

# Inside\_Networks

THE NETWORK INFRASTRUCTURE E-M

## Industrial revolution

THE IMPACT OF INDUSTRY  
4.0, THE IIOT AND M2M ON  
THE DATA CENTRE SECTOR

The  
times  
they  
are a  
changin'

HOW  
COLOCATION  
IS EVOLVING  
TO PROVIDE  
A SECURE  
MARKETPLACE  
FOR GROWTH



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AN INSIDER'S GUIDE TO  
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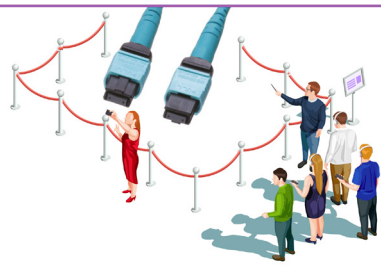


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The Global Digital Infrastructure Education Framework allows data centre and network infrastructure professionals to map education to meet their needs depending on their career goals.

Each program has been designed to address the skills and knowledge requirements of those working in different areas of these vibrant and fast moving sectors. Whilst the programs flow perfectly from one to another they are of equal value as stand alone programs, plus you can enter the framework at any level depending on your level of experience.





# Make a difference

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It is no exaggeration to state that manufacturing is entering an exciting new age – one where the possibilities are only limited by our imaginations. Modern manufacturing is building intelligence into all aspects of the design and build process, with Industry 4.0, the Industrial Internet of Things (IIoT) and machine-to-machine (M2M) communication helping to create a revolution in factory productivity, which according to the McKinsey Global Institute will be worth up to \$3.7tn per year in 2025.

Not surprisingly, given its vital role in making this happen, the data centre sector is paying close attention. Data centres are increasingly deployed at the industrial edge in order to process and store the vast amounts of information being created and to examine this subject in more depth, and look at the opportunities it presents, we've asked a panel of experts to give their opinions. You can read this month's Question Time by [CLICKING HERE](#).

With developments like Industry 4.0 and the IIoT raising the importance of issues such as real time capability and distributed data centres, colocation facilities providers need to quickly adapt. In this issue, Volker Ludwig of e-shelter examines the changing role of colocation and how the data centre must play its part in providing a secure marketplace for growth. [CLICK HERE](#) to read his article.

With data centres becoming increasingly reliant on high density cabling, pre-terminated solutions are growing in popularity. Not only can pre-termination save time and money, reduce labour and improve accuracy, it offers greater overall quality and consistency, which expands the reliability and uptime of the network. However, knowing what to look for in a solution is not always so easy, so we've asked Erwin Deeben of Leviton to provide an insider's guide to choosing pre-terminated cabling solutions and you can read his advice by [CLICKING HERE](#).

With lots more besides the above, I hope you enjoy this issue of Inside\_Networks and if you'd like to comment on any of these subjects, or anything else, I'd be delighted to hear from you.

R. Shepherd

**Rob Shepherd** Editor



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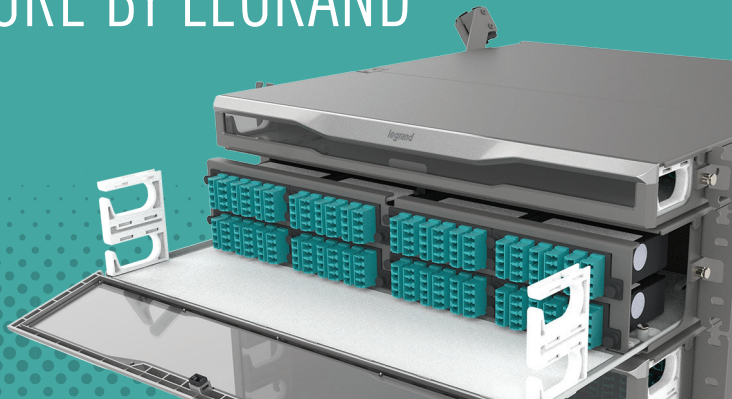
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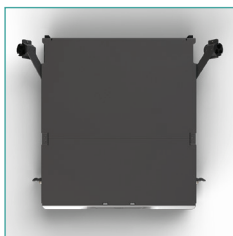
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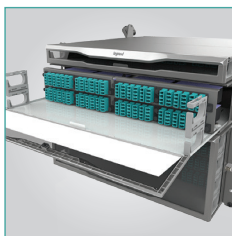
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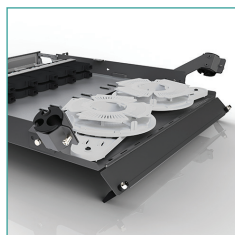
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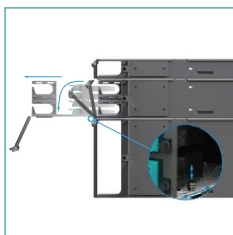
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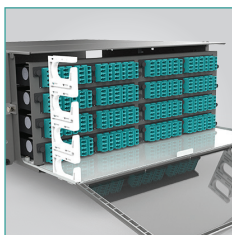
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## Data centre infrastructure struggling to meet C-suite expectations

Independent research released by Volta Data Centres has revealed that 56 per cent of IT decision makers in the UK say they have experienced downtime from their data centre provider in the last six months – despite over half (53 per cent) saying constant uptime was a top priority for their CEO. Furthermore, just under half (46 per cent) of IT decision makers reported their businesses had experienced data loss as a result of downtime, with businesses suffering from an average of 3 hours and 45 minutes of downtime over the past 12 months.

The research, conducted by Sapio Research, found that over half (57

per cent) of IT decision makers said guaranteed uptime was important when selecting a data centre provider. Despite this being a top priority, over a quarter (27 per cent) said they have had to make

compromises on system uptime to meet budget restrictions.

Jon Arnold, managing director at Volta Data Centres, said, 'Looking into the impact of downtime on businesses, the research found that 29 per cent of respondents had suffered one or two events of data loss as a result of their data centre

provider letting them down – with 18 per cent stating they had suffered data losses on three or more times during the past 12 months.'



## More than half of business leaders believe embracing IoT is essential

A new report from Vodafone highlights that more than half of business leaders in the UK (58 per cent) believe it is essential to embrace Internet of Things (IoT) technology to be successful. Vodafone's Digital, Ready? report surveyed 2,000 business leaders from large enterprises through to sole traders and reveals that whatever the size of organisation, IoT is seen as a key success driver.

For businesses up to 49 employees, 41 per cent believe IoT is vital for success, rising to 67 per cent across large enterprises (2,500+ employees). 64 per cent of all respondents believe IoT will

improve their business operations, and 62 per cent believe that every business will benefit from the technology.

Anne Sheehan, enterprise director at Vodafone UK, commented, 'IoT can

drive innovation and value within an organisation, helping it to achieve operational efficiencies, build more valuable relationships with its customers and facilitate entirely

new business models. I believe it offers all organisations a huge opportunity to thrive in this digital age – and they must seize this opportunity now.'





# EURECA is found to deliver exceptional results

The EURECA Consortium, of which the Data Centre Alliance (DCA) is a member, has just received the project's technical evaluation. The assessment states that 'the project has delivered exceptional results with significant immediate or potential impact'.

It has highlighted that important energy efficiency gains are possible for data centres, especially where it concerns facilities in the public sector. EURECA developed a Data Centre Maturity Model (DCMM) to assess the technical age of data centres, and

to make informed decisions on the approach towards modernising them, by choosing between different options – procurement of new data centres, outsourcing, better management of existing installations, seeking support and training towards public procurement of innovation.



Steve Hone, CEO of the DCA, said, 'Member support and strong collaboration with strategic and academic partners were very much key to the success of this project. It was a great team effort and a clear demonstration of the benefits of working together, sharing knowledge and promoting best practice.'

## First graduates for Masters Degree in Data Center Leadership and Management celebrate their success

The world's elite group of data centre professionals has been confirmed at the very first Masters Degree in Data Center Leadership and Management graduation ceremony. After an intense three years of study, learners from the class of 2015 graduated at a ceremony in Cambridge, UK.

The graduates come from some of the world's most respected organisations including Unilever, Capital One, IBM, Irish Life and Wirewerks. Terri Simpkin, CNet's



L-R Jennifer Quayle, David Hughes, Sean Moloney, Miladen Loncar, Stuart Leddie, Raymond Del Rio, Pat Drew, Nicolas Saab

Training's higher and further education principal and program leader, commented, 'I am delighted that learners from the world's first Masters Degree in Data Center Leadership and Management

have passed and graduated – it's an amazing achievement for both the CNet Training team and the graduates, and I feel very proud to be part of it.'



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## Boards look at IT to improve customer experience

Boards are not only looking at chief information officers (CIOs) to address operational efficiencies and IT performance, but are also focused on how they can become more customer centric, according to a survey of 1,200 CIOs.

The Harvey Nash/KPMG CIO Survey found that 60 per cent of CIOs said that management were looking at IT to help enhance customer experience. It also found that when it comes to prioritising digital technology initiatives, improving

customer experience is the most important goal for 62 per cent. This is followed by attracting new customers and growing revenue from existing customers – with both at 57 per cent.

Lisa Heneghan, head of digital transformation at KPMG UK, said, 'This year, we have clearly seen how organisations that put customers at the heart of everything are driving greater growth and profitability. This is requiring CIOs to think in a different way and understand how the IT function can also pivot to enable a more integrated customer experience.'



## Circle B, Rittal and Switch Datacenters launch first European OCP Experience Center

Circle B, Rittal and Switch Datacenters have launched the first European Open Compute Project (OCP) Experience Center. The fully functional OCP environment is located in one of the three facilities that Switch Datacenters operates in the Amsterdam area. The OCP Experience Center is available as a demo centre, but may also be used for testing new OCP Accepted and OCP Inspired data centre environments.

The three companies have determined that within the technology sector, IT managers at large enterprises and governments in the European region have yet to adopt

OCP principles on a large scale. By adopting OCP designs in data centres, large enterprises and governments can benefit from the same advantages as the hyperscalers – cost reductions, lower energy usage and much more flexibility.

'It's exciting to see how the European members continue to drive OCP across the region by bringing the region's first OCP Experience Center,' stated Steve Helvie, vice president of channel for the OCP Foundation. 'Circle B, Rittal and Switch Datacenters have put together a great showcase for open hardware designs and it highlights the strength of each member in delivering OCP solutions throughout Europe.'



# Kao Data London One data centre achieves OCP-Ready status

After an intensive year of working with the Open Compute Project (OCP), during which Kao Data has joined the OCP Data Centre Facility (DCF) Project Working Group, the company has successfully self-audited against OCP's checklist for compliance and becomes the first European data centre to achieve OCP-Ready status. Accordingly, the Kao Data London One data centre becomes a listed Solution Provider on the OCP Marketplace.

The OCP DCF Project developed its OCP Colocation Facility Guidelines and Checklist in collaboration with the OCP

Community, to help colocation facility providers to understand the unique requirements of OCP racks, power, and hardware. To ensure compliance, a facility provider must perform an assessment of its facility using an OCP Scorecard, which is to be presented and reviewed by the DCF Project Community and the Incubation Committee.

Gerard Thibault, CTO at Kao Data, said, 'Hyperscale data centres are some of the most efficient facilities available today. Recognising this, we planned and developed our first facility and campus to meet OCP Equipment Set requirements.'



## NEWS IN BRIEF

Schneider Electric's APC NetShelter SX with Shock Packaging has achieved Cisco Unified Computing System (UCS) Pre-rack and Ship Certification, expanding certification from one standard size to cover the entire product line.

Connexin has become an official partner of the Northern Powerhouse Partnership Programme.

Next Generation Data (NGD) has won a Debenhams 2018 Supplier of the Year Award. Against tough competition from several major international organisations, NGD was selected as winner of the coveted Overall Quality Performance category.

Extreme Networks has been named a 2018 Gartner Peer Insights Customers' Choice for Data Center Networking. Gartner defines data centre networking vendors as those providing hardware and/or software solutions that deliver connectivity primarily within enterprise data centres.



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# The price is right

Hi Rob

Given that so much data centre operator and facilities management time is now taken up with tracking thermal performance and ensuring that the right cooling, power and space capacity strategies are in place, it's surprising how many data centre rooms still operate outside of ASHRAE thermal compliance standards.

Indeed, when EkkoSense carried out a survey of some 128 data centre halls, we found that – despite significant ongoing investment in cooling equipment and infrastructure management tools – a surprising 15 per cent of racks weren't actually compliant with current ASHRAE thermal guidelines.

