTED DX A/C UNIT
- WALL MOUNTED DX A/C UNIT
- MIN
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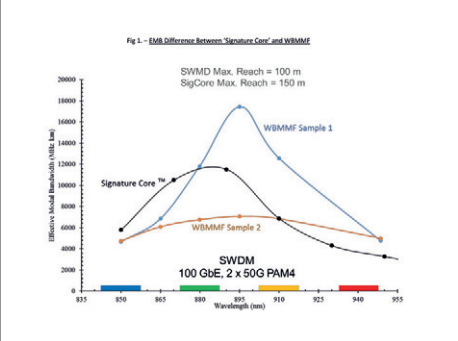


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Blast in to the future of data centres at Data Centre World



Data Centre World, for the first time, will be housed in its own hall at ExCeL London, to meet the growing demand of the data centre industry. The unmissable event will deliver focused streams around the future innovations in the data centre, expanding its cutting-edge conference to cover advancements from routing and switching, power, design and build, physical security, fire and security protection and robotic automation and much more.

Having seen the global success, the 2017 edition will see the return of the Data Centre World's Live Green Data Centre. The real-life, fully-functioning data centre will be the heart of the exhibition, housing products and solutions from over 30 sponsors such as 2bm, Splice group, Dencohappel, Dunwoody, Excool, Fireworks, Huber+Suhner, Riello, Pentair, Starline, TTK, Uninterruptible Power Supplies and many more. The interactive feature will showcase the practical implementation of products from cooling units and fans, to cables and perimeter fencing. Over the two days the Data Centre World's one of a kind feature will be presenting how key data centre components operate in their natural environment.

International visitors will benefit from a practical conference programme that will share invaluable insight and inspiration for all technology professionals, from data centre managers, IT directors, engineers, consultants or industry experts. Hosting a range of panel discussions, roundtables, seminars and real-life case studies and workshops, Data Centre World is tailored to address individual development, as well as business needs. A line-up of over 600 visionary speakers will be speaking in the world-class conference including Nicola Hayes, managing director at Data Centre Alliance, Gautham Gnanajothi, senior industry analyst at Frost & Sullivan, Jeff Klaus, general manager of Intel Data Center Software Solutions at Intel Corporation,

Dr Gregory de Boer, research and teaching fellow at University of Leeds and Russell Park, Solutions Development at Centrica Distributed Energy & Power.

The exhibition floor will host over 500 industry-leading suppliers showcasing the latest data centre products and solutions including Cummins, Airsys, Amazon Web Services, British Gas, Corning, GE Critical Power, Huawei, LG, Munters, MPL, Rittal, Riello, Rosenberger OSI, Schneider-Electric, Socomec, Stulz, Yuasa.

Data Centre World's event director, Rabinder Aulakh, commented "Data Centre World 2017 is now bigger and even better than any global data centre event. We have a truly amazing cocktail of expert speakers from across the globe exploring and debating every facet of the industry. An exhibition hall full of exciting new and innovative products and services from some of the leading global suppliers in the world. Most importantly 6 brand new sectors to take the show to the next level and take data centres to the future; Power, Design and Build, Fire & security, Physical security, robotic automation and data routing & switching.

And not only that, we are taking the DCW Live Green data centre feature to the next level, which will give our visitors an experience of a lifetime to see, not just how a data centre looks like, but how two different types data centres can affect the industry with a cloud data centre versus a tier 3 data centre"

Data Centre World will stand alongside free-to-attend Cloud Expo Europe, Cloud Security Expo, Big Data World and Smart IoT London – every emerging technology. One digital transformation journey.

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IT rack impresses with its simple effectiveness

If I was to highlight what I believe to be the key attributes of an ideal IT rack, then (in no particular order), I would suggest it would need to be easy to order, provide a safe environment for servers and other equipment, be modifiable at no great cost and have an optimum price/performance ratio. By Clive Partridge, Rittal technical manager, IT Infrastructure

The Rittal TS IT Rack, ticks all these boxes. Its intelligent modular design will save you time and money and, at the same time, will enable future investment, because it will allow you to adapt your data centre to include the latest innovations.

What's more, the TS IT also offers largely tool-less assembly, saving you both time and money.

The standard version includes two fully adjustable 19" mounting levels and a multi-piece roof plate with optimised side-cable entry via brush strips in the roof as well as the option of fan integration. Accessories can be added or modified without tools. This enables intelligent, versatile expansion and the flexibility of customer-specific configurations.

OPTIMUM ACCESS

Today's data centres need to protect and adapt to cutting-edge technology, so racks have to be able to adjust to accommodate the innovation cycles of servers and storage systems. The easy, tool-less adjustments of the 19" mounting levels and space-saving integration of the relevant accessories ensure the rack delivers this benefit.

The vertically divided rear door which is fitted as standard on all racks over 24U, together with 180° hinges, gives the administrator direct access to all the equipment.

It all combines to make optimum use of the space available,

ensuring that escape routes are narrow, but still meeting access requirements in the event of an emergency.

ADDITION OF RFID

The rack can be readily adapted through systems for automatic inventory systems and for recording the technical features of all installed components. The rack can support the direct integration of specific RFID (Radio Frequency Identification) antennae as an additional feature. What's more, customers can add one of these systems at any time while the rack is in operation.

The new mounting angles provide a range of further options. For example, the rack can accommodate both cable routing aids and the space-saving integration of the Rittal power distribution units PDU-i at the rear. These can be fitted directly in the Zero U space between the side panel and rear mounting levels.

AN ANGLE FOR ALL ENCLOSURES

Adjusting the assembly angles allows the rack to accommodate a range of dimensions from 19" to 24" and asymmetric expansion. Whatever the specific requirements are, all you need is the necessary accessory kit.

The TS IT can carry a potential load of up to 1,500 kilograms on the mounting level, as standard. There is a straightforward ordering system, with complete functional modules linked

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ENCLOSURES

POWER DISTRIBUTION

CLIMATE CONTROL



together under a single article number, so you can identify what you need quickly and easily.

THE RIGHT CLIMATE CONTROL CONCEPT

Powerful IT equipment obviously generates a lot of heat, which has to be dissipated safely. So, it's important to have highly energy-efficient cooling systems for the safe operation of the installed technology.

We have therefore made the decision to identify future rack generations on their climate control requirements, not their application. Rittal enclosures are now only differentiated by their climate control technology or the rack and/or row climate controls.

The TS IT rack has been designed with climate control in mind, including IT-specific cooling systems and liquid-based cooling systems such as the liquid cooling systems from Rittal. All this has been confirmed by accredited testing laboratories.

FLEXIBLE BASIS

The TS IT rack also comes with the option of a Flex Block base or plinth, which can be fitted without tools thanks to quick-assembly technology. All this makes the new TS IT rack a flexible solution for the future and a cost-effective way to respond to the changing requirements of the IT environment.

Rittal Ltd is exhibiting the TS IT rack on Stand J10 at Data Centre World, 15-16 March 2017 at the Excel, London. www.rittal.co.uk



See us on stand J10



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IEC 60364-6 & High Availability with RCM from Janitza

RCM (Residual Current Monitoring) - Increased Safety, Increased System Availability & Reduced Risk of Fire

RCM is playing an increasingly important role with high availability power supplies, which are now found in almost all market segments. Constant processes and especially sensitive applications such as data centres, hospitals and semiconductor factories are now depending on RCM as the first stage alarm for power disturbance or power loss. Furthermore, RCM measurement offers a good alternative in areas where it is not possible to utilise insulation resistance measurements and use residual current devices due to local or operational circumstances (nuisance tripping). The "foresighted" monitoring described also helps to reduce alarms, as required for example with alarm management according to EEMUA 191 or NAMUR NA 102.

