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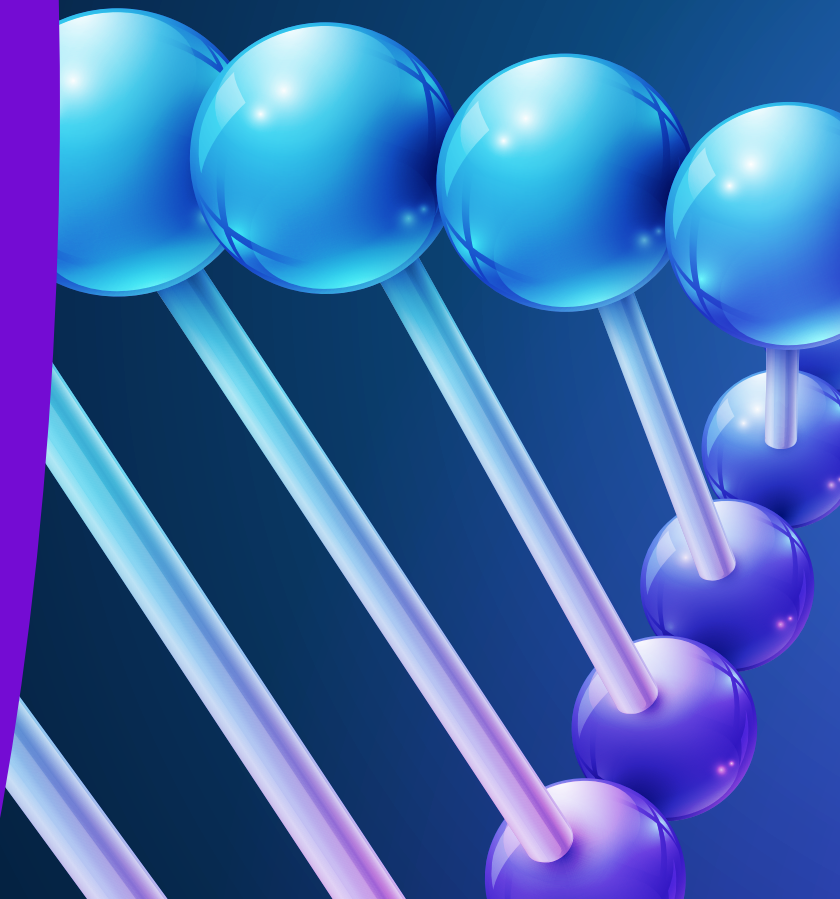

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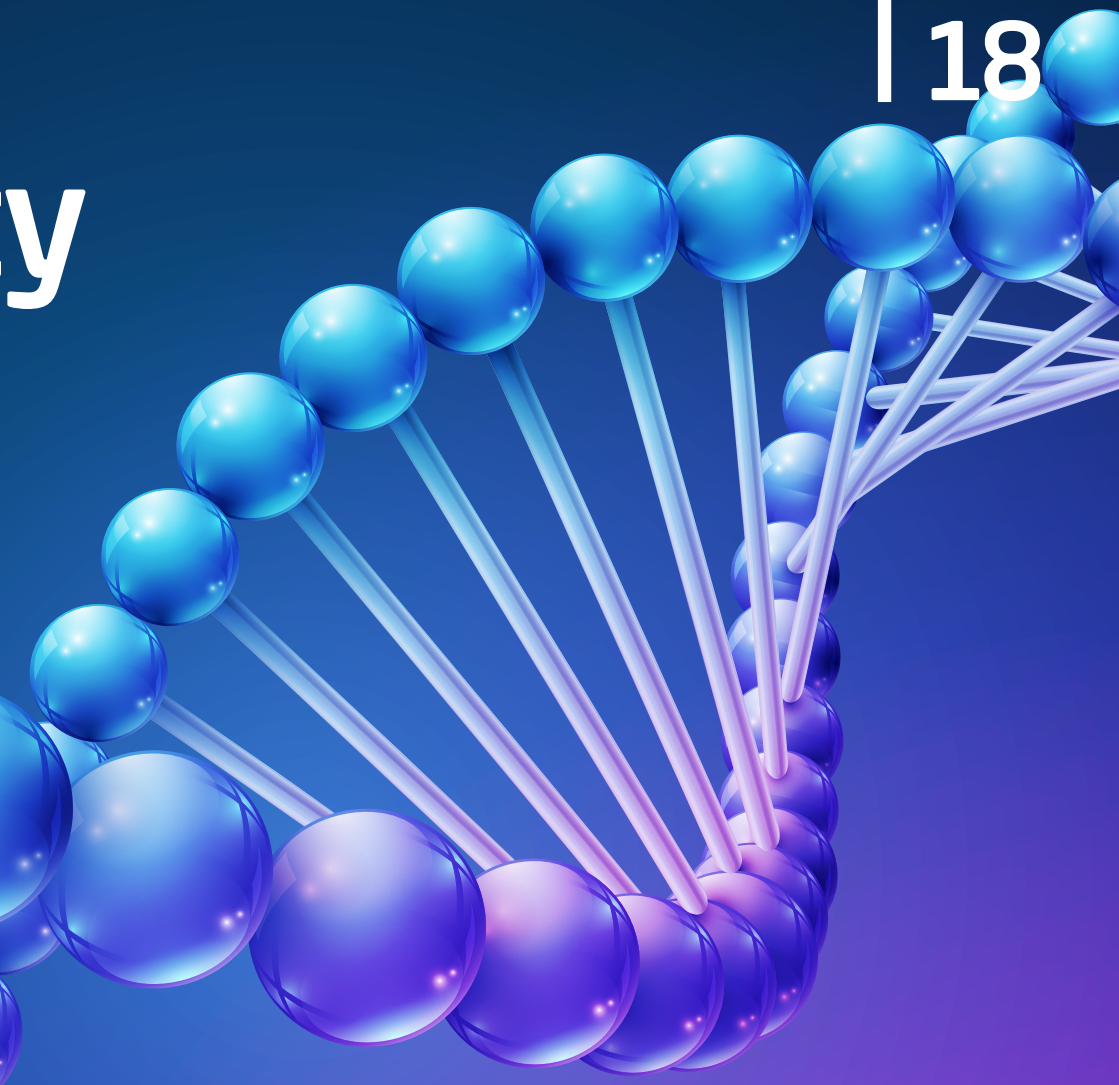