This shows that, despite best efforts, even the best run data centres still have cooling and thermal management issues. And with cooling now representing around 30 per cent of a data centre's operating cost, it's more important than ever for organisations to be focused on thermal optimisation.

Achieving this requires a rigorous real time focus. It's only when data rooms are carefully mapped with all the appropriate data fields that 100 per cent thermal compliance is possible. We estimate that more than 1,000 sensors are required for the typical data centre – enabling the measurement of a range of previously unknown factors including energy usage, heat outputs and airflow, above and below floors.

You might have thought that this kind of critical real time information is the sort of data insight achievable with complex data centre infrastructure management (DCIM) software suites or computational fluid dynamics (CFD) based consultancy approaches.

Sadly not, and that's part of the problem. Unfortunately, too many data centres still rely on generalist DCIM tools and human expertise to manage their cooling activities.

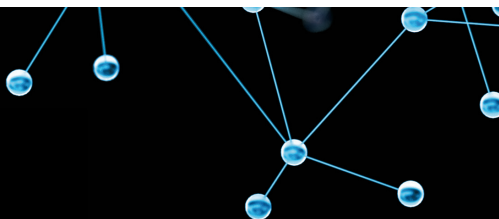
The reality is that DCIM alone isn't

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enough to give organisations the level of thermal protection they need. Simply tracking return air to a computer room air conditioning (CRAC) isn't going to solve potential thermal problems. How, for example, would a data centre manager know when two CRACs were working against each other? Monitoring alone couldn't explain why 'rogue' CRACs were out of alignment, and basic DCIM tools can't help to identify how such a scenario might impact the data centre's most critical services.

Similarly, with CFD there are no dynamic simulation capabilities, and most CFD approaches require an element of consultative support that always seems to end up with the unlikely scenario of 'experts' running up and down aisles to keep on top of any thermal change. Apply that to hundreds of racks, multiple cooling systems and warm data centres and things quickly start to look less than professional.

What data centres actually need is live thermal optimisation, and this inevitably means much greater granularity of data.

However, measurements alone aren't enough, but they do provide exactly the kind of data platform needed for true software enabled real time decision making and scenario planning capabilities.

So, if you're looking to cut energy usage, and you're serious about delivering ASHRAE thermal compliance, then ditch the expensive DCIM and CFD projects – and the price tags – sensors and software combined are always going to trump humans when it comes to data centre thermal optimisation.

**Stu Redshaw**  
**EkkoSense**

#### Editor's comment

It's certainly true that thermal management is a preoccupation with many data centre owners and managers – and for good reason. However, the research findings that Stu quotes highlight just how difficult they are finding it to meet ASHRAE thermal guidelines. You'll be the judge about whether DCIM and CFD are part of the solution, or part of the problem.



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# Captains of industry

Automation and data exchange in manufacturing technologies has seen rapid development in recent years. [Inside\\_Networks](#) has assembled a panel of experts to examine the impact of Industry 4.0, the Industrial Internet of Things (IIoT) and machine-to-machine (M2M) communications on the data centre sector

 Industry 4.0 – so named because it is considered the fourth industrial revolution – is not a new term. It was originally coined by the German Federal Ministry of Education and Research (BMBF) to refer to the digitisation of the manufacturing industry. At the Hannover Messe Industrie (HMI Fair) in 2011, the BMBF demonstrated how cyber-physical systems could be responsible for the

operating in a decentralised way, with as much autonomy as possible, and with the ability to spot potential problems and identify possible solutions – often before a human operator would notice such issues. The use of this technology has resulted in positive improvements and in order to process and store this information, data centres are increasingly deployed at the industrial edge.

HOW IS THE DATA CENTRE SECTOR RESPONDING TO THE DEMANDS PLACED UPON IT BY INDUSTRY 4.0, THE INDUSTRIAL INTERNET OF THINGS (IIOT) AND MACHINE-TO-MACHINE (M2M) COMMUNICATIONS? WHAT OPPORTUNITIES DOES THE 'FOURTH INDUSTRIAL REVOLUTION' PRESENT TO VENDORS, SYSTEMS INTEGRATORS AND DATA CENTRE SERVICE PROVIDERS?

evolution of new manufacturing and industrial automation models.

Since then, alongside the development of the IIoT and M2M, manufacturing plants all over the world have added a cyber element to existing automated assembly line structures, allowing machinery and plant to communicate with one another to increase efficiency. Industry 4.0 has now reached a stage where it is possible to gather and analyse data across machines, enabling faster, more flexible, and more efficient processes to produce higher quality goods at reduced costs.

One of the primary advantages of Industry 4.0 is to have machines

In fact, data centres are at the very heart of Industry 4.0 and this represents opportunities, as well as enormous challenges, for the sector. As these include even stricter bandwidth and latency requirements, edge computing is fundamental to the success of Industry 4.0 and Inside\_Networks has assembled a panel of experts to examine the opportunities it presents to vendors, systems integrators and data centre service providers.

Don't forget, if you have a question that you would like answered in Inside\_Networks, [CLICK HERE](#) and we'll do our best to feature it.

## CLIVE PARTRIDGE

### PRODUCT MANAGER IT INFRASTRUCTURE AT RITTAL

IT infrastructure is fast evolving to meet growing demands for low latency, local data processing and high autonomy, system-wide security and high bandwidth.

These have arisen from the expansion of the IoT, Industry 4.0 and M2M communications across many sectors such as manufacturing, financial services, transport and health care.

It has led to the rapid development and deployment of computing resources

which are placed at the perimeter of a given network – so-called edge computing. The focus for edge is typically on the immediate processing capacity required at the source of data, so that the processing is as fast and secure as possible. Edge ensures that latency is low – packet round trips of less than 100ms, with 25ms being desirable – thus making data readily available to a growing number of applications.

In response, IT vendors are developing some innovative solutions, tailored to sector needs. These include edge data centre solutions – end-to-end products with standardised, preconfigured IT infrastructure which can be implemented rapidly and cost effectively – paving the way for Industry 4.0 applications.

Depending on the scale of the application, an edge data centre could comprise a single self-contained rack with power and cooling; a rack suite of multiple

racks, typically up to 10, with power and cooling; a containerised solution with power, cooling and fire suppression.

Some vendors are now combining ‘as-a-service’ offerings, providing complete, one-stop solutions for any enterprises that don’t want to manage their own systems. To streamline edge data centre planning, some provide specialised web-based configurators, which means compact and small enclosures can now be quickly configured online.

Data centre as a service (DCaaS) offerings are viable alternatives for end users

who would prefer not to operate the edge data centre themselves. They are then free to focus on their core tasks while harnessing the benefits of the IoT for their business.

Hand-in-hand with IT as a service (ITaaS) platform providers, the IT industry can offer private cloud data centres in shipping containers. These containers are fully equipped with all key active components, such as servers, network connectivity and storage for immediate and rapid deployment/use.



**‘IT infrastructure is fast evolving to meet growing demands for low latency, local data processing and high autonomy, system-wide security and high bandwidth.’**

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# CERTAINTY



## Protect your data and stay connected at the edge.

The rise of IoT has made data access and connectivity vitally important.

Cloud storage can be effective, but has major limitations — including latency, bandwidth, security, and lack of off-line access — that can affect performance. Because of this, edge computing and on-premises infrastructure has become a critical need.

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## RUSSELL POOLE

UK MANAGING DIRECTOR AT EQUINIX

The lightning quick pace of disruption is being felt across every industry sector.

We have witnessed entire industries transformed in the space of a few short years by rapidly evolving, data-led technologies.

The IIoT, cloud computing, big data, and cognitive computing – collectively termed as Industry 4.0 – is starting to herald changes to systems and processes of the like never seen before. This is only going to continue as we move towards the panacea of the ‘smart factory’ and data-driven decision making.

Critical to the success of machine learning systems and Industry 4.0 is the direct and secure interconnection among a web of systems, users, applications, analytics, data and things. The ability to directly and securely interconnect companies, and therefore privately exchange data, is the way forward for all businesses hoping to compete and survive in this digital economy.

Industry 4.0 brings with it a new evolutionary stage for the data centre sector, as the biggest threat to companies comes from not being able to move quickly enough to respond to fast changing market conditions and customer requirements – they need the ability to scale up at a moment’s notice. But to do so requires

huge amounts of data and necessitates robust systems and processes to be in

place. This is very difficult to achieve if operating alone – the move must be made to colocation sites.

The opportunity presented to data centre service providers is that, increasingly, companies must re-architect their IT infrastructures to be built around data sharing, collaboration and innovation. With interconnection becoming paramount for the success, growth, and security of the

IIoT, the data centre sector has to respond to the surplus of demand.



**‘Industry 4.0 brings with it a new evolutionary stage for the data centre industry, as the biggest threat to companies comes from not being able to move quickly enough to respond to fast changing market conditions and customer requirements – they need the ability to scale up at a moment’s notice.’**

## ANDY HIRST

MANAGING DIRECTOR CRITICAL INFRASTRUCTURES AT SUDLOWS

The fourth industrial revolution is certainly upon us and whether organisations within the sector are ready or not, they will have to prepare for this technology. Gone are the days that the infrastructure is just mechanical, electrical and plumbing.

The intelligence and dynamics around the controls and monitoring between technologies now far exceed the scope of the traditional mechanical and electrical designers.

Data centre infrastructures are rapidly adopting the likes of IIoT and M2M technology as a matter of course, to achieve both the efficiencies and the detailed reporting that is expected.

With the introduction of artificial intelligence (AI) on the horizon, quite frankly, many organisations working within the critical infrastructure industry – from manufacturers to designers and facility owners – must invest into these smart tools. Fundamentally, a new wave of disruptive innovation and technology is now here – so if you are not a disruptor then I would suggest your business will soon be left behind.

This adds a new dynamic to critical infrastructure design principals. At Sudlows, we highlighted this opportunity early and now have a team of computational engineers that we believe brings a new field of expertise to sit within the design team.

By supporting the design teams, our

computational engineers are looking at how the sophisticated technology we deploy can be both improved and more efficiently integrated, via the use of bespoke software, to enhance the current technology's algorithms and develop them. So, if organisations start to embrace the likes of IIoT and AI, which to stay as a market leader within a discipline is a must, there are some great opportunities ahead.

However, as always, you do have certain risks that require considering and, potentially, de-risking, due to integrating with existing

systems.

Whether it's software embedded communications, device to device communications or the use of an IP network system, you have to ensure you are confident around your cyber-security protocols in place, as once systems are online you will need to ensure that you stay in full control and are not risking external cyber-attacks that put your organisation at high risk.

**'With the introduction of artificial intelligence (AI) on the horizon, quite frankly, many organisations working within the critical infrastructure industry – from manufacturers to designers and facility owners – must invest into these smart tools.'**







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## SIMON BEARNE

COMMERCIAL DIRECTOR AT NEXT GENERATION DATA

The growth of the hyperconnected IoT and ability to move operations to the cloud has turned data availability and visualisation into a vital part of industrial innovation. However, delivering IIoT industrial applications such as predictive maintenance, production line quality control and robotics – and those of the future – makes real time communication flow essential.

This highlights the latency and mobility challenges involved in efficiently managing the huge volumes of data being produced, necessitating the deployment of edge servers for providing the compute, storage and networking services between end devices and centralised cloud data centres. Additionally, what Cisco has dubbed ‘fog computing’ is increasingly used to extend the functionality of edge computers, effectively bringing the cloud down to the local level.

With this approach, the scalable compute, applications delivery and storage resources of the public cloud remain mission critical. The growth of the IIoT is therefore accelerating demand for secure, scalable, resilient, hyperconnected data centres. But to minimise latency, relying on the vagaries of public internet connection is not viable. It requires direct connection of

the data centre(s) into a cloud provider’s infrastructure.

Data centre operators must therefore

take steps to provision the cloud gateways required while also plan for the considerable space, power and cooling necessary for supporting and scaling these high density cloud environments. Many facilities are not equipped to do this.

Some operators can also turn the IIoT to their own advantage. The

modern data centre, with its numerous sensors embedded across critical facilities infrastructure and data halls, makes it an ideal candidate for harnessing the IIoT – using smart DCIM tools for aiding accurate, real time decision making and realising greater energy and capacity efficiencies across facilities infrastructure and IT operations.



**‘The modern data centre with its numerous sensors embedded across critical facilities infrastructure and data halls makes it an ideal candidate for harnessing the IIoT.’**

## STEVEN CARLINI

SENIOR DIRECTOR DATA CENTRE INNOVATION AT SCHNEIDER ELECTRIC

Those embracing Industry 4.0 are expecting increased automation, agility, security and resilience by leveraging the IIoT and M2M communications. Data centre vendors are mobilising by designing solutions that are micro in size but deployed close enough to reduce latency, whilst providing high levels of compute power in order to process the data generated by IoT sensors.