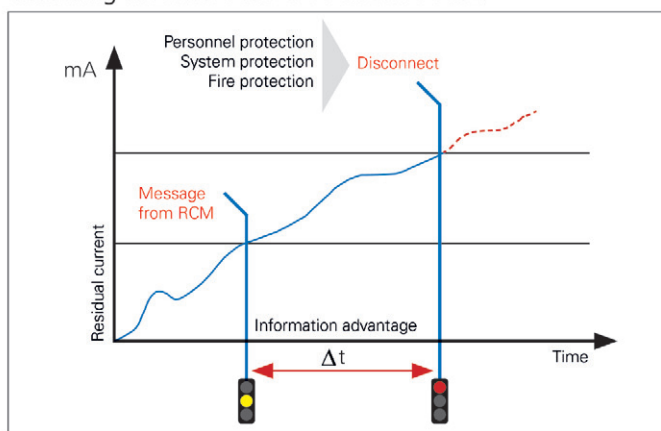


Fig 1: Report prior to switching off - an aim of residual current monitoring (RCM)

However, RCM can do even more - namely reduce the risk of fire! Residual current, triggered by defective insulation, can be treacherous. If the residual current is creeping, but still too low for the upstream protection device, then the protection device will not trip. When the recorded fault power exceeds a value of approx. 60 Watt (approx. 261 mA at 230 V), a risk of fire exists. Residual current monitoring therefore also serves as fire prevention.

Remove Mandatory Testing Requirement with RCM

Recurrent mandatory insulation resistance testing with its associated mains dis-connection, is time-intensive & costly. In order to carry out conventional insulation measurements, fixed systems or loads must be switched off and the neutral conductor disconnected. This disconnection and interruption of supply cannot happen where a site requires "Continuous Uninterruptable Power". Furthermore, there is a risk that the high test voltage used for the insulation measurement may damage sensitive electronic components such as servers. As outlined in IEC 60364-6, where a circuit is permanently monitored by RCM (in accordance with IEC 62020), this on-line monitoring can remove mandatory testing, whilst also ensuring increased safety, and providing essential alarming of possible critical power loss. Using Janitza® Power Quality Analyzers UMG512, UMG509 & UMG96RM-E along with GridVis® EnMS Software, a healthy electrical network can be achieved, giving the client vital information to achieve their requirement for "Continuous Uninterruptable Power".



Fig 2: 3in1 Monitoring (PQ, RCM & Energy), using Janitza GridVis Software & UMG analyzers

RCM - The Basic Functionality

The basic functionality of RCM is shown in fig 3. In practical terms, all three phases and the neutral conductor run through the summation current transformer. If the system is in a fault-free condition, the summation current is zero or (within a tolerable range) close to zero, meaning that the current induced in the secondary circuit is also zero or close to zero. If, however, residual current flows away to ground due to a fault, the current differential in the secondary circuit will result in a current being logged by the RCM device, and evaluated by the RCM measuring device.

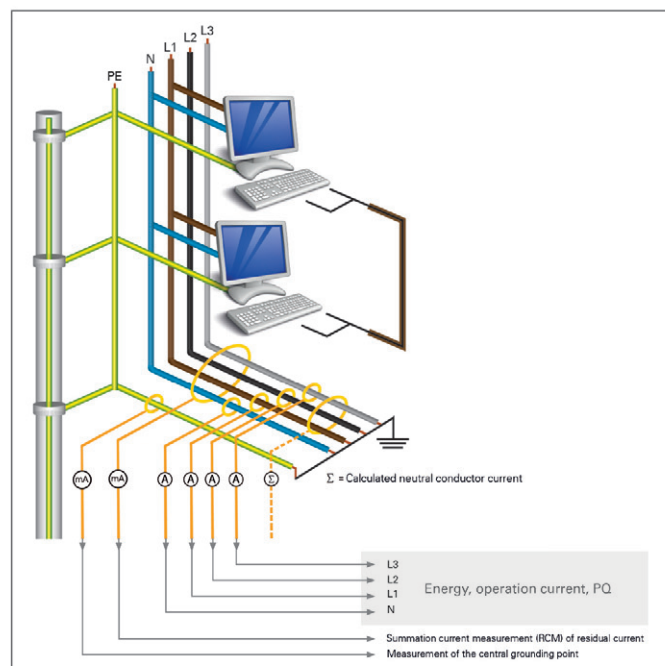


Fig 3: Residual Current Monitoring (RCM) of an EMC-optimised TN-S system

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A new generation of multimode fibres

Historically, multimode fibre (MMF) optical channel links utilised light emitting diode (LED) transceivers for data communications up to 640 Mb/s and distances up to 2 km. Early MMF types included OM1 and OM2 as specified in IEC/ISO 11801 generic cabling standards.

Dr. Rick Pimpinella, Panduit Fellow, researcher in multimode and single-mode optical fibre technology looks at future options

With the development of vertical cavity surface emitting lasers (VCSELs) in the mid to late 1990's, two new "laser optimised" fibre types emerged, OM3 and OM4. The development of laser optimised MMF enabled the transmission of optical signals at data rates of 1 Gb/s and beyond. Today, VCSELs can modulate optical signals up to 25 GBaud, and with modifications to the VCSEL's resonant cavity and material system, VCSELs can be tuned to emit longer wavelengths.

This article explains the differences between OM3/OM4 and two new MMF types, a proprietary high density fibre and wide band MMF (OM5). We will discuss the differences between this new superior fibre technology and OM5, and compare their performance in ethernet and fibre channel standardised applications, and discuss future higher data rate ethernet standards.

LASER OPTIMISED MMF

The maximum distance or 'reach' of multimode fibre is limited by three optical power penalties:

- Modal dispersion
- Chromatic dispersion
- Optical attenuation

When light from the VCSEL is coupled into the core of a MMF, due to the wave properties of light the signal propagates through the fibre core along multiple discrete optical paths, called modes. An ideal MMF has a graded index of refraction so that light traveling close to the core axis encounters a higher refractive index thereby slowing down the speed of the light taking the shortest optical path (low order modes). Conversely, light traveling along paths that come close to the outer regions of the fibre core and are reflected back into the core spiraling around the core central axis, traverses a longer overall optical path. Consequently, because of the variation in arrival times of the light traveling along these different optical paths (modes), the width of the output signal at the output of the fibre is broadened. This is called 'modal dispersion,' and for traditional MMF channels, modal dispersion has been the primary optical penalty limiting the maximum reach.

Chromatic dispersion is caused by the wavelength dependence of the refractive index. Since a VCSEL emits a narrow spectrum of light (a spectral width of the order of

0.5 nm) the different wavelengths (colours) of light comprising the optical pulse travel at different speeds thereby broadening the output signal, in this case due to chromatic dispersion.

In addition to dispersion, impurities in the fibre's silica glass core cause a small percentage of the optical signal to scatter and radiate out of the fibre core. This causes a reduction in optical power, or optical attenuation on the order of 2.5 dB/km for 850 nm transmission. The reduction in optical power at the receiver's photo-detector reduces the signal to noise ratio (SNR), thereby degrading the channel's performance.