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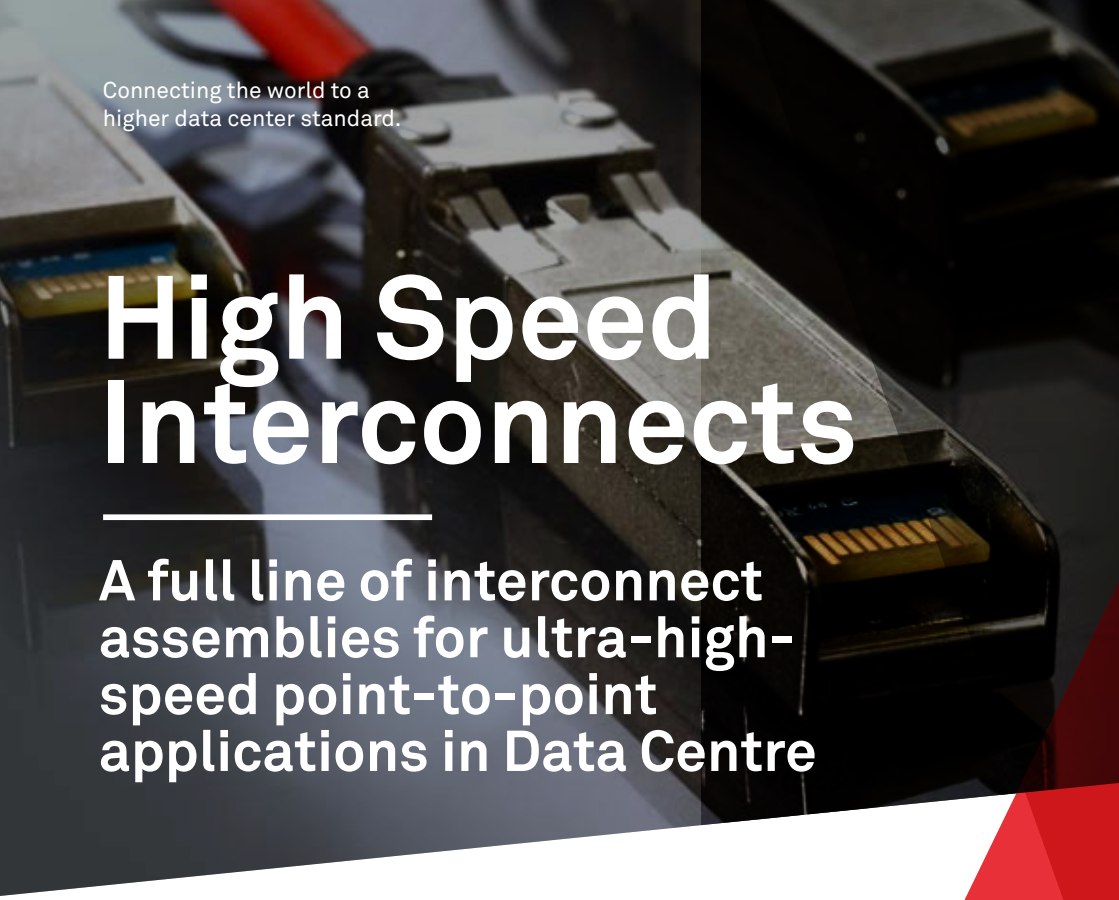