However, the more connected an application is, the greater the vulnerability from cyber attacks. Edge computing provides many of the answers because as data is processed at the edge, there is a much lower risk of it being intercepted or tampered with.

Collecting data from sensors in equipment and analysing the information enables real time data driven decisions. However, even in a modest Industry 4.0 project, the amount of data processed by edge systems alone dramatically reduces the cost of bandwidth, data storage, computing and data science. Edge computing is the real time, event driven integration layer between a factory floor data and central data centre operations.

An IoT enabled architecture helps unlock the potential of sensors and data points within the data centre, which improves performance and availability. Vendors can aggregate and analyse the information in data pools, which delivers actionable intelligence to enable faster decision making for both humans and machines.

There are many scenarios where this

data can be analysed. These include asset management systems, critical power issues, process optimisation and predictive analytics. Predictive analytics can ensure that repairs are made in a more controlled and organised way that lowers costs and minimises disruptions, whilst avoiding downtime.



Data centre management as a service (DMaaS) provides an efficient and reliable method to managing, maintaining and identifying any potential troublesome requirements of edge data centres. Through DMaaS, network enabled embedded sensors gather data on the status of individual edge data

centres and transmit the information to a centralised network operations centre, which may be located at another site. Data is then collected and analysed for service and maintenance purposes, or to respond to any emergencies identified.

Using such software tools in conjunction with mobile applications enables similar levels of security and reliability normally associated with larger data to drive service revenues for companies delivering said services, whilst deriving exceptional value and higher levels of availability from the IIoT.

**‘Edge computing is the real time, event driven integration layer between a factory floor data and central data centre operations.’**



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## FALK WEINREICH

SENIOR VICE PRESIDENT AT COLT DATA CENTRE SERVICES

There is no doubt that the evolution of the IoT has driven considerable benefits for businesses. With the widespread adoption of automation and machine learning, many industries have been able to streamline processes and improve efficiencies within their operations.

The global uptake of these technologies has had significant knock-on effects on data centre services. Traditionally, data centre providers primarily worked toward a centralised cloud model where the many processes such as storage, computing and analytics took place in a centralised data centre located very far from the data generation. As businesses increasingly adopt a machine-led industrial journey, this model has swiftly become outdated. Latency has become a critical demand that data centres must account for in providing for businesses.

Relying on a centralised cloud model can slow processes down and increase the chances of disruption. Consider the demands of smart delivery trucks that depend heavily on GPS capabilities and tracking devices to ensure smooth and fast operations. Even a second's delay in data transmission in M2M communications could severely impact their travel routes and create major traffic issues, costing the business time and money.

In response to the call for low latency data services, the data centre industry is increasingly embracing edge computing.



Moving data and applications to the edges of a network narrows the distance between users and data, resulting in improved speed, reliability and efficiency. This allows data centres to generate, process and analyse large volumes of data in a fast, stable and consistent manner, while businesses are able to maintain operational runtime effectively.

Industries and data centres working hand in hand to address the changing technology landscape makes one thing clear as day – the fourth industrial revolution takes place at the edge.

**'In response to the call for low latency data services, the data centre industry is increasingly embracing edge computing. Moving data and applications to the edges of a network, narrows the distance between users and data, resulting in improved speed, reliability and efficiency.'**

# Inside out

Erwin Deeben of Leviton offers an insider's guide to choosing pre-terminated cabling solutions

▶ As data centres become increasingly reliant on high density cabling, and complex deployment and topology options are introduced to the market, field termination is growing more challenging, labour intensive, and costly. When faced with installations and upgrades that require unique, custom products, network installers and IT administrators must carefully evaluate the available solutions.

## RISKY BUSINESS

When the cabling infrastructure that supports an IT network increases in scale, the risk of installer error caused by manual termination

also increases. At the same time, IT pros are being tasked with deploying high performance networks faster and faster, which leaves little time for field splicing, testing, and troubleshooting. When choosing between field termination and factory terminated assemblies, many of

today's installers and end users are turning to pre-terminated cabling – and for good reason.

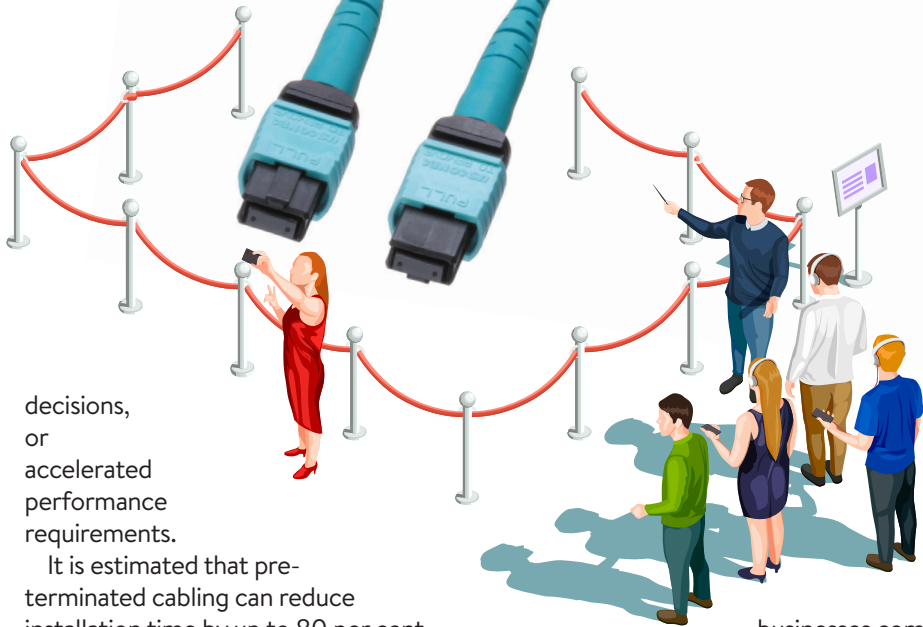
Pre-terminated, or make to order (MTO), cable assemblies are built to exact length requirements and can include a huge variety of options. Pre-terminated assemblies reduce labour and material costs, provide guaranteed performance

‘Manual terminations can reduce the efficiency of network deployment and increase project expenses because of a multitude of factors including the lack of environmental control, different skill levels of field technicians, inconsistent quality and the need for termination rework, on-site performance testing, and time and resources spent on clean-up of waste materials.’

and offer faster network deployments – even in the most demanding data centre environments. Factory terminations also have greater overall quality and consistency, which expands the reliability and uptime of the network.

## REUSED AND REPURPOSED

Pre-terminated cable isn't just for greenfield installations. MTO cabling and components can be reused and repurposed to accommodate moves, adds, and changes (MACs) in networks struggling with rapid growth, shifting business



decisions, or accelerated performance requirements.

It is estimated that pre-terminated cabling can reduce installation time by up to 80 per cent. These solutions are built to an end user's exact specifications including length, connector type, custom staggering of connectors, cable type, fibre count, special labels, and breakout leg types. Upon delivery, pre-terminated cabling can be unpacked and connected immediately, reducing the need to field test and troubleshoot on-site terminations. This not only decreases the total time from delivery to deployment, it also lowers labour costs – a big benefit for end users and an advantage that can help small installer

businesses compete for large scale projects.

Even for MACs, pre-terminated cabling maintains its superiority over field terminations, with installation times estimated at 50 per cent faster and labour requirements similarly low. There's an environmental bonus too, as custom products eliminate excess material and packaging, and reduce jobsite waste and clean-up time. As a network grows, the benefits of pre-terminated solutions grow along with it. In fact, the greater the number of connections, the greater the



overall savings, flexibility, and value pre-terminated cabling typically offers.

## MAKING THE MOST OF IT

Before deploying pre-terminated cabling, the end user and installer need to create a detailed plan. The project's specific application needs, routing, and precise lengths must be established prior to ordering MTO products.

Design and network architecture, network migration, and scalability need to be considered along with cable runs, pathways, panel density and airflow within the data centre. Even polarity, colour-coding requirements, and the network deployment schedule should be settled before ordering a pre-terminated assembly. The best way to make sure all these factors are taken into account is to use a pre-terminated cabling manufacturer's design configurator, which is often available online. Ultimately, choosing the right pre-terminated cabling means choosing the right pre-terminated cabling manufacturer. It's important to work with a manufacturer that follows industry best practices.

The collection, recording, and retention of testing data for every cable assembly produced in the facility are essential practices. Monitoring all manufacturing processes for error elimination and continuous quality improvement is the gold standard of pre-terminated cable producers. Your cables should include product labels with unique serial numbers that allow full traceability, with a clear description of the product and its date of manufacture. Performance test reports should also be provided for all MTO assemblies.

## BEST IN CLASS

When cable is terminated in an off-site

factory environment, it's critical that proper assembly and testing processes are in place to guarantee reliability and ensure the best quality product. Precision factory termination processes offer clean, uncontaminated optical fibre ports for lower loss budgets and better transmission, and increase the likelihood of better electrical performance for copper cable.

To accomplish this, MTO cable assemblers rely on automated polishing machines, inspection scopes, and factory grade test equipment. High precision laser cleaving technology is used for single and multiple fibre connectors. This offers consistent, high quality terminations that cannot be matched with traditional on-site cleaving equipment. For fibre and copper assemblies, on-site mechanisms often allow the customer to order specialised components and features, such as pulling eyes for a snag-free installation.

## TESTING TIMES

Prior to shipment, transmission testing is carried out on MTO assemblies. For pre-terminated copper assemblies, attenuation, propagation delay, near end and far end crosstalk, alien crosstalk and a number of other factors are measured. The only field testing that is required is continuity testing.

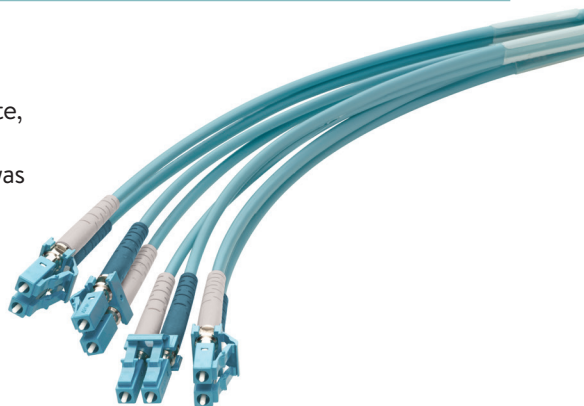
For fibre optic cabling, factory grade test equipment, such as an interferometer, is used to measure insertion loss, return loss, and end face geometry. Microscopic inspection of end face finish to validate polish quality is carried out and connector interfaces are verified. Only continuity and insertion loss field testing are typically needed.

Pre-terminated copper and fibre optic assemblies are ready for deployment upon delivery and all factory terminations should be guaranteed under warranty by the

assembler. Once the installation is complete, the installer needs only to undertake final testing procedures to ensure no damage was done during the delivery and deployment process, and check the overall quality and performance of the installation.

## PLANNING AND COORDINATION

Field terminations are the most time consuming, labour intensive aspect of cable installation. Manual terminations can reduce the efficiency of network deployment and increase project expenses because of a multitude of factors including the lack of environmental control, different skill levels of field technicians, inconsistent quality and the need for termination rework, on-site performance testing, and time and resources spent on clean-up of waste materials. With proper planning and coordination, pre-terminated cable assemblies provide a quick, cost effective, and reliable solution to overcome these challenges and support long-term network growth. ■



### ERWIN DEEBEN

Erwin Deeben has worked in the computer networking industry for over 16 years and has held numerous roles at Leviton. In his current position as head of the European technical sales team at Leviton he provides expertise and support in product positioning, data centre management and business development.

## HellermannTyton

RapidNet is HellermannTyton's fully patented pre-terminated, pre-tested modular cabling system – eliminating the need for on-site terminations and reducing installation times significantly. All terminations are housed in the RapidNet cassette, ensuring complete protection and strain relief of the cables.

The RapidNet system offers many advantages over a standard site-terminated solution. It can reduce installation times by up to 95 per cent (optical fibre) and, because it's pre-tested, minimal on-site testing is required once installed.

The pre-terminated solution delivers high performance across all formats including Category 6A, Category 6, Category 5e

in copper and OM5, OM4, OM3 and OS2 in fibre. The Category 6A and fibre solutions will support high speed 10Gb/s networks and beyond. High port densities can be achieved using RapidNet fibre, with MTP connectors providing up to 144 fibres per cassette or up to 576 fibres in 1U of rack space.