As a result of continued process improvements in the fabrication of MMF, laser optimised OM3 and OM4 were introduced which have improved controlled core refractive index profile, providing significantly lower modal dispersion compared to OM1 and OM2. To better characterise the modal dispersion of OM3 and OM4, a new metric calculated from the modal dispersion measurement, Effective Modal Bandwidth (EMB) specified in units of MHz-km was introduced. In production, laser optimised fibres with an EMB between 2000 MHz-km and 4699 MHz-km are sorted as OM3, and fibres with EMB greater than 4700 MHz-km are sorted as OM4.

NEW GENERATION OF HIGHER PERFORMANCE MULTIMODE FIBRES

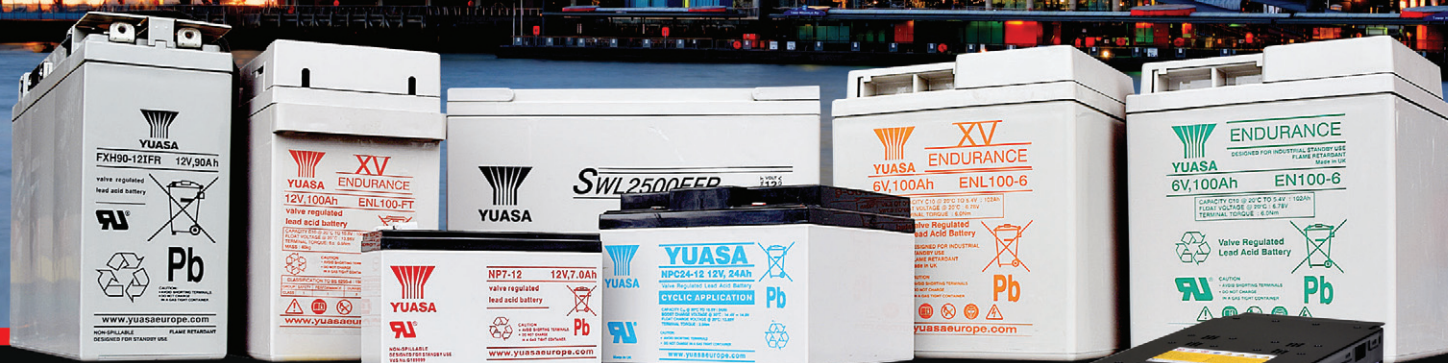
In the development and specification of OM3 and OM4 fibre, it was assumed that VCSELs launched the same optical spectrum into each of the MMF modes. However, in 2008 researchers at ►

Table 1. – Road Map for Ethernet Data Rates beyond Single-Wavelength Transmission

Data Rate Gb/s	Lane Rate Gb/s	No. of Fibers	No. of Wavelengths	Year Ratified
10 40	10	2 8	1	2002 2015
25 100	25	2 8	1	2016 2015
50 100 200	50	2 4 8	1	2018
200 400 800	50	2 4 8	4	~2021

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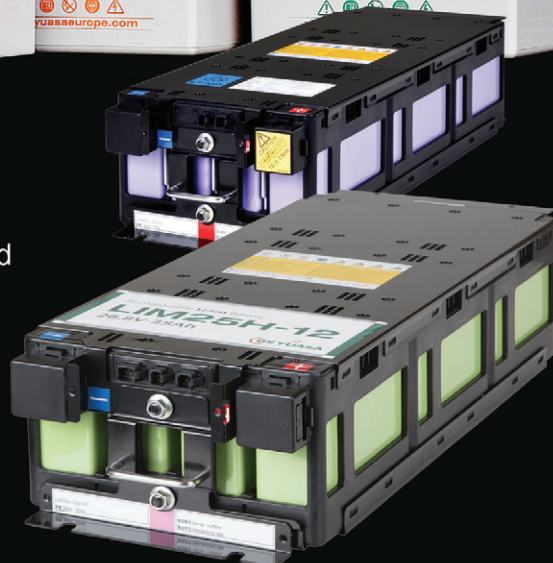


Fig. 1. Signature core fibre

Panduit Labs discovered that the spectral emission pattern of VCSEL caused different wavelengths to couple into different fibre modes. Consequently, in addition to modes undergoing modal dispersion, due to the spectral differences between modes, the temporal separation between modes also undergo a chromatic dispersion.

Therefore, the modal and chromatic dispersion of MMF cannot be treated separately, but instead the channel bandwidth must be determined by the interaction of modal and chromatic dispersions.

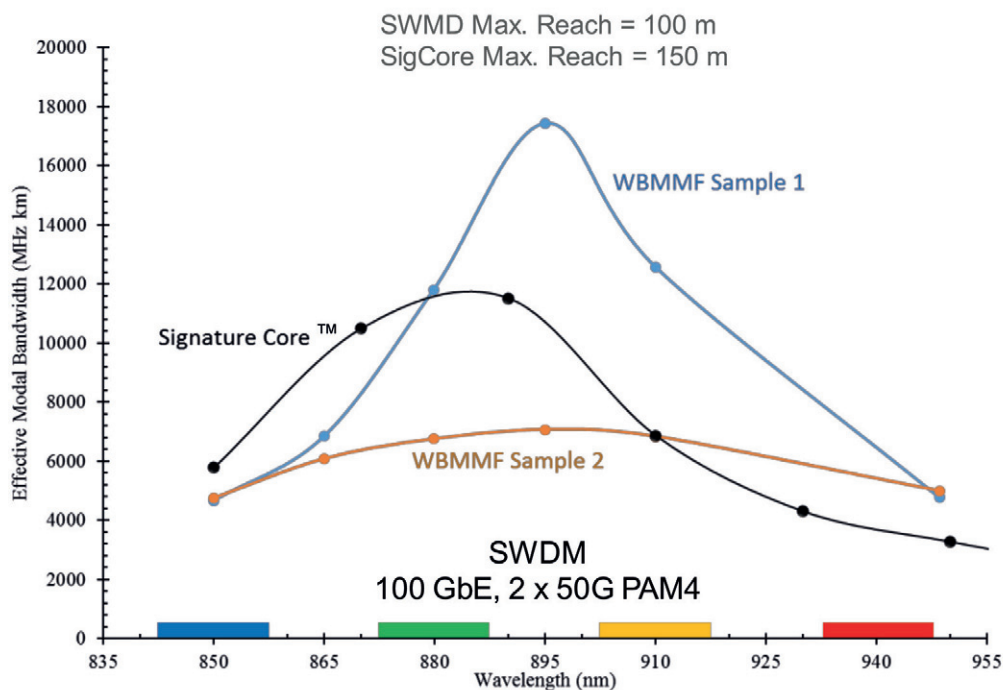
This discovery gave way to a new generation of MMF with significantly higher total bandwidth. By selecting a subset of OM4 compliant fibres that have a uniquely specified refractive index profile, the modal and chromatic dispersions can be compensated thereby reducing the total dispersion in a VCSEL-MMF channel. In 2008 Panduit introduced its proprietary MMF, which provides dispersion compensation enabling longer reaches and larger channel insertion loss.

WIDE BAND MULTIMODE FIBRE

Another important feature of the proprietary fibre is its ability to support wavelengths longer than 850 nm, as currently specified in application standards. In collaboration with Cisco's transceiver group during the development of the 40 GbE Bi-Direction (BiDi) transceiver, this latest fibre technology became the first multi-wavelength (dual-wavelength) MMF, supporting 850 nm and 910 nm transmission based on short wavelength division multiplexing (SWDM).