RapidNet allows a greener approach to cabling infrastructure. With each RapidNet loom manufactured and supplied to pre-specified lengths, there is less on-site cabling and packaging waste. In addition, as RapidNet is manufactured in the UK, the environmental impact of shipping is greatly reduced.

To find out more **CLICK HERE**.  
[www.htdata.co.uk](http://www.htdata.co.uk)



## Excel Networking Solutions

Excel Networking Solutions offers both **copper** and **fibre** pre-terminated solutions, which provide end users with a 'plug-and-play' system, helping to reduce cost and installation time by up to 75 per cent.

Excel's copper cabling can be fitted with modules, jacks or plugs, on either or both ends, supplied pre-labelled as single assemblies or loomed. Excel's pre-terminated fibre offering can be supplied in bespoke breakout lengths, with all end faces machine polished and ferrule geometry checked on an interferometer to ensure best performance in all conditions.

Both copper and fibre cabling can be supplied pre-terminated into patch panels, for ease with on-site installation.



Excel's pre-terminated solutions are subject to a rigorous quality check to ensure delivery of a fully tested, traceable system. The products are also covered by the Excel 25 Year Warranty, when installed by an accredited partner.

For more information **CLICK HERE** to visit Excel's **YouTube channel** contact the sales team on 0121 326 7557 or **CLICK HERE** to email.

[www.excel-networking.com](http://www.excel-networking.com)

## Legrand



Legrand pre-terminated fibre trunk cable assemblies offer a streamlined approach to network design by reducing the number of individual components in the structured cabling system. The trunks are fully configurable and available with a variety of cable and connector configurations; breakout tails, length, fibre type, cable specification and connector options.

These trunks are ideal for the following applications:

- Data centre
- LAN
- Building networks

### Features and benefits include:

- Simple design process with two



performance levels – Q-Series and Infinium

- Fully configurable and available with a variety of cable and connector combinations
- Typically supplied on tight buffered fibre cable
- Easy and fast installation due to lightweight product
- Minimal packaging that makes disposal and clean up easy once project/ installation is complete
- Limited lifetime product warranty
- Cost effective option, resulting in an improved project ROI
- No specialist tools required on site
- Manufactured to industry standards and pre-tested before deployment

For further information **CLICK HERE**, or to send us an email **CLICK HERE**.

[www.legrand.us/ortronics](http://www.legrand.us/ortronics)

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## Inside Networks

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[www.marriottgolf.co.uk/club/hanbury-manor](http://www.marriottgolf.co.uk/club/hanbury-manor)

### Indoor Simulator Competition

The cost of a 4-ball team will be £575 (+VAT).

There will also be discounted accommodation at Hanbury Manor Hotel & Country Club, which will include breakfast and use of the extensive leisure facilities. Price to be confirmed.

As in previous years – teams will be asked to provide a raffle/auction prize on the day in support of the charity.

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### Playing the Hanbury Manor PGA Championship Course:

This prestigious golf course was the first to be designed by Jack Nicklaus II and still incorporates features from an earlier 9-hole course designed by the great Harry Vardon. The course is now widely recognised as one of the best in England.

The event will ask for 4-ball teams to compete in a 'best 2 from 4' full handicap Stableford competition over 18 holes (with a 2-tee start from 10:30am).

Live Scoring sponsorship available.

Golf will be preceded by tea, coffee and bacon rolls at registration and will be followed by a 3-course private dinner and prize giving with charity raffle.

There will also be opportunities for sponsorship of all aspects of the day – all raising money for Macmillan Cancer Support – since 2005 this industry event has raised over £65,000 through our charity golf events!

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## EDP Europe

EDP Europe stocks and distributes the latest high capacity fibre optic management system from Huber+Suhner – IANOS.

IANOS is a class leading and future proofed fibre optic management system that facilitates BASE-2, 8, 12 and 24 pre-terminated cable systems for best in class density, speed of installation, handling and scalability – all major factors in future proofing cabling infrastructure.

IANOS is a unique fibre management system that is designed to accommodate a quick, simple and inevitable upgrade path from 10 Gigabit Ethernet serial to 40 and 100 Gigabit Ethernet parallel optics.



IANOS offers individual modules that easily slide out – reducing cord disruption and easing access – with each 1U chassis providing a maximum of 144 LC connections. Single or twin modules help improve flexibility with twin modules offering improved routing

space and splice handling. IANOS chassis are available in 1U or 4U rack mounts.

IANOS is

available from stock at EDP Europe.

**CLICK HERE** to find out more, call our sales team on 01376 501337 or **CLICK HERE** to send us an email.

[www.edpeurope.com](http://www.edpeurope.com)

## Leviton

When choosing between performing field terminations and installing factory terminated make-to-order (MTO) cable assemblies, turn to pre-terminated cabling for reliability, ease of deployment and cost savings.

The UK-based Leviton Data Centre Factory offers a full line of pre-terminated copper products available in shielded EuroClass cable types, including LSHF/LSZH options for Construction Products Regulation (CPR) compliance. The MTO line also includes fibre optic HDX and e2XHD cassettes, fibre array cords, and



fibre trunks.

Leviton MTO copper and fibre assemblies can be configured and

manufactured with quick turnaround and rapid shipping to jobsites throughout Europe and the Middle East. MTO terminations are factory tested for guaranteed performance, cutting the need for extensive field testing and reducing downtime during moves, adds, and changes.

For more information **CLICK HERE**.  
[www.leviton.com](http://www.leviton.com)

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# CommScope opens power over Ethernet lab for next generation applications

Power over Ethernet (PoE) is one of the key applications for IT managers today. In its new research and development (R&D) lab in Greensboro, North Carolina, CommScope will trial next generation PoE applications to verify the performance and safety of the structured cabling systems that support them, especially regarding thermal performance in different real world installation conditions.

The lab will also host demonstrations of next generation PoE applications such as high definition security cameras, in-building wireless systems and digital

Ernie  
Pickens



signage in collaboration with ecosystem partners. 'Next to the data transport itself, PoE is the most important enabler of devices that use structured cabling in enterprise buildings today, which is critical as IT managers look to drive more value out of their installed copper cabling plant and connect more devices,' said Ernie Pickens, senior vice president, enterprise solutions at

CommScope. 'CommScope remains committed to ensuring the safety, reliability and superior performance of our cabling and connectivity solutions for PoE enabled devices, now and as they evolve.'

## FullForce Logistics names delivery truck after Mayflex customer services manager

One of Mayflex's partners, FullForce Logistics, has named one of its delivery fleet Harps, after Harpal Sambi, the Mayflex customer services manager. Sambi leads a team of nine staff, whose function is to deal with all queries and issues that come in to the business from customers, after the goods have been dispatched. This can range from rectifying incorrect shipments, chasing deliveries to arranging collections and processing



replacement orders.

Martin Eccleston, commercial manager at Mayflex, commented, 'Harpal is responsible for ensuring customer satisfaction through her team by responding in a quick, efficient and professional manner. She works closely with all internal departments, as well as our third-party carriers FedEx and FullForce Logistics, consistently managing and monitoring their performance.'



# Excel Networking's Paul Mills joins APOLAN board

Paul Mills, Excel Networking Solutions' director of sales for North America, has been appointed chairman of the Association for Passive Optical LAN (APOLAN).

APOLAN is a non-profit organisation that is driving adoption and educating the market about the technical and economic advantages of passive optical LAN technology. Through its membership, which is comprised of manufacturers, distributors, integrators and consulting companies actively involved in the marketplace, it helps designers,



engineers, architects IT personnel and building owners implement and successfully use passive optical LAN.

Mills commented, 'It is an honour to be offered the APOLAN chairman position, and I

endeavour to rise to the challenge in this fast-moving market. The global passive optical network market is experiencing an intense growth in the industry and this is anticipated to rise in the coming years.'

# Vertiv appoints Joachim Fischer as EMEA channel sales director

Vertiv has appointed Joachim Fischer as channel sales director for Europe, Middle East and Africa (EMEA). Based in Munich, he brings significant channel experience having previously worked as general manager sales for NEC in Germany, Austria and Switzerland (DACH), leading substantial channel development programmes.

As part of the wider strategy, Fischer will lead the creation of an enhanced product portfolio specifically designed for the channel, along with a competitive commercial policy and a series of marketing initiatives and programmes to support resellers.

'We have been working intensively to

develop a comprehensive list of value propositions – a sophisticated channel dedicated product portfolio, additional investments in reseller recruitments and

further investments in channel marketing programmes, just to mention a few,' said Karsten Winther, vice president sales for Vertiv in EMEA. 'This is with the ambition to attract partnerships based on trust and mutual significant growth in our channel distributors and resellers, as part of our broader go-to-market strategy. This, paired with

Joachim's expertise in driving both projects and run rate business with the channel and all of our new initiatives, means we can make substantial progress to become more attractive to channel partners.'





# Siemon partners with Maya HTT

Siemon has partnered with Maya HTT, whose Datacenter Clarity LC data centre infrastructure management (DCIM) platform will provide Siemon's customers with the tools to accurately and efficiently manage their data centre infrastructures.

Datacenter Clarity LC allows users to manage their data centre infrastructure with powerful tools and a real time picture of asset attributes in



3D. The ability to track unlimited assets at unlimited sites makes Datacenter Clarity LC ideal for colocations, multi-tenant and hyperscale environments.

'As data centres continue to become more complex, it is vital to accurately track and manage data centre infrastructure,' said Frank Velleca, Siemon's market manager for strategic projects. 'Siemon's partnership with Maya HTT, the most powerful real time monitoring engine on the market, allows our customers to optimise equipment placement and energy consumption to create the most efficient configuration for their data centre.'

# Mist expands in UK to accelerate the adoption of AI driven wireless

Mist has announced several initiatives to accelerate the adoption of artificial intelligence (AI) driven wireless in the UK market.

The company recently added new sales, support, and marketing personnel in the region, signed a local distributor in Mayflex, announced ThoughtWorks as its first UK-based customer and introduced several

new enhancements to the company's Wi-Fi Assurance and Marvis Virtual Network Assistant (VNA) services that bring

unprecedented insight and automation to wireless networks.



'The UK market is key to Mist's global growth strategy,' said Jeff Aaron, vice president of marketing at Mist. 'There is an abundance of companies looking to leverage AI to simplify Wi-Fi operations, increase Wi-Fi reliability and deliver new location-based services using virtual Bluetooth Low Energy (BLE). Based on the early success we have seen, we are excited to double down in

the UK and put the strategic pieces in place to bring much needed WLAN innovation to the region.'

## CHANNEL UPDATE IN BRIEF

Axis Communications has been awarded full membership of Secured by Design (SBD), part of the Police Crime Prevention Initiatives' (PCPI) group of crime prevention organisations, which operate in support of the police service throughout the UK. Membership was awarded after 15 of Axis' network video products were accredited for achieving SBD's Police Preferred Specification (PPS) standards for security.

Comtec has been chosen as Schneider Electric's first Elite Partner in Europe to drive forward its new APC Technology Partners Program in the UK. The program is designed to address customers' most pressing challenges by bringing together technology partners to provide business continuity solutions that achieve high availability and resiliency.

BNS Distribution and JPL Telecom have announced a distribution partnership.

KA2 is collaborating with Mark Preston to create and deliver robust and sustainable enterprise scale change programmes to the firm's growing roster of blue chip clients.

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# From reactive to proactive

**Emiliano Cevenini** of Vertiv explains why the time is now to unlock the added potential of uninterruptible power supply (UPS) batteries

**▶** Business continuity is a somewhat over used but nonetheless critical concern for many industries like air transportation, healthcare and banking, as well as the data centres supporting these businesses. Reliable technologies and solutions are therefore key to ensuring uptime. Aside from the outage of service to customers, which in itself brings about serious reputational consequences, last year almost a quarter of businesses reported that the average hourly cost of critical server outages was between \$301,000 and \$400,000. This is clearly a risk worth preventing.

## POWER UP

It explains the investments made into UPS systems to ensure that business interruption is minimised even further. This back-up device acts as ‘insurance’ for the

**‘The concept is that the battery has the capability to feed electricity in the other direction – into the public power grid – in times of low consumption or high generation.’**

business should something like a mains failure occur. However, on the flipside, national grids are becoming more reliable. The grid in the UK was awarded in excess of £378m worth of contracts for the capacity market to ensure consistent power, while Germany’s power grid ranks among the most reliable in the world.

Although reliability of the grid is improving, it doesn’t mean that power failures won’t ever occur. For that reason, UPS systems are still a vital investment for mission critical businesses.