Industry recognition of these benefits, lead to the standardisation of wide band MMF in TIA 42.12. The difference between this fibre technology and WBMMF is the specified EMB at the shortest and longest wavelengths specified for SWDM, as shown in Fig. 1.

For 850 nm applications, it provides 17% higher EMB and equivalent chromatic dispersion compared to WBMMF/OM5, and since SWDM channel reach is limited by the fibre bandwidth at 850 nm, it will provide the highest channel performance for single and dual wavelength SWDM solutions for years to come.



Next generation ethernet supporting 50 G, 100 G, and 200 Gps transmission is currently being specified in IEEE 802.3cd, and is based on 850 nm transmission over parallel optics using 2, 4, and 8 fibres respectively. This standard is scheduled to be ratified in September 2018. To date, ethernet and fibre channel standards do not include SWDM solutions over multimode fiber.

For single-mode applications, CWDM (course WDM) and DWDM (dense WDM) technologies have been deployed for more than two decades. However, to achieve higher data rates over MMF, parallel optics (using 8, 16, and 32 fibres) have been the technology of choice due to the simplicity of scaling the data rate. To achieve data rates beyond 200 Gb/s using 8 fibres or less, will require the use of SWDM technology. In Table 1 we show a roadmap for ethernet data rates beyond single-wavelength transmission. It is important to note that parallel optics is required to breakout high density switch ports to four server I/O ports. The solutions shown in Table 1 all use the same structured cabling and support standards based network architectures.

CONCLUSIONS

Currently, there is no industry standard specifying SWDM, and the development of a standard is not feasible before 2021. This is not to say non-standard solutions will not be available touting duplex structured cabling. Nevertheless, longterm SWDM will be required to achieve next generation 400 G and 800 G ethernet. To that end, the demand for SWDM is uncertain since it will support the highest speed data centre interconnects and therefore will compete with single-mode solutions on a cost basis. Baud rate is defined as symbols per second, as opposed to bits per second. **ER**



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Enhanced energy-efficiency with power over ethernet

Regulators and other stakeholders are calling for data centres to use energy in the most efficient way. Power over Ethernet (PoE), which makes it possible to provide current to Ethernet devices using data cables already in place, can contribute to greater energy efficiency. It may even help structurally lower DC power consumption. However, several factors must be taken into consideration. Dr. Thomas Wellinger, market manager data centres, R&M, explains



As the role of the data centre changes from 'data repository' to vital economic and social enabler, the number and size of facilities is likely to keep growing exponentially. Every option for energy saving, however small, can help. First, let's look at some of the main sources of energy consumption. The energy efficiency of a Data Centre is typically measured in 'Power Usage Effectiveness' or 'PUE'. If all the energy going into the Data Centre were to be used exclusively for IT, the PUE would amount to 1. A PUE of 2 indicates that for every watt of power used for computing, another is consumed for non-IT purposes such as cooling. In 2014, the Uptime Institute published an average figure of 1.7 for respondents' largest facilities. In other words: for every watt used for IT, three-quarters of a watt are used for power

distribution, cooling and related processes such as lighting, heating and security systems. Power losses caused by idle circuitry are another major concern, especially as millions of new switches are added to the already substantial installed base each year.

POWER LOSS THROUGH RESISTANCE

One key challenge related to PoE is power loss as a result of resistance. 4PPoE (4-Pair Power over Ethernet) has clear benefits when it comes to diminishing cable resistance, and thereby preventing power losses. Energising four available cable pairs, instead of the two that are normally utilised, can increase power efficiency. This not only reduces the environmental impact of PoE, but can also deliver significant savings to large data centres. The original PoE standard, introduced just over a decade ago, supported up to 12.95 watts. PoE+, introduced in 2009 supported up to 25.5 watts. 4P PoE should enable a supply of up to 100 watts, which is four to five times greater than the current rate, allowing more powerful terminal equipment to be supplied with energy over network cables.

Resistance can also be lowered by opting for higher-category cables. Cat. 5e cables with a conductor cross section of AWG 24 (0.22 mm²) quickly reach their 'natural limits.' They grow hot

CONSIDERING LINK LENGTHS

As cables are heated by current passing through them attenuation increases. The result: reduced transmission range and higher energy consumption. Under realistic framework conditions with applications up to Power over Ethernet Plus (PoEP, 26 watt power), transmission length restrictions rarely need to be taken into account. However, if cabling must also to be suitable for future PoE generations, some rules of thumb may be applied.

Class D cabling for 1G Ethernet: with Cat. 5e cables (AWG 24), the permanent link length must be planned in accordance with the specific installation conditions and shortened if required. However, with Cat 6 cables (AWG 23), it is generally possible to reach the 90m standard link length.

Class EA cabling for 10G Ethernet: with Cat. 6A cables (AWG 23), the length of the permanent link must be planned in accordance with the specific installation conditions and shortened if necessary.


quickly, especially when the heat is not being efficiently removed from large cable bundles. Cat. 6 or Cat 7A cables with cross sections of AWG 23 (0.26 mm²) or AWG 22 (0.33 mm²) offer significantly reduced resistance, and therefore less energy loss and heating.

WALL WARTS

Another way in which PoE can help cut energy usage is by replacing 'wall warts': the mains adapters which come with devices such as routers, printers, WiFi boosters and so on. These (often OEM) devices can't be centrally monitored and managed, and are not always designed in the most efficient way possible. By replacing all of these with PoE connections, monitoring and standardisation become much easier. Unused devices can be shut down, for example, and devices attempting to draw a suspiciously high level of current could be locate and fixed easily. This example shows how PoE enhances efficiency across the power chain, including all required voltage conversions, from power conversion at the power sourcing equipment through to delivery at the powered device.

In short: Power over Ethernet, facilitated by current network convergence trends can help reduce power usage, if used correctly. Indirect energy savings are also realised through lower costs of installation, cooling and ongoing maintenance. What's more, the benefits of being able to monitor data centre hardware with a DCIM system are extended to all peripheral hardware and

Carefully consider the applications for which a cabling solution is being configured

systems. However, when developing a structured cabling solution that incorporates PoE, you do need to carefully consider the applications for which a cabling solution is being configured and make a realistic prediction of future bandwidth requirements. 

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Hyper simplification: The Art of simplifying 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. Arun Shenoy, Vice President IT & DC Business, Schneider Electric UK explains



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

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

“A useful analogy is the Google experience”

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

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.

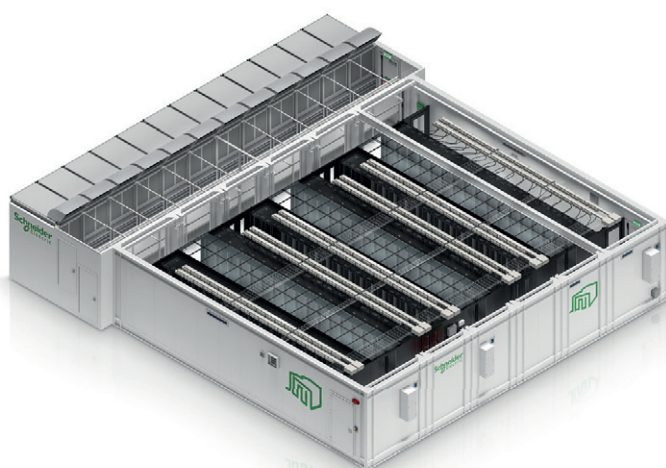
Changes necessary to cope with expansion or emerging requirements such as increased cooling and power redundancy are easier to implement following a modular approach using products that are designed to be interoperable and supported with all the necessary documentation and implementation tools.

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’. **ER**



Central London Colocation facility achieves operating capacity PUE of 1.12 using direct adiabatic cooling

Netwise Hosting is an innovative and forward thinking company, and one of London's leading data centres. Based in central London, their facilities and systems have been designed and built in-house, allowing for strong working relationships with all the technology suppliers, not least EcoCooling. Netwise has just completed their second EcoCooling installation within their estate. This case study documents these first 2 phases and possible future plans. Matthew Butt, Managing Director

Phase 1: Netwise began their journey in South London, with a much smaller facility, and as such, standard cooling systems were not an option. EcoCooling's smaller external modular units (ECP60-02 wet box units) alongside efficient EC fans were an ideal alternative. EcoCooling units were chosen for the initial installation as they are generally cheaper to install than their refrigerant counterparts and Netwise could perform a majority of the installation works themselves. EcoCooling's control systems also allow for exact supervision of temperatures and built-in safety measures.

Phase 2: In June 2015 Netwise moved to Central London and opened a bigger facility. Following on from the success of the first installation, it was only natural that EcoCooling would be an integral part of this development. The evaporative cooling system at the first Netwise facility was a successful partnership, with the units working as expected and without fault. Three of the wet boxes were able to be moved across to the new site, with only a few minor modifications being made at the EcoCooling workshop (top to side discharge airflow).

In London, power is already a struggle, so choosing a more environmentally friendly cooling system is also a cost-cutting step, and has a knock-on effect for customers. EcoCooling direct evaporative cooling units alongside their energy optimising control systems can provide 100kW of cooling for Netwise is able to significantly reduce their customers CO2 production, while keeping the levels of energy used much lower than that of other data centres, which have been seen to be running at PUEs of up to 2 with refrigeration kit. Using a cooling system that uses fresh air, ventilation, and attemperation rather than refrigeration has both financial and environmental consequences. Evaporative cooling is a very energy efficient way of cooling, and the new project allowed Netwise to push the design of the system further, stacking multiple units together resulting in an operating capacity PUE of just 1.12.

From an end user perspective, the EcoCooling system is easy to use, as each custom cooling stack has its own controller, and the entire

cooling system can be managed via a single control unit, or remotely over the internet. As well as being simple to use, and reliable, the performance to cost ratio with EcoCooling is almost unparalleled, making it perfect for new ventures and the obvious choice when moving to a new site. Given that the new facility contains 200 operational racks after full fit-out, it was important that operational costs were kept low. Using an upscaled version of the South London system, Netwise was able to increase the resilience and cooling output, whilst keeping the on-going costs down. In this way there can be a 90-95% saving with EcoCooling systems versus the same output achieved if standard refrigerant-based products were used.

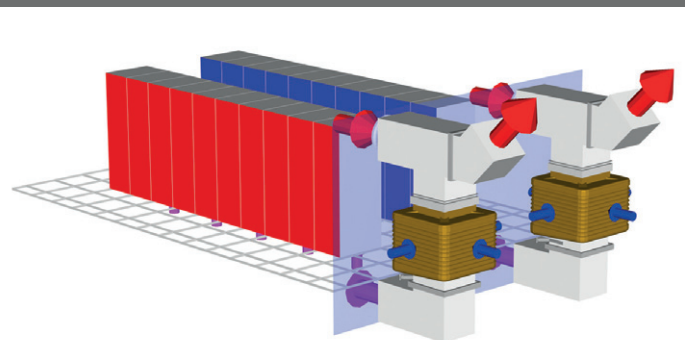
As a leading force in the colocation retail market in London, Netwise aims to be a wholly reliable service, meeting the needs of clients regardless of budgetary constraints and offering a strong support network.

The partnership with EcoCooling has simply added another positive attribute to Netwise, making it one of the greenest companies in Europe and giving it further authority as an efficient data centre. They are able to reduce the carbon footprint of their clients and cut down on financial costs in terms of energy used.

The modular design that was employed to build the new facility works with the EcoCooling systems, as Netwise aim to install additional cooling stacks as and when the facility grows. For the second data hall, and for any future data centres that Netwise build, the new Internal Product Range unit may be considered as an alternative to the External units due to their compact design and simple installation requirements.

Phase 3: The long term plan for Netwise is to build a host of private, bespoke data centres around the UK (and maybe Europe), which will be highly interconnected offering a truly global hosting platform, and EcoCooling systems are anticipated to be an integral feature throughout this vision.

"The system works terrifically well for our new London Central data centre. It is cost effective, very easy to install, and now functions excellently not only as an incredibly effective cooling system, but also as a real-world exercise in the dramatic reduction of operational costs. Our design team worked closely with the very flexible EcoCooling engineers to come up with our unique cooling stacks, which now work very well for us here in our first data hall. We can't imagine working with a better partner in this area, so we are very happy indeed with the system we have used here."
Matthew Butt, Managing Director of Netwise Hosting LTD



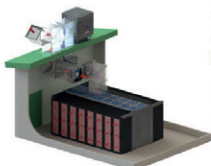
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Visit us on Stand N35 to discuss possible adiabatic solutions for your data centre | Catch up on innovations during our presentation in the energy efficiency theatre | Client led case study presentation with Hydro66



Business continuity guaranteed – and returns maximized – when uptime is optimized through scalable solutions

From server rooms that power SMEs, to server farms that host in the cloud, the data centres that support our corporations and public services are the backbone of the modern economy. Big Data and the IoT are driving data centre expansion; with data being created at an unsurpassed rate, big data is big business.

Data centre managers are challenged with constantly evolving demands on energy efficiency and availability – never before has it been so vital for those responsible for critical buildings and facilities to demonstrate flexibility when designing and updating their hard working electrical infrastructure.

Rising energy costs and premiums on floor space mean power density is at the forefront of every organisation's concerns. Managing tight budgets whilst optimising capacity means that today's data centre managers must do more with less, leveraging new technologies in order to remain competitive.

To guarantee a reliable and safe high quality power supply requires an optimised combination of vital factors. Configurable redundancy, no single point of failure, devices designed for superior robustness, anomaly detection, rapid repair time and maintenance based on hot-swap modules all figure on the Data Centre manager's wish list.

As with so many investments, however, a successful operation and attractive ROI ultimately depend upon the optimised performance and flexibility of the system architecture.

SCALABLE SOLUTIONS – FOR ALL SHAPES AND SIZES

Market leader in the development and manufacture of integrated critical power solutions – Socomec – has introduced several new scalable and energy-efficient UPS ranges. The equipment combines the advantages of the high-performance Green Power 2.0 (3-Level) technology and the flexibility of a modular system.

RACK-MOUNTED MODULAR UPS – FOR EASY, FULLY-ASSURED AND TIME-SAVING INTEGRATION

Socomec's Modulys RM GP is a 3-phase modular UPS system designed for 19" rack integration across multiple applications. Easy to integrate and install whilst simple to manage and maintain, it provides maximum availability and power protection in a compact design – leaving space for other rack-mounted devices.

Modulys RM GP has been specifically engineered with full flexibility and fewer parts in order to simplify and optimise every step of the integration process – from sizing to installation – de-risking the entire project.