## EXPLORING THE OPPORTUNITY

Today, we are seeing new opportunities for these organisations. UPS owners can rely on a bank of stored energy within the batteries of the device that until now were, put simply, doing nothing. This is where the opportunity lies – to utilise this energy in a different way, if not for back-up power at that moment in time.

The batteries within a UPS have the



potential to transition from being a back-up source only to having a more proactive function. The concept is that the battery has the capability to feed electricity in the other direction – into the public power grid – in times of low consumption or high generation. The owner of the UPS not only participates in the balancing energy market and stabilisation of the grid, but also opens up a new stream of revenue.

### WORK IN PROGRESS

Partnerships across Europe, Middle East and Africa (EMEA) between UPS vendors

such and energy providers as E.ON in Germany are examples of how this works in practice.

The UPS vendor develops and installs the technology that enables batteries to act in this way for current, and future, UPS customers. A portion of the battery then becomes part of E.ON's virtual power plant, whereby it aggregates the various producers and consumers and markets them, meaning that the customer receives a guaranteed profit without compromising



the primary mission of the UPS, which is to protect the critical load.

A key component of this is the use of lithium-ion (Li-ion) batteries. Typically, lead-acid batteries are used in critical energy infrastructures, but Li-ion batteries are smaller, lighter and have a large number of charge-discharge cycles. As well as having a longer service life, these kinds of batteries also achieve a higher density and operate in a wider temperature range, meaning they are ideal for the energy markets.

## SUPPORTING RENEWABLES

Not only does this use of UPS batteries allow for new revenues and a way to support the energy grid, it also allows UPS owners to help contribute to the shift to renewable energy. In Germany, the government aims to get 35 per cent of its power demand from renewables by 2020 and in the first half of 2017 surpassed its target, with 37.6 per cent of its power coming from renewable sources.

However, the shift from a fossil fuelled and nuclear powered grid to one that runs partly, if not completely, on renewable energy is not smooth. Given that renewable sources are not necessarily guaranteed 24/7, relying on elements such as wind or sun, this can result in an irregularity of power. Being able to drive energy into the power grid that otherwise isn't being used becomes of great use here. This concept is a prime example of how UPS owners can help to manage the frequency of the grid when these sources are not predictable or available in a cost effective manner.

## READY AND ABLE

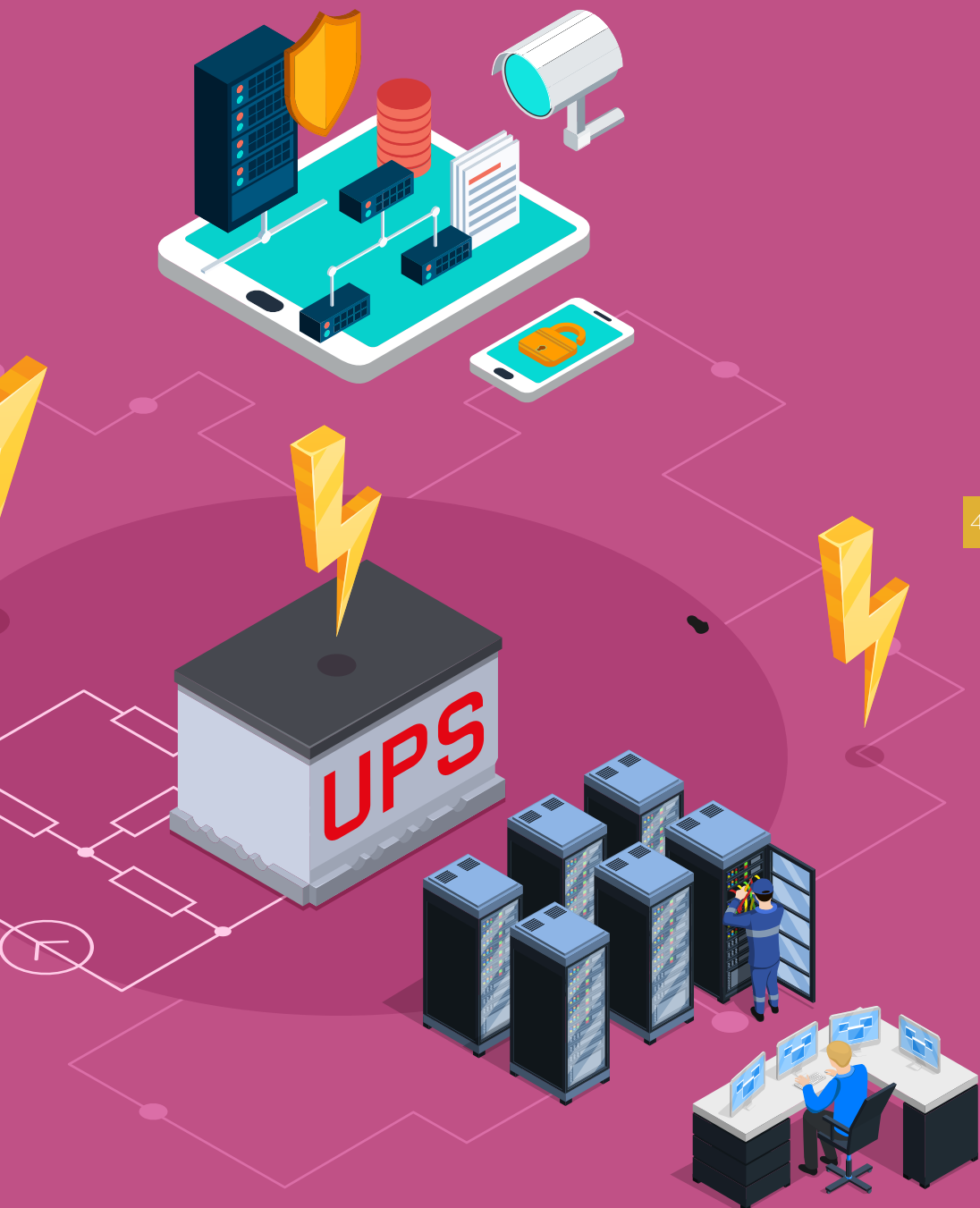
With Li-ion here and ready to be utilised, there is no reason as to why using

batteries proactively, as opposed to only reactively, can't become a reality for all UPS owners. UPS customers all across EMEA are already reaping the benefits of an extra stream of revenue thanks to these partnerships, while also supporting the transition to a renewable grid. Are you? ■



### EMILIANO CEVENINI

Emiliano Cevenini is vice president, power sales and business development for Vertiv in EMEA. He started his career as a research and development (R&D) engineer and subsequently became an R&D project manager in 1997. Since 2016, he has led business development activities in key market vertical segments for Vertiv, including transportation, healthcare, smart grids and other applications adjacent to the data centre sector.



## Vertiv

Would it affect you if your IT shut down unexpectedly from a power outage? Would it mean you lose money, like in retail, or simply that your employees may be unable to work for a few hours? Would you be confident when your IT was restarted that there would be no issues from that sudden shut down?

If you've thought of these and the answer is yes, then you should invest in technology to ensure your data and IT systems are not at risk.

The Liebert GXT4 UPS from Vertiv is a



true on-line UPS up to 10kVA that delivers continuous, high quality AC power to connected equipment with no interruption.

If your IT people are not physically located in the building your IT is in, then benefit from UPS remote monitoring in the form of the free to download Trellis Power Insight software.

For more information of the Vertiv Liebert GXT4 UPS and other UPS technologies [CLICK HERE.](#)

[www.vertivco.com](http://www.vertivco.com)

## Uninterruptible Power Supplies Ltd (UPS Ltd)

Recognised for being at the forefront of power protection innovation and technology, PowerWAVE UPS products from UPS Ltd are amongst the class leaders in terms of system reliability, efficiency, availability, scalability and flexibility. Products range from the single phase, 1-10kVA PowerWAVE1000 right up to the three phase 100-500kVA modular



PowerWAVE 9500DPA.

UPS products are ideal for a range of applications and industries including IT, telecommunications, financial services, education, healthcare and more – PowerWAVE UPS generate less CO2, save valuable floor space and significantly reduce total cost of ownership.

UPS Ltd was the first company to introduce modular UPS and transformerless technology to the market and continues to innovate with new products, such as the PowerWAVE 9500DPA UPS and PowerNSURE battery monitoring technology.

To find out more [CLICK HERE.](#)  
[www.upspower.co.uk](http://www.upspower.co.uk)

## Mayflex

Every network and every application requires reliable power protection. There is never a good time for downtime – not when it's unplanned and within your network. Mayflex distributes the APC Smart-UPS On-Line series of UPS solutions.

The Smart-UPS series performs true double conversation for power protection of servers, voice, data and security networks. The series can support loads of 1kVA up to 20kVA and is available in both tower and rack footprints. PowerChute management software provides is included, which provides unattended graceful shutdown of network operating systems. All models 5kVA and above include an

integrated network management card for remote management.

The series can also be upgraded with additional power through extra matching



battery packs, to ensure power coverage for mission critical networks with larger power/run times of hours instead of minutes. This also helps infrastructures where power is unstable and input factor correction is needed.

**CLICK HERE** to find out more.  
[www.mayflex.com](http://www.mayflex.com)

## Austin Hughes

Given the mission critical nature of the data centre environment, InfraPower intelligent rack power distribution units (PDUs) from Austin Hughes are designed, built and manufactured to provide extremely high levels of resilience.

Digital local touchscreen displays and DC power modules are both field replaceable. The use of latchable relays at the socket or receptacle level, which will always supply AC power or are always on in the event of component failure, are standard features within the InfraPower metered and outlet switched (WS) PDU and the outlet switched with outlet

metering (WSI) PDU models.

As with all InfraPower PDUs, configurations including multiple socket types per PDU, as well as coloured PDU casings to allow differentiation of power

feeds, are available customised and supplied – typically within five working days.



InfraPower PDUs can be integrated with InfraSolution networked smart card access control for added cabinet security and InfraGuard for full cabinet environmental monitoring and management.

For more information **CLICK HERE**.  
[www.austin-hughes.eu](http://www.austin-hughes.eu)



# Failure is not an option



Alex Emms of Uninterruptible Power Supplies Ltd (UPSL), a Kohler company, shows how deploying modular UPSs with decentralised parallel architecture allows data centre operators to achieve the six nines availability levels essential to mission critical operations

▶ When data centre users and operators discuss their IT and power system requirements, it's natural to think in terms of equipment that's 'very reliable'. While, as we shall see, reliability is essential, it's not the ultimate objective – that distinction belongs to availability. Loosely defined as the time per year for which a system is operational and available, it's the parameter that must always be singled out for improvement. After all, an availability of 100 per cent would indicate equipment that never failed, while giving its owners totally trouble free operation.

## LEADING ROLE

This is particularly applicable to UPSs, because their role is entirely to maximise availability of electrical power to their

critical load – and to succeed at this, their own availability must be optimised.

Modern UPS designs achieve the required levels of availability – partly through using good quality, highly reliable components, but also with a major contribution from a design approach known as decentralised parallel architecture (DPA).

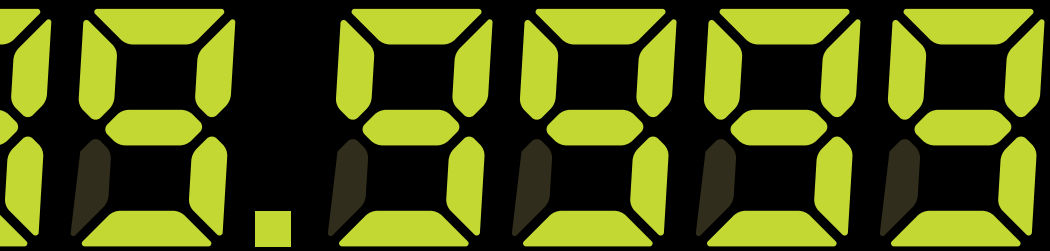
This article explains the difference between this and centralised parallel architecture (CPA), and then shows how DPA contributes to very high UPS availability.

## CPA VERSUS DPA

Since the advent of

'A parallel modular UPS with hot swap capability can achieve the six nines availability levels required by critical data centre installations.'





transformerless UPS technology, most UPS systems are implemented in a modular form – the UPS's total output power is delivered by a number of modules operating in parallel. A 100kVA system, for example, may be implemented with five parallel 20kVA modules. However, although the modules have some mutual independence, they may also share some common components, including the centralised static switch.

This is a CPA arrangement, as it has centralised common components. Its major benefit is cost reduction, as the

cost of providing a static switch and other expensive components for each individual module has been avoided. However, the DPA alternative, while bearing this expense, offers much higher availability as all single points of failure are eliminated.