MODULYS GP – MODULAR UPS FROM 25 TO 600 kW

Another scalable UPS range with Green Power 2.0 technology is the MODULYS GP range. The principle is similar: the power output by a single MODULYS GP unit can be scaled up from 25 to 200 kW via the addition of power modules that are stacked vertically within a single cabinet frame.

The vertical modular system can be extended further horizontally up to three cabinets in parallel to reach a total output power of 600 kW. Designed with no single point of failure, the solution provides total redundancy of N+1 or N+2.

DELPHYS XTEND- A SCALABLE PRODUCT FOR LARGER DATA CENTRE APPLICATIONS

The most recent innovation –Delphys Xtend- has been engineered specifically for the demands of the largest data centre operations.

Available from 200kW up to 1200kW, the Delphys Xtend provides a complete and scalable high performance system that is easy to extend – safely. The load is protected by online double conversion during system extension or maintenance which means that intervention is safe for both operators as well as the load. Manufactured in Europe, this prewired system has localised switches for unit coupling and disconnection as well as an integrated "hot-plug" function.

EFFECTIVE, EFFICIENT BATTERY CHECKS – ONLINE

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.

To learn how Socomec could deliver availability and scalability to your new or existing infrastructure, visit the team at Data Centre World Stand J50 info.uk@socomec.com www.socomec.co.uk tel 01285 86 33 00



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DELPHYS Xtend GP



DELPHYS Xtend GP
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Green Power 2.0 range up to 1.2 MVA/MW

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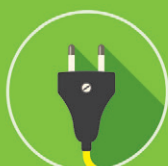
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CRITICAL POWER : When it matters most

Protecting your industrial data centre

The government's commitment to the UK's industrial strategy marks a new era for manufacturing. One of the main objectives in its recent Green Paper 'Building Our Industrial Strategy' focused on improving living standards and economic growth by 'increasing productivity and driving growth'. Leo Craig, general manager of Riello UPS, explains



Technology will be the driving force behind increased levels of productivity, fuelled by new digital manufacturing innovations which come under the umbrella of 'Industry 4.0'. All this digital technology will increase the demand for data centre storage but also present numerous other challenges such as efficiency and ensuring business continuity.

WHY A UPS WILL BECOME EVEN MORE VITAL IN THE MANUFACTURING SECTOR

Power fluctuations and disturbances can have a major impact in the industrial sector. At a large-scale manufacturing plant for example, a power shutdown or breakdown in the supply of monitoring/control information can have a disastrous effect on productivity which ultimately could impact on a business' bottom line. Statistics show that even just one unplanned downtime event can cost a manufacturer around £1.6m.

Having back-up power supply in the form of an uninterruptible power supply (UPS) therefore is key for a facility to operate safely until full power is restored.

Machinery is vulnerable to numerous electrical anomalies – from voltage sags and spikes to harmonic distortion and other interruptions. When you consider that 45 per cent of equipment failures occur due to voltage disturbances, the importance of keeping voltage stable and minimising instances of downtime

is clear. In this situation, a UPS can really come into its own to not only protect against power outages but also to operate as an effective power conditioning unit. It works by smoothing out sags, surges and brownouts to provide a clean and stable supply. Ultimately this prevents damage to sensitive and expensive electronic equipment. A UPS needs to be in online mode to give full protection against the 'dirty' power that causes disruptions to data centre services.

It's also possible to use your UPS solely as a power conditioner without batteries. Batteries can only be kept in environments up to 40 degrees Celsius so this method allows a UPS to operate in higher temperatures. For example, offices next to heavy industry, such as cranes moving cargo at docks, can be affected by flickering lights. In this situation, a UPS can be used as a power conditioner on the power supply to prevent this happening.

UPS MAINTENANCE IN MANUFACTURING

Manufacturing equipment should be subject to regular maintenance to help reduce instances of downtime caused by malfunction. Whilst most manufacturers have a maintenance plan in place for standard equipment, it's also important to consider the UPS equipment. In an industrial scenario, you simply cannot afford for your equipment to fail, and in turn, the UPS supporting this must be maintained too.

A maintenance plan not only gives you the peace of mind of ►



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having access to technical expertise, but essentially saves you money by ensuring you maximise the lifespan of your technology.

UPS maintenance plans are designed to provide more comprehensive cover than a warranty and a guaranteed emergency response time; defined in either working or clock hours. With Riello UPS you can choose between silver (12 working hours), gold (eight working hours) or platinum (same day, four clock hours) maintenance plans. These are guaranteed response times.

Having a maintenance agreement in place with a trusted technical expert also gives you 24/7 service availability and access to spares across the UK. Unlike other manufacturers, Riello UPS stocks all spare parts/components in various strategically placed warehouses across the UK combined with a multimillion pound stock holding at its headquarters where UPS up to 500kVA are ready for immediate dispatch.

Maintenance agreements also cover regular preventative engineer visits, firmware updates and fully comprehensive cover as well as remote monitoring and diagnosis. Agreements are available either in or out of warranty, although be aware that the 'out of warranty' costs can rise. Best practice would be to request a price from your UPS supplier for a fixed price maintenance plan.

THE MANUFACTURING FUTURE

With such a high cost on downtime, manufacturers cannot afford to ignore power protection like UPS, and the importance of a good maintenance plan. Complex industrial installations are critical and require an exceptional level of resilience and reliability under all operating and environmental conditions. Having the right UPS in place will not only give you peace of mind if machinery does fail but will give you the added reassurance that instances of downtime will be reduced.

Riello UPS's industrial solutions have been protecting oil and gas infrastructures, power stations and other industrial installations for decades, making Riello UPS the industrial partner for every business in the sector.

To find out more on the right UPS application, contact our Riello UPS UK team on 0800 269 394, email sales@riello-ups.co.uk or visit www.riello-ups.co.uk.

DID YOU KNOW?

Three smart ways you can also use a UPS in manufacturing

• Using UPS as a frequency converter

The UPS can also be deployed as a frequency converter allowing conversion between 50Hz and 60Hz. The input of the UPS will accept anything from 48Hz-52Hz and the output can be selected to either 50Hz or 60Hz. If you combine an output of the UPS with a step-down transformer, you can easily simulate American electrical supply conditions, which is ideal for testing equipment that may be used in export applications or requirements. As with using the UPS as a power conditioner, you can utilise this feature with or without batteries.

On the output side, the transformer must be matched to the rating of the UPS. On the input side, the transformer needs to be

oversized to cater for input power factors, battery charging and operating losses. When using the UPS as a frequency converter, the static bypass facility is inhibited.

• Using UPS as a voltage optimiser

The UPS is a clever device which also works to constantly regulate the electricity supply to get precisely the voltage required. It works to reduce the mains power supply of incoming voltage so that it matches the electrical voltage level needed by equipment on site.


The output tolerance is normally 230v but using the UPS it is possible to set the voltage to a specified amount, for example, 215v, 218v. Optimising the voltage for the data centre means you will be maximising efficiencies.

• Using UPS to store energy

Traditionally, the UPS has only been used on critical loads within the data centre with other services such as air handling relying on a generator for emergency power. But there is now the possibility to use Lithium Ion (Li-ion) batteries with the UPS. Li-ion batteries have a much greater power density, allowing longer autonomies and a faster rate of recharge without sacrificing valuable space. It can effectively act as an energy accumulator which can be used in power outages or to feed power back to the National Grid on demand. Combine with renewable energy technologies, such as wind and solar power, and you can have a very green power solution.

From an environmental point of view, Li-ion can work in temperatures from 0-40 degrees without affecting the battery life. This removes the need to keep the battery room at 20 degrees as demanded by VRLA, thereby offering a saving on cooling.

DATA CENTRE WORLD 2017

Come and say hello to the Riello UPS team at Data Centre World 2017. We look forward to welcoming you on stand F30 and showcasing our service expertise and the latest technology for your power protection needs. 

RIELLO STEPS UP TO THE CHALLENGE

The Riello team has stepped UP(S) to the challenge of saving the lives of people with blood cancer. The leading UPS manufacturer will this year support the Anthony Nolan charity, which works to match individuals willing to donate bone marrow or blood stem cells to people needing lifesaving transplants.

To kick off the fundraising mission, Riello UPS' general manager Leo Craig will be tackling the Hastings Half Marathon in March.

In July, the sales team will be taking on The Three Peaks Challenge, climbing Ben Nevis, Scafell Pike and Snowdon in just 24 hours.

On average, 70 people a day in the UK are diagnosed with a blood cancer. Anthony Nolan Trust also carries out cutting-edge scientific research as well as funding specialist post-transplant nurses and supporting patients and their families throughout the transplant process and beyond.

You can support the Riello team by visiting www.justgiving.com/fundraising/RielloUPSAN



Engineering value

Steve Martin, head of specialist groups at the Electrical Contractors' Association (ECA), looks at how value engineering principles can help data centre procurement

Although the concept of 'value engineering' was developed some time ago – in fact during World War Two – it is still as relevant in 2017 as it was when it was first conceived back in the 1940s.

This might seem strange as 'cost' and 'value' have become almost interchangeable in today's business world as senior managers attempt to make budgets stretch as far as possible. A consequence of this is that the value something delivers is often perceived as being directly proportionate to the expense it incurs.

However, while businesses clearly need to make money, thinking cost and value mean the same thing can often be a mistake – and one which can backfire. Decisions taken to cut cost without an understanding of value can reduce the quality of the company's end product or service. Furthermore, it can damage morale among staff members and, in some cases, end up costing the business more in the long run – especially if additional investment is required to rectify any problems.

Data centre procurement is one area where this scenario is common. Efforts to cut costs here can have severe consequences in the long run – particularly if the attempt affects the data centre's function or reliability. When this happens, the businesses affected by it can be forced to suspend their services, suffer an

in – and their refusal to use anything that doesn't pass their internal testing. This may mean the data centres they design and build require a greater investment, but they usually provide a closer match to the needs of the business they are being designed for – as well as some factors those procuring the data centre may not have considered.

Those overseeing the tender process need to be mindful of this, as selecting a contractor who makes the lowest priced submission may save money in the short-term, but it can also cause problems in the long run. This is especially true if something goes wrong with the data centre, as remedying any problems can often require a significant investment – and even the cost of the audit to determine them is likely to eat into any savings made from selecting the cheapest supplier.

It's therefore clear that data centre procurement should focus on the value delivered by the contractor, and by the data centre they're designing, building and installing rather than the cost of delivering it. But how do you define 'value'? Well, according to the principles of value engineering, it's a ratio of function to cost, with every change or modification made to a product or service either preserving or improving its function while maintaining or decreasing the overall cost of its development.

The emphasis on function is a crucial element of this discipline. Its early practitioners aimed to improve the 'value' of goods or products and services by determining what alternative materials would preserve the end product's function while reducing the cost of developing it.

When it comes to data centre procurement, the principles are the same, although the function of the end product should be defined by its reliability and resilience. Those judging the tender submissions from potential suppliers should ask themselves whether a contractor who offers the cheapest quote will deliver a data centre that meets all the needs of the business – or whether a short-term saving may have an adverse effect in the long run. Making this type of decision requires a careful scrutiny of the tender submissions, including assessing the credentials of the firms bidding for work. Doing so allows those who make the final choice of which suppliers to work with to be fully aware of the facts and the potential consequences of going with a cheaper alternative.

I appreciate that effectively scrutinising tender submissions may sound like a time intensive task, but it's one that makes for a more educated approach to procurement. Furthermore, it increases the likelihood the data centre that is commissioned will help increase a business' profit, rather than potentially eroding it. **ER**

Efforts to cut costs in can have severe consequences

avalanche of negative publicity and may find their customers consider leaving them for a rival – or, even worse, take their business elsewhere. This is true even with a temporary fault, which can have far-reaching consequences for the firm, as well as the individual who oversaw the data centre's procurement.

Despite this, there's a growing trend for data centre procurement to be price-driven. While there's nothing wrong with being cost conscious, there's usually a reason why the more specialist data centre firms make higher estimates for this type of work. Typically, it's because of their commitment to using high-quality materials – ones which they have tested in conditions similar to the ones a data centre will operate

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ESUK are pleased to announce a ground breaking International Arc Flash Conference to be held in Manchester UK. Delivery of this conference will be via the top industry experts led by the International Chair of the IEC TC78 Live Working Committee and IEEE 1584 Secretary, Mr Jim Phillips, who will be flying over from the United States for this event.

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Key Note Speaker

Jim Phillips

International Chair of the IEC TC78
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For over 30 years, Jim has been helping tens of thousands of people around the world understand electrical power system design, analysis and safety. Having taught over 2000 seminars during his career to people from all seven continents, he has developed a reputation for being one of the best trainers and public speakers in the electric power industry. For more information about Jim's work, visit www.Brainfiller.com

Additional Speakers

Leigh Williams – Chartered Electrical Engineer

Former EC&I Specialist Inspector for the HSE & Technical Authority within UK Top Tier Control of Major Accident Hazard (COMAH) facilities

Mike Frain – Principal Consulting Director – ESUK

Widely credited with raising awareness about the dangers of arc flash within the UK.

Paul Hopton – Principal Electrical Consultant – ESUK

Senior engineering manager and chartered electrical engineer with significant experience in Arc Flash.

More speakers to be announced

NOT TO BE MISSED

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CIOs and DevOps leaders must consider model driven operations to remain competitive

The emergence of ‘big software’ – a complex assembly of many software components sourced from different vendors, running on multiple distributed machines, providing to its user the impression of a single system – has raised the importance of operations in a software, and in particular, a hybrid cloud world. Stefan Johansson, global software alliances director at Canonical, explains

Integration and operations now consume a significant share of technology budgets, and for IT organisations and there is no sign of slowing down. To help alleviate the burden of integrating software components many IT organisations are adopting open source software and model driven operations to reduce complexity and integration costs while improving time to market. The cloud and microservices (independent services that interact with a network) are making software implementation more challenging and distributed. The costs and intricacies of Big Software are keeping many CIOs and DevOps leaders awake at night. Where do these technology leaders turn for answers? In-house solutions are expensive to deploy and integrate, probably not. Costly systems integrators that only focus on solving one technology challenge and have a long learning curve, not optimal. Or organisations can continue to invest in siloed solutions only to achieve incremental gains, too expensive and time consuming. Forward-thinking IT & DevOps executives are adopting:

“Buy what you can, build what you have to, and integrate for competitive advantage.”

These hurdles are why model driven operations are changing how software is deployed and operated today.