### MTBF AND MTTR

Now that we have stated that a DPA topology can contribute significantly to improved UPS availability, let's look more closely at how it does so.

Availability for power and other systems is governed by two components – mean time between

failure (MTBF) and mean time to repair (MTTR). In fact, it can be improved either by increasing MTBF or decreasing MTTR. Decreasing MTTR in particular can have a dramatic impact.

MTBF is the average number of hours taken before the power system fails. One way of increasing MTBF is to improve the reliability of every component in the system, however, there is a limit to how reliable components can become, even with increased cost – a law of diminishing returns applies. Power systems that depend only on high component reliability typically achieve MTBFs between 50,000 and 200,000 hours. However, a three- to six-fold increase in MTBF can be achieved by adding a level of redundancy to the system.

### ROOM FOR IMPROVEMENT

Reducing MTTR, as well as increasing MTBF, can significantly improve availability – and the most effective way of doing this in a UPS is to use modular redundant hot swap topology.

Modular means that the critical load requirement is fulfilled by aggregating a number of modules in parallel, rather than using a single monolithic solution. Redundant refers to the practice of using more modules than the load requires, in arrangements known as N+n redundant configurations. These can tolerate the

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simultaneous failure of up to n modules without compromising full power delivery to the load. For example, an N+1 system will continue to meet the critical load’s full power demand even if one module fails. Hot swap means that a faulty module can be removed and replaced with a good one without interrupting power to the load.

Note that this redundancy mechanism’s success depends on using true DPA topology, with no non-redundant, centralised points of failure.

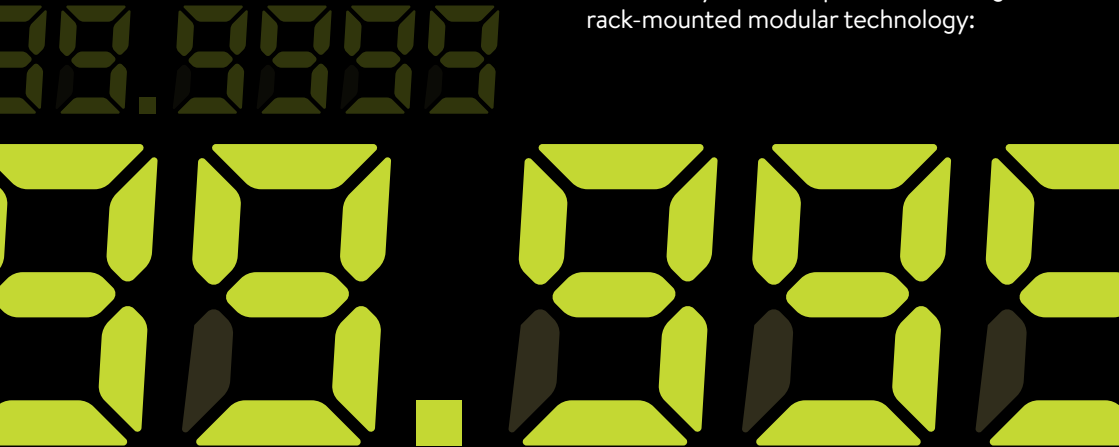
IMPROVING AVAILABILITY

To understand the impact on availability of reducing MTTR, we can show its role in an availability equation. The equation can be stated as:

Availability (A) =  $\frac{MTBF}{MTBF+MTTR}$

Our sample calculations compare the relationships between legacy freestanding UPS systems, their modular equivalents, MTBF, MTTR and availability. They are based on the two configurations shown below:

(1+1) and (4+1) redundant systems



Assuming that both systems have been implemented using freestanding UPS units, their availability figures could be calculated as shown in Table 1:

Example 1	(1+1) parallel redundant configuration – freestanding UPS units	(4+1) parallel redundant configuration – freestanding UPS units
MTBF	1,250,000 hrs	500,000 hrs
MTTR	6 hrs	6 hrs
Availability	99.9995%	99.9988%

Table 1: Availability figures for redundant freestanding UPS installations

ASSUMPTIONS:

- MTBF of the (1+1) system is higher than that of the (4+1) system
  - MTTR is six hours for each system
- We can see that for this design, the availability of the (1+1) system is higher than that of the (4+1) system. However, Table 2 below shows what happens when the (4+1) system is implemented using rack-mounted modular technology:

Example 2	(1+1) parallel redundant configuration – freestanding UPS units	4+1) parallel redundant configuration – Rack-mounted modular UPS units
MTBF	1,250,000 hrs	500,000 hrs
MTTR	6 hrs	0.5 hrs
Availability	99.9995%	99.9999%

Table 2: Impact of reduced MTBF on availability

ASSUMPTIONS:

- MTBF of the (1+1) system is higher than that of the (4+1) system
- MTTR of the (4+1) system is less than that of the (1+1) system, due to its rack-mounted modular implementation

From Table 2 we can see that by changing to a rack-mounted modular hot swap design for the (4+1) system, MTTR has been reduced from six hours to just half an hour. This is because if a module fails, it can immediately be replaced by a good one – the faulty module can be repaired off-line and at leisure.

By contrast, the freestanding system must be repaired in-situ at component

level. This means that a specialist, trained technician must be available, equipped with the right diagnostic tools and spare parts, and the system cannot be used until he/ she has completed

repairs.

Applying the half-hour repair time for the modular system produces an availability figure of 99.9999 per cent, or six nines, for the modular system – this is higher than that of the (1+1) freestanding implementation, even though its MTBF is lower.

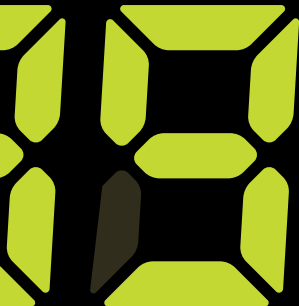
CONCLUSION

We have seen how a parallel modular UPS system with hot swap capability can achieve the six nines availability levels required by mission critical data centres and other installations. The discussion has also covered how this achievement depends on these modular systems being built with true DPA or decentralised parallel architecture, to avoid any single points of failure. ■



ALEX EMMS

Alex Emms is operations director for UPSL. He has more than 28 years experience of the UK power protection business and 18 years’ service at UPSL. Emms started out as a field service engineer, progressing to senior engineer, supervisor, service manager and now operations director.





# Quickclicks

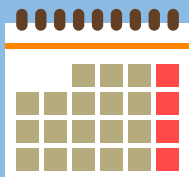
Your one click guide to the very best industry events, webinars, electronic literature, white papers, blogs and videos

Cabling for Healthcare is a Critical Concern is a blog from **Siemon**.  
[CLICK HERE](#) to read it.

The latest edition of **R&M's** Connections magazine is online featuring articles on trends in cabling and networks, technology news, case stories and new products.  
[CLICK HERE](#) to read it.

**Chatsworth Products' (CPI)** has produced a video that looks at how effective cabinet utilisation can ensure a simplified path to white space management.  
[CLICK HERE](#) to see it.





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Artificial Intelligence: A Definition for Colocation Providers is a blog from **Schneider Electric**. [CLICK HERE](#) to read it.

Maggots and Data Centres – What's the Connection? is the question posed in a blog from **Future-tech**. [CLICK HERE](#) to find out the answer.

Which Optical Fiber Should You Use: OM4+ or OM5? is a blog from Tom Kovanic of **Panduit**. [CLICK HERE](#) to read it.



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**Rittal** has published advice and support for engineers who are designing or specifying systems in line with UL508A, covering all the expectations and requirements for compliance. Details are available to download by [CLICKING HERE](#).



# A force for good

Emma Fryer represents the interests of data centre operators in matters of policy, compliance and reputation. Rob Shepherd recently caught up with her to find out more about her life and career, and her views on the direction the sector is heading in

## **RS: Tell us a bit about yourself – who are you and what do you do?**

EF: I'm an intruder in the data centre landscape – I have degrees in English and environmental science and am a committed technophobe. I work for techUK – the digital technology trade association – and represent data centre operators.

In reality I do three things. Firstly, I

**'My heart always sinks when I see poorly researched claims in the press that data centres are gobbling so much power that we will have to live in caves and eat bugs. It makes a good story but these pieces are generally shot from the hip and aimed at the wrong target.'**

try to change things that are harmful to the sector, like inappropriate legislation. Secondly, I mitigate things we can't change, like simplifying compliance

procedures for operators caught in legislation that is not targeted at them. Thirdly, I explain the sector to policy makers and also explain policy to the sector. I am surprised by just how much of my time is spent demystifying the Byzantine complexity of generator emissions regulation!

## **RS: How and why did you decide to embark on a career in the data centre sector?**

EF: I didn't – I am here by accident. Back in 2011 I was asked to review the arguments being made by operators negotiating a climate change agreement (CCA), where participants get discounts on energy taxes in exchange for meeting efficiency targets.

I thought they were barking up the wrong trees – they barely mentioned carbon emissions but kept talking about reputation. At that time the UK government viewed data centres as power hungry sheds that didn't employ anybody – why on earth would we want them here in the UK, let alone give them an energy tax break?

There was a complete disconnect – we may as well have been speaking Klingon! A much bigger piece of work was needed to explain what data centres do, why they matter, why they need support, and how the UK will benefit. I thought to myself, this sector looks utterly boring – I will give



them some pointers and escape as fast as I can.

As I knew nothing about data centres I had to start from scratch. I soon discovered that they were both interesting and important. For the next three years I led the CCA campaign, which progressed at glacial speed, punctuated by monumental pauses while officials 'awaited internal approval' before each microscopic step forward. By the time the CCA eventually came into force in 2014, I discovered that I enjoyed life in data centre land so I stuck around.

**RS: What particular challenges are we facing at present and how can they be addressed?**

EF: The usual suspects I'm afraid – like death and taxes our core problems seem to be permanent. So access to technical skills and energy costs – particularly non-commodity charges – are always at the top of the agenda. However, keeping abreast of compliance is really challenging for operators, with issues ranging from the General Data Protection Regulation (GDPR) to generator emissions. And on the resilience front we have cybersecurity and climate change risks jostling for attention.

But I think our real challenge is that the sector is poorly understood – we have to set the record straight and we haven't done nearly enough. A senior government economist recently said to me 'Gosh, I had no idea there were any data centres in London, I thought they were all in Iceland'. Sadly, this is not unusual.

**RS: Is the battle to achieve the energy efficient data centre being won?**

EF: Yes and no. My heart always sinks when I see poorly researched claims in the press that data centres are gobbling so much power that we will have to live in caves and eat bugs. It makes a good story but these pieces are generally shot from the hip and aimed at the wrong target.

Commercial operators are strongly incentivised to be efficient in order to be competitive. While there is obvious variation, most notably between new and legacy sites, the sector has a very good story to tell in terms of energy stewardship. The CCA reporting process provides evidence of that. I think we underestimate just how advanced we are in terms of energy efficiency, management, monitoring and reporting. During the CCA negotiations the technical advisors complimented the sector on the outstanding quality of its energy stewardship tools, standards and key performance indicators (KPIs).

I think the real problem lies under the radar, in smaller server rooms and in-house data centres where energy costs are not attributed, where Power Usage Effectiveness (PUE) is not monitored, where there are no service level agreements (SLAs) and where financial and operational accountability are split.

I've seen evidence of widespread poor practice – low utilisation, old servers delivering little but dominating power

use and average PUE an unhappy number somewhere around 4. Unfortunately, not enough is being done to deal with this invisible part of our data centre spectrum. Ironically, scrutiny is still focused on those areas where energy is already monitored, managed and publicly reported.

Just for the record, the colocation sector in the UK, plus colocation style operations consumed 2.57TWh in 2016. Adding about the same again for large enterprise is probably generous but takes us up to about 5TWh. If you want to include distributed IT and all those horrible little server rooms lurking under the radar then you could possibly add the same again, despite the fact that they are not really data centres. So depending on what you count, the total is between 5-10TWh a year. That's between 2-3 per cent of the 340TWh or so of electricity that we generate but well below one per cent of our primary energy supply.

**RS: Do you think that governments and other external stakeholders take the worldwide data centre sector seriously enough?**

EF: It depends. I'm a UK sector representative, so my focus is domestic, but I can't help noticing what other governments, especially those in competing markets, are saying and doing. So in the UK energy taxes go up while countries like Sweden, Norway, Ireland and

France make specific concessions in terms of taxation, energy costs and planning.

In my view UK government hopelessly underestimates the sector's economic contribution. There is also a worrying policy disconnect – priorities like the Digital Strategy make no reference to

data centres as core enabling infrastructure. Data centres were not even mentioned in either the Digital Strategy or the Industrial Strategy, despite the fact that they are where these two strategies intersect. Government also fails to recognise the global significance of the UK sector and the need to protect the first mover advantage that has allowed the UK to develop its world class digital ecosystem.

At a detailed level things are no better – rapid rotation of staff within and between departments means that policy dialogue tends to move backwards as well as forwards, as new teams try to get to grips with this technically complex sector. More continuity is needed.

**RS: What are you doing as part of your work that will encourage more women to consider data centres as a career option?**

EF: We have a real issue in the UK attracting women into engineering and technology and we aren't going to solve this overnight. It starts at school with role models and early choices that limit options.

Academically, girls compete equally with boys but fewer girls convert those achievements into science, technology, engineering and mathematics (STEM) careers. And then we have attrition – women who start in STEM are more likely

**'Women who start in STEM are more likely to move into non-STEM roles than their male counterparts. And that's before you account for things like implicit bias or maternity. So we have a problem.'**



to move into non-STEM roles than their male counterparts. And that's before you account for things like implicit bias or maternity. So we have a problem.

In the data centre environment we are doing four specific things – positioning the sector as a career destination of choice, explaining the subject choices that students need to make to keep their options open, developing informal guidance to help operators support and retain women and celebrating those who work in the sector.

**RS: What value do organisations like techUK have to offer?**

EF: Associations like ours provide a collective voice for the sector – an industry unable to articulate its value and its issues is going to be ignored.

Data centre operators are not necessarily equipped to structure advocacy arguments and policy wonks don't need a detailed understanding of adiabatic lapse rates to argue for change on behalf of a sector! So we can talk to government while operators get on with running their facilities. We also create a community of interest to share information and best practice, we manage the CCA for the sector, collate and report the energy data, we alert operators to business risks and we defend the sector's reputation.

**RS: If you could change one thing about the industry that you work in, what would it be?**

EF: To be less navel gazing. We should compare ourselves to other sectors more often – we will see how good we are at things like energy stewardship and how similar our challenges are, and occasionally we might learn something useful.

**RS: Who is the person you most admire and why?**

EF: I have a whole Mount Olympus of

people I admire so this is tricky. If it were about leadership I would opt for Ernest Shackleton, who sailed the 22ft James Caird 700 miles across the South Atlantic and then climbed over South Georgia before rescuing the rest of his crew.

If it were for ingenuity it would be Derek Haynes, Scottish country dance deviser, relatively unknown but has brought many hours of happiness to many thousands of people. If we are looking at craft then it is Patrick O'Brian, author of the Aubrey-Maturin novels, who perfectly combines three things rarely found together in literature – meticulous research, brilliant characterisation and compelling storytelling. My job is essentially writing, where evidence, argument and narrative flow are equally important, so I'll plump for Patrick O'Brian.

**RS: What's the most useful piece of advice you've been given and how has it helped you during your career?**

EF: Here I'll cheat with two, neither of which were presented as advice. The first was from my Dad, who always said that you should produce your best quality work even if you think the job is beneath you. So if you are shovelling manure, shovel it well, with commitment, with pride.

The other one was my brother, on the second day of a two day mountain marathon in the late 1990s. We were running along a high ridge in Scotland, we were knackered, we still had a long way to go, when he suddenly piped up, 'This is a privilege Em, look at this, we're running in these beautiful mountains, we can see this amazing view, chin up, head up, look up'. I did look up, and immediately fell over a tussock, but I got his point.

Every so often we should all stop for a moment, look round and remind ourselves that we are indeed rather privileged. ■

## Migsolv and Next Connex deliver Janet network access

Migsolv has partnered with Next Connex to provide customers with unprecedented access to Jisc's Janet network.

As the UK's national research and education network, Janet has more than 18 million users in colleges, universities and research centres, who utilise it to

connect to the internet and securely share information. Outside the education

sector, the Janet network is widely used by public and third sector organisations, including government departments and scientific bodies.

The Janet network opens up a vast new marketplace for businesses who provide secure online services. As Migsolv provides enhanced connectivity to more

than 250 carriers, this super-fast network is another service for its data centre.



## Wellington College enables access for thousands of devices with Aerohive's access points

Aerohive Networks has announced that Wellington College has implemented its 802.11ax access point Wi-Fi solution.

The solution can provide high bandwidth access, including video streaming capability, to more than 2,500 connected devices in the college's performing arts facility, used as a central gathering point during events and assemblies. It will also support the teaching and learning needs of 1,100 students and staff on a continued basis across the college's 400 acre campus.

Wi-Fi is an essential element in the classroom at Wellington College, to the point where the school restructured the way technology is used to enhance teaching

and learning. Collaborative learning is one of the main focuses of the college, and Wi-Fi is a key enabler of that. An imperative for achieving this was to ensure access to a

reliable, easy to access and manageable service for both its staff and student body.

Security was also a significant consideration. A key requirement was to deploy a system that would link-in with all of the solutions

provided by the college's security vendors, as well as be capable of handling dense clusters of up to 2,500 devices in close proximity. Additionally, the IT team wanted a seamless solution that would work with Microsoft's Active Directory, as well as with the school's single sign-on.



## Kenya's first carrier neutral colocation data centre selects Siemon to support high performance IT infrastructure

icolo.io has implemented state-of-the-art network infrastructure solutions from Siemon at its hyperconnected Tier III development in Miritini, Mombasa. It provides over 550m<sup>2</sup> of IT space and 675KW of IT load to 226 cabinets to serve telecom carriers, ISPs, IT, global cloud and content providers, as well as enterprise and financial services institutions.



flexibly support any range of equipment depths and help improve data centre energy management.

The network cabling infrastructure relies on pre-terminated trunking assemblies including Category 6A F/UTP copper trunks from Siemon's Z-MAX range and plug and play fibre assemblies using OM4 multimode and OS2 singlemode cable.

Siemon was selected as the supplier of choice for its comprehensive IT infrastructure solutions set, data centre design expertise and local product availability through its distribution partner, Mart Networks. icolo.io selected V600 data centre cabinets from Siemon, which

Siemon's pre-terminated trunks, which are manufactured and tested in a clean factory environment, offer guaranteed performance levels and can help reduce installation time by up to 75 per cent compared to field terminated links.

## Green Mountain chooses Schneider Electric prefabricated data centre modules to double its Norwegian colocation capacity

Green Mountain has awarded Schneider Electric a significant order to deliver data centre infrastructure to support increased capacity at its two Norwegian sites in Telemark and Stavanger. The modular solution being provided by



Schneider Electric incorporates the latest innovations in air economised cooling, as well as high efficiency UPS with lithium ion battery back-up.

The first element of the staged project, and the larger prefabricated data centre investment, is scheduled to go live by

1st April 2019.

In addition to the Schneider Electric data centre power and cooling modules, the company will also provide technical – or 'white' – space, plus electrical distribution

equipment and MV and LV switchgear.

The benefits of the prefabricated, pre-engineered modular approach are well established, and include factory integration and testing to simplify and speed up onsite installation, as well as ensure more predictable and reliable operations.

## ThoughtWorks designs great employee and guest Wi-Fi experiences with Mist

ThoughtWorks has selected Mist's artificial intelligence (AI) driven wireless LAN (WLAN) for global Wi-Fi. With Mist, ThoughtWorks now has a predictable and reliable Wi-Fi infrastructure that is key to supporting strategic IT initiatives like open seating, mobile videoconferencing and guest Wi-Fi. This, in turn, helps the company lower IT costs, improve employee productivity and offer better value to its clientele.

Roaming and real time radio resource management (RRM) are top priorities for ThoughtWorks. In addition, the company also hosts many partners and clients in

their offices who require simple and reliable access to a guest Wi-Fi network.

Ultimately, the company chose the Mist Learning WLAN, which leverages AI to automate mundane tasks, improve Wi-Fi reliability, accelerate troubleshooting and give insight into the wireless user experience.

The global rollout of the Mist Learning WLAN is scheduled for full completion in 2018. This deployment includes approximately 500 Mist AP41 and AP61 access points, plus Mist's Wi-Fi Assurance and Marvis Virtual Network Assistant (VNA) cloud services.

## Nexans delivers best in class FTTO network infrastructure for Athens' City Hall

In the beginning of 2018, the Athens Municipality launched its Digital Roadmap – a plan aimed at modernising internet infrastructure of the city. To upgrade the network of the City Hall, Nexans provided the Athens Municipality with specialised cutting edge fibre to the office (FTTO) solutions including microbundles and accessories.

To guarantee high speed internet connection and provide advanced IT based services for the employees of the City Hall, Nexans deployed a powerful physical infrastructure based on fibre optic technology both inside and outside the building. The indoor fibre cables, with microbundles and accessories manufactured by Nexans, were also

coupled with connectivity and LANactive FTTO switches as well as the LANactive NEXMAN management software.

Nexans' solution is a flexible and future proof networking system that can adapt

to the constantly changing operational needs of the City Hall thanks to its scalable and modular structure. The fibre optic cables were designed specifically to have a reduced volume to allow for an easy installation within the restricted

space available and are both fire resistant and halogen free. Compared to traditional LAN, the fibre optic solution from Nexans provided Athens Municipality with energy savings up to 45 per cent.



# Rittal ensures IT efficiency at expanded Croatian airport

Croatia has become a popular destination and passenger traffic at Dubrovnik Airport is constantly increasing. In the context of the airport's expansion, in 2016 Rittal took on the task of general contractor to build a new data centre that is now fully operational.



High availability for the IT systems was a top priority when designing the new data centre. The Rittal CMC III monitoring solution oversees the infrastructure in the data centre, enabling IT experts to quickly recognise any deviations from regular operation, and

so respond before the system comes to a complete halt. The monitoring solution

is connected to the building's central monitoring system, so that the operators of the IT can see the status of the entire system at a glance.

Besides this, Rittal TS IT racks are installed in a security room specially

developed by Rittal, which offers maximum physical protection against external access or fire. Access control ensures that only authorised persons can enter, while an early fire detection system issues a prompt warning in the event of a fire developing.

## PROJECTS & CONTRACTS IN BRIEF

Equinix will open the company's second Bulgarian International Business Exchange (IBX) data centre in Q1 2019. The \$19m data centre in Sofia – called SO2 – will support Bulgarian companies in their journey to transform their businesses through interconnection with digital supply chain partners, cloud adoption, and access to new markets around the world.

NYMAZ selected Comms365 to provide a reliable and fast internet connection at its recent Connect: Resound music event, using its rapid deployment bonded internet solution, Continuum. NYMAZ champions the transformative potential of music for children and young people and works to deliver high quality music-making activities across North Yorkshire to those in challenging circumstances.

maincubes has announced the commissioning and availability of two large wholesale suites at its recently opened AMS01 data centre in Amsterdam.

The San Francisco Giants are using Cohesity to consolidate data infrastructure to simplify management and reduce costs. Cohesity has made it faster and easier for the San Francisco Giants to access data, including video files and scouting reports, and empowered the organisation to leverage the flexibility and cost efficiency of public cloud infrastructure.



## R&M

The extended R&MhealthLine range brings hygienic solutions to patients' rooms, operating theatres, laboratories and the food industry. The antimicrobial cabling program is ideal for all institutions and areas in which hygiene is a top priority, such as nursing homes, washrooms, waiting rooms, catering facilities, labs, food preparation areas and pharmaceutical production facilities. Three new data outlets make it easier to use the R&MhealthLine system in various application areas.



parts of R&MhealthLine products inhibit the growth of bacteria and microbes. In addition to outlets and mounting plates with RJ-45 sockets, the R&MhealthLine also comprises shielded and unshielded patch cords and protective caps and coding elements. These are compatible with the R&Mfreenet modular cabling system that covers all areas of structured building cabling.

To find out more [CLICK HERE.](https://rdm.com)  
[rdm.com](https://rdm.com)

## Stulz

The CyberCool WaterTec series of water cooled indoor chillers from Stulz comprises five different models, with a cooling capacity ranging from 350-1400kW. Built using state-of-the-art energy optimised components, extensive equipment options and a wide temperature range at the chilled water outlet (1-19°C), these cutting edge indoor chillers also utilise oil free magnetic Turbocor compressor technology. This contributes to unrivalled low noise operation, ease of maintenance and an energy efficient partial load mode.



technology used in the CyberCool WaterTec range works with climate friendly HFO-R1234ze refrigerant and reduces the required refrigerant charge by up to 70 per cent compared to flooded evaporation. Just as importantly, the minimum efficiency values according to level two of the Ecodesign Directive's Seasonal Energy Performance Ratio (SEPR) and Seasonal Energy Efficiency Ratio (SEER) for the year 2021 are easily met.