For CIOs and DevOps, model driven operations improves how software is not just deployed, but scaled across the enterprise or among various cloud services, providers, or bare-metal servers. One of the main values for model driven operations is the ability to share and reuse open source code that has common components and functionality so development organisations can spend their time and resources deploying solutions unique to their business. For example, when a new server needs to be deployed, modelling can automate most, if not all, of the provisioning process. Automation makes deploying solutions much quicker and more efficient because it allows tedious tasks to be performed faster and more accurately without human intervention. Even with proper and thorough documentation, manually deploying a web server or Hadoop deployment, for example, could take hours compared to a few minutes with service modelling. This is why CIOs and DevOps chiefs are adopting service modelling as a way to make the most effective use of their team's precious resources and time.

Further, model-driven operations gives development organisations more choice in how services are consumed (public, private, or hybrid cloud) and options that make it easier to replicate environments with the same software and configurations. As these systems evolve, organisations can deploy pre-configured services, private infrastructure solutions including OpenStack, and even the organisation's own code to any public or private cloud. This allows enterprises to deploy solutions

that are consistent, integrated, and relevant to their business needs.

Companies like Google, Amazon, AT&T, and many others have all moved to model-driven operations to provision and deploy software and cloud services across multiple domains and environments faster and more efficiently.

CANONICAL'S APPROACH TO SERVICE MODELLING

Companies are integrating the tools and technologies that will help drive business outcomes faster, more reliably, and efficiently. Software modelling solutions like Canonical's Juju helps customers to build and deploy proofs of concepts faster, integrate solutions more seamlessly while expanding their organisation's capabilities more broadly. Juju Charms, which are sets of scripts for deploying and managing services within Juju, allow organisations to connect, integrate, and deploy new services automatically without the need for consultants, integrators, or additional costs or resources.

Companies can choose from hundreds of microservices that enable everything from cloud communications via WebRTC, IoT enablement, big data, web services, mobile applications, security, and data management tools. Further, with the rise of open source, enterprises, and programmers can leverage the power of a vast library and a community of developers to design, develop, and deploy their solutions much faster. Additionally, network administrators and developers can free up their time to focus on bringing to market revenue-generating solutions and services. What matters to the developer is what services are involved, not the details of how many machines they need, which cloud they are on, whether they are big machines or small machines, or whether all the services installed are on the same machine. There has been a shift from software and infrastructure orchestration to model driven operations that makes the task of deploying distributed systems - or Big Software - more efficient and faster. It's about choice and options.

IT'S TIME TO LET SOFTWARE DO THE WORK

The world of software deployment is becoming more and more complex. Software deployments were once simple and spread across a few machines, now they have evolved to become distributed across many machines, operating systems, regions, and environments. This shift has created both a competitive threat and simultaneously, a massive opportunity. Many CIOs and DevOps executives are exploiting these opportunities, while others risk being relegated to the dustbin of oblivion. Model driven operations helps organisations to reduce complexity, improve efficiency, and deploy revenue-generating services and solutions faster. **ER**

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Bsria is proud to support Data Centre World taking place at ExCel London on Wednesday 15 and Thursday 16 March 2017. As part of supporting Data Centre World, Bsria will present at the conference and be on hand to answer your data centre design and build questions at the exhibition.

The event brings a line up of world-class suppliers to the data centre sector, free content from over 500 of the industry's practitioners and peer networking opportunities.

For 2017, the London Flagship events are set to be even bigger with Launch Big Data World added to the stack. For the first time Data Centre World will take place in its very own hall opposite Cloud Expo Europe.



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CENTRAL LONDON COLOCATION FACILITY ACHIEVES OPERATING CAPACITY PUE OF 1.12 USING DIRECT ADIABATIC COOLING

Netwise Hosting is an innovative and forward thinking company, and one of London's leading data centres. Netwise has just completed its second EcoCooling installation within its estate.

EcoCooling direct evaporative cooling units alongside their energy optimising control systems can provide 100kW of cooling for Netwise is able to significantly reduce their customers CO2 production, while keeping the levels of energy used much lower than that of other data centres, which have been seen to be running at PUEs of up to 2 with refrigeration kit. Using a cooling system that uses fresh air, ventilation, and attemperament rather than refrigeration has both financial and environmental consequences. Evaporative cooling is a very energy efficient way of cooling, and the new project allowed Netwise to push the design of the system further, stacking multiple units together resulting in an operating capacity PUE of just 1.12.



EcoCooling • 01284 810586
www.ecocooling.org

IT RACK ON SHOW AT DCW

Rittal will be exhibiting its global-leading TS IT rack at Data Centre World 2017.

The TS IT rack's reputation has been built around the safe environment it provides for servers and other equipment, its ease of modification, and its outstanding price/performance ratio.

Today's data centres need both to protect cutting-edge technology, and adapt to the innovation cycles of servers and storage systems. The TS IT has an intelligent modular design offering easy, tool-less adjustments. The standard version includes two fully adjustable 19" mounting levels and a multi-piece roof plate with optimised side-cable entry via brush strips in the roof as well as the option of fan integration. Accessories can also be added or modified without tools. This enables intelligent, versatile expansion and the flexibility of customer-specific configurations.

It has been designed with climate control in mind, including IT-specific cooling systems and liquid-based cooling systems such as the liquid cooling systems from Rittal. All this has been confirmed by accredited testing laboratories.



Rittal • www.rittal.co.uk
www.friedhelm-loh-group.com

ADDRESS NEW DEMANDS OF DISTRIBUTED IT

Schneider Electric, a global specialist in energy management and automation, today announced it has collaborated with Hewlett Packard Enterprise (HPE) on HPE Micro Datacenter, introduced recently at the Gartner Data Center, Infrastructure & Operations Management Conference in Las Vegas, Nevada, U.S.

The collaboratively engineered converged infrastructure solution provides end-to-end IT infrastructure, networking, storage and management in a single, self-contained and easy-to-deploy architecture ideal for distributed IT environments.

Schneider Electric is leveraging its SmartBunker FX, an integrated and secure enclosure with UPS, power distribution, cooling and monitoring, with HPE storage, network and compute solutions to create HPE Micro Datacenter, a custom-designed and integrated architecture that supports edge environments.



Schneider electric
www.schneider-electric.com

SUDLOWS ACQUIRES PROGRESSIVE

Technical infrastructure specialist, Sudlows, has completed the acquisition of Progressive Network Solutions, a provider of technical installation services within London, the City, Home Counties, Thames Valley and the Midlands.

This strategic acquisition will strengthen Sudlows' provision of infrastructure services across the southern region.

Based in Watford, Hertfordshire, Progressive Network Solutions is a privately owned independent company. The company was established in 2002 by the current directors Tony Shrier and Tim Sprowson to provide specialist technical services, including; unified communications and critical infrastructures. As part of the integration process, Sudlows and Progressive will be relocating to larger premises. This investment in property and people will form the operational hub of the Southern region for the Sudlows Group.



Sudlows • www.sudlows.com
www.progressivenet.co.uk

EMERSON NETWORK POWER REBRANDS AS VERTIV

The business now formerly known as Emerson Network Power today announced the appointment of Rob Johnson as CEO and officially commenced a campaign to rebrand the standalone company as Vertiv.

Vertiv is a global provider of mission-critical infrastructure technologies for vital applications in data centers, communication networks, and commercial and industrial environments. The company, which is headquartered in Columbus, Ohio (USA), has more than 20,000 employees and more than 25 manufacturing and assembly facilities worldwide.

Platinum Equity acquired the business today from Emerson in a transaction valued in excess of \$4bn. Emerson also retained a minority interest in the company.

Johnson, most recently an operating partner at Kleiner Perkins Caufield & Byers, spent 10 years at American Power Conversion (APC), a leader in data center infrastructure.



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