To watch Christian Lohrmann, product manager at Stulz, being interviewed about the CyberCool WaterTec [CLICK HERE.](https://www.stulz.com/en)  
[www.stulz.com/en](https://www.stulz.com/en)

Furthermore, the spray evaporator

## Rittal

Rittal has added 20kW and 35kW output classes to its portfolio of refrigerant based IT cooling solutions, meaning it can now offer a cooling solution from 3kW right through to 55kW.

The portfolio also includes a world first – a 35kW hybrid version that will utilise indirect free cooling where conditions are suitable, making it highly energy efficient. Compact cooling systems are also available in high redundancy configurations.

These meet the need of today's IT infrastructure for high uptime, which is of particular importance for state-of-the-art edge computing solutions to ensure the uninterrupted flow of data.

The innovative liquid cooling package



(LCP) DX/FC Hybrid includes both a refrigerant circuit direct expansion and a separate water circuit. This

means that the solution can deliver the required cooling output very efficiently, in line with external temperatures. Meanwhile, the LCU DX cooling unit is compactly designed and offers cooling outputs of 3kW and 6.5kW, with or without redundancy. In order to save space, the internal unit

is installed between the 19-inch rack and the side panel.

A complete overview of Rittal's IT cooling solutions can be accessed by

**CLICKING HERE.**

[www.rittal.co.uk](http://www.rittal.co.uk)

## Ideal Networks

To support fast and straightforward cable certification, Ideal Networks has updated its LanTEK III Cable Certifier with its new Quick Setup feature.

Designed to support busy cable installers, the new Quick Setup mode enables almost all configuration and testing to be performed on just one straightforward screen. Eliminating the need to navigate through different menus and options before starting to test or troubleshoot simplifies and speeds up the process for installers. This latest development underwent considerable internal and external testing to ensure that it meets the needs of the user.

The LanTEK III cable certifier is used



to test the performance of cable and connectors in installed LAN cabling systems, and to ensure that components and cable meet relevant standards. In the new Quick Setup operational mode, the most commonly used functions appear on a single screen, making tester configuration faster and simpler.

The user can choose Quick Setup as the default operating mode, entering directly from the home screen at the touch of a button. However, for those installers who prefer it, Standard Setup is still an available operating mode.

To download a free guide to Quick Setup mode **CLICK HERE.**

To find out more about the latest version of LanTEK III **CLICK HERE.**

[www.idealnetworks.net](http://www.idealnetworks.net)

## CMS

Are you installing Construction Products Regulation (CPR) compliant cable?

CMS is stocking a range of Eca-B2ca compliant cable. These are available from our Assynia, Corning, CommScope and HellermannTyton partners.

For advice on your product requirements, or for CPR compliance advice, give our technical team a call at 01252 379379.

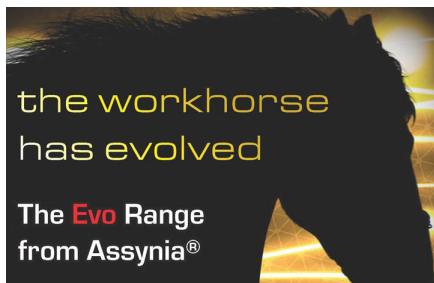
Designed for the professional installer and continuously developed over the last

15 years, the Assynia solution is a high performance, CPR compliant, structured cabling system that's backed by a comprehensive 25-year warranty.

Become an Assynia Accredited System Installer and benefit from access to training facilities, technical support, free training (one day course covering CPR, networks, copper/fibre and best practice) and exclusive

pricing.

To find out more about Assynia [CLICK HERE](#) and to join the Assynia Accredited System Installer scheme [CLICK HERE](#). [www.cmsplc.com](http://www.cmsplc.com)



## Fluke Networks

The OptiFiber Pro High Dynamic Range (HDR) Optical Time Domain Reflectometer (OTDR) from Fluke Networks is the first OTDR that fulfils demands for a single solution to deal with applications ranging from FTTx, PON and data centres to structured cabling. Versiv users report that its efficient and familiar interface cuts costs by 65 per cent when testing, certifying and maintaining copper and fibre network installations.

The OptiFiber Pro HDR OTDR is designed to support the growing need for an OTDR able to test and document HDR applications supporting outside plant (OSP) back-haul and long-haul services, peer-to-peer

(P2P), passive optical network (PON), and fibre to the premises installations. Three

new singlemode modules address 1490nm, 1625nm and combined 1310/1550nm with a dynamic range of up to 42dB, allowing users to find more faults over longer distances.

Fluke Networks' modular Versiv Platform is the basis of the OptiFiber Pro OTDR solution. All Versiv models work with LinkWare PC reporting software and the LinkWare Live cloud-connected certification service. With over 14m results uploaded to date, LinkWare

Live is the industry's leading solution for automated set-up and support of the certification devices and cabling projects.

To find out more [CLICK HERE](#). [www.flukenetworks.com](http://www.flukenetworks.com)



## Ideal Networks

Ideal Networks has added touchscreens to several of its network and data cable testers to make troubleshooting and transmission testing quicker and easier than ever before.

Following the upgrade, a 240x320 pixel LCD capacitive touchscreen will now be included as standard on all new NaviTEK NT Plus and Pro copper and fibre network troubleshooters, SignalTEK CT data cable transmission testers, and SignalTEK NT network transmission testers.

All the new touchscreen models will enable fast and responsive data input, making it quicker to

type names and other data into the tester. Like a smartphone or tablet, the capacitive screen is tough yet sensitive, ensuring only a light touch is needed to operate the onscreen keyboard.

NOW WITH  
TOUCHSCREEN  
(Plus & Pro)



As many network technicians and data cable installers are already frequently using touchscreens on other

devices, the upgraded Ideal Networks testers offer a more intuitive way of working, helping to save time and increase efficiency on every job.

To order a new touchscreen troubleshooting or transmission tester, or for more information on the Ideal Networks range of test and measurement solutions [CLICK HERE](http://www.idealnetworks.net).  
[www.idealnetworks.net](http://www.idealnetworks.net)



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# Time for a **change**



**Volker Ludwig** of e-shelter examines the changing role of colocation and how the data centre must play its part in providing a secure marketplace for growth

**▶** Energy costs, reliability and air conditioning are all important criteria for choosing an external data centre. But today's key considerations also include efficient process implementation and, above all, fast and secure access to global cloud and application providers. Private, public and hybrid cloud solutions demand a hacker protected connection with fast response times and colocation offers the ideal platform for this, enabling providers to act as a digital marketplace for the implementation of IT concepts.

## **ON THE RISE**

Due to the increasing digitisation of our lives, the amount of data being stored in data centres will continue to increase dramatically. According to IDC's 2017 study, big data and the Internet of Things (IoT) will reach a data volume

of approximately 163ZB by 2025. For comparison, in 2016, only one-tenth of this data volume (16ZB) was produced. In addition, the same IDC study predicted that this generation of data will increasingly shift to the enterprise sector. Data centres must evolve and grow in line with this data growth.

Colocation today is about much more than just putting racks together – the classic model is changing. Activities range from optimising the physical footprint, to resolving redundant power supplies and connectivity services. The increasing pressure on companies to provide their users with modern applications, some of which run independently in public clouds, presents CIOs with completely new challenges. In many cases, an unplanned multi-cloud approach has already developed in order to meet users'

needs, but this can be complex and uneconomical especially when departments go rogue and start independently purchasing services from third party providers without the IT team being involved.

## MOVING ON UP

It is now that data centres have the opportunity to move into a new role. They can offer companies an ecosystem in which they can choose the optimal solution for them, just like in a marketplace. The colocation data centre now has the central role of advising the customer. For example, customers may want access to various cloud providers – such as AWS, Microsoft, Google, Alibaba, Softlayer etc – enabling them to tailor their multi or hybrid cloud strategy flexibly, inexpensively and across multiple providers. This variety also lets them implement platforms in an environment that ensures the compliance of operating systems and reduces operational risk through a secure infrastructure and service level agreements.

Outsourcing parts of the data centre provides more scope for growth. Colocation vendors are continually expanding their data centre capacity in distributed locations to meet global data growth and allow users to tailor their capacity to their current needs. For customers, having growth options are essential. This ensures that they can flexibly book capacities based on their specific business needs and, if necessary, terminate or distribute them to any number of data centres in the provider's network.

This enables a wide range of redundancy concepts with outsourced server capacities sent to mirrored data centres with separate paths and supply networks.

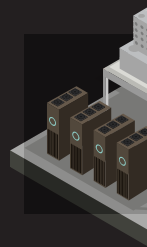
**'In the modern colocation centre, users have access to numerous partners with different expertise on site, which they can access flexibly – from various carriers and cloud providers, to system integrators.'**

Connections can be made via any carrier and even over several network providers with the necessary service level agreements. Users can also choose between different service providers.

## FLEXIBILITY AND CHOICE

In the modern colocation centre, users have access to numerous partners with different expertise on site, which they can access flexibly – from various carriers and cloud providers, to system integrators. A technology change from pure colocation to the use of cloud solutions is made easy for users, who can easily access interesting solutions from a wide range of services. The colocation data centre in its function as a marketplace also gives users access to a large selection of potential partners offering comparable services. This increased competitive pressure, in turn, has a positive effect on quality and affordability.

Technically, the spatial proximity aids the realisation of hybrid cloud solutions. Since the applications are only separated by one cross-connect, latencies are minimal. This allows a seamless transition from a traditional or private cloud application on a colocation powered server, to a provider's public cloud application in the same data centre. In this way, peak loads of applications in the public cloud can be intercepted and for enterprise IT teams,

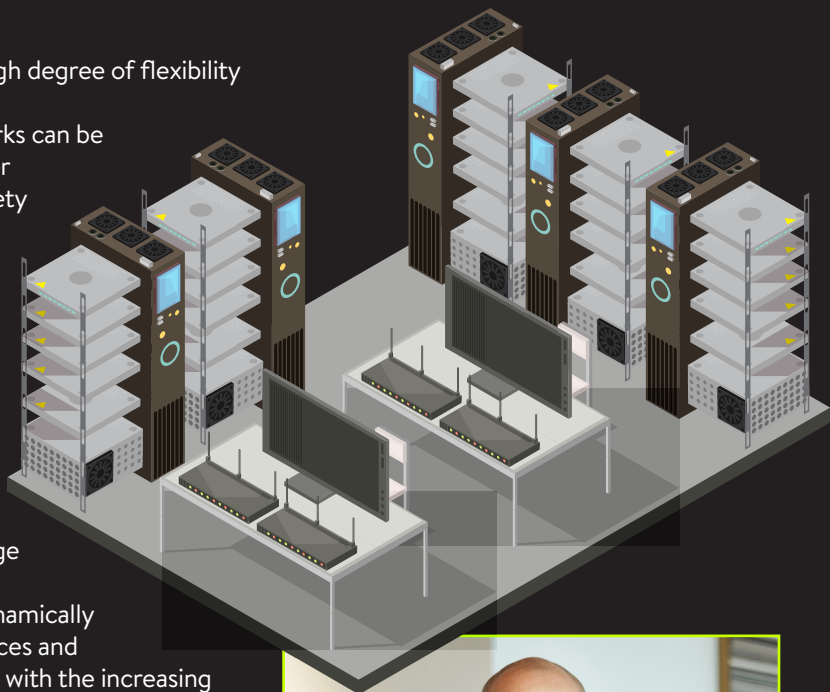


access  
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which brings a high degree of flexibility and agility.

Partner networks can be leveraged to offer customers a variety of solutions and services for planning, implementing, migrating and managing their hybrid cloud environments. Concrete solutions can be used to manage the hybrid cloud environment, dynamically managing resources and applications. And with the increasing use of public cloud offerings, bandwidth requirements and low latency can be realised through direct access to the cloud solutions.



## THE FUTURE

Developments like Industry 4.0 and the IoT are raising the importance of issues such as real time capability and distributed data centres. With the growing flood of data impacting our world, the diverse range of applications from the cloud, along with the evolution of innovative applications – such as with 5G – companies will increasingly outsource data centre capacity, including a greater number of applications. Specialist colocation data centres need to take on a more advisory role, consulting customers on the planning, management and maintenance of the infrastructure and advise on the selection of suitable partners, to help their customers grow and thrive. ■



### VOLKER LUDWIG

Volker Ludwig is senior vice president sales at e-shelter in Frankfurt. He has more than 17 years of experience in the data centre market and, prior to joining e-shelter, he was working in sales and marketing leadership roles in Germany, Austria and Switzerland. At e-shelter, Ludwig is responsible for sales across all regions.

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