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Thanks to those of you who contacted me about last month's Question Time on the subject of gender diversity – or lack of – within the enterprise and data centre network infrastructure sectors. It's clear that this is a concern but there does appear to be a real desire to do something about it, so we'll continue to keep you posted about any developments.

This month we're focusing on something quite different – namely the key specification and purchasing considerations regarding structured cabling, and how long it is reasonable to expect it to be in-situ for before replacement. There has never been more choice when it comes to this technology and navigating the complexities of the market can often create more questions than it answers. To look at this in more depth, and provide some welcome guidance, we've asked a panel of experts to offer their opinions and you can read this month's Question Time by **CLICKING HERE.**

Green networking is of significant interest to industry professionals and we have with two articles on the subject. In the first, John Laban of the Open Compute Project (OCP) examines energy use in European data centres and how an open networking approach can help lower usage. Hot on his heels, Guillaume Angeli at Nexans explains why fibre to the office (FTTO) offers a sustainable alternative to conventional network infrastructures. **CLICK HERE** to read John's article and for Guillaume's **CLICK HERE.**

Data centre infrastructure management (DCIM) has seen its fair share of challenges but new technologies are helping to develop a fresh perspective on it. **CLICK HERE** to read why Mark Gaydos of Nlyte Software thinks combining artificial intelligence with a DCIM solution will decrease the risk of human error. Meanwhile, Steven Carlini of Schneider Electric examines why data centre management as a service (DMaaS) is more efficient, more cost effective, faster and simpler to deploy than traditional on-premise DCIM solutions **CLICK HERE** to read his article.

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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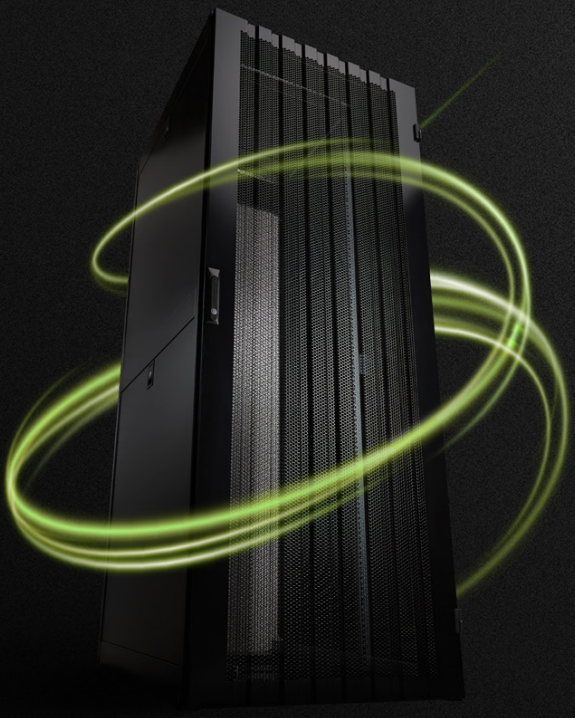

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European Commission eco-design rules for servers risk increasing energy use in data centres

Operators and manufacturers have warned that proposed eco-design requirements from the European Commission for servers, designed to cut energy and carbon, may actually increase them. The proposals have emerged under the Eco-Design Directive.

Industry had proposed using an 'active efficiency metric' as the means to measure server efficiency in different operating conditions. The European Commission, however, has opted for an 'idle limit' metric that measures only the energy consumed during occasional server waiting periods and not the efficiency of servers when they are both idle and operational.


Emma Fryer

Servers have become better performing and are more efficient when operational, the trade-off is a slight increase in idle energy – overall though it results in energy reductions. Measuring server efficiency by only using idle power metrics will see the most efficient and best performing servers banned from the European Union (EU) market.

Emma Fryer, associate director for data centres at techUK, said, 'Data centre operators are very concerned because imposing limits on idle power consumption will not decrease total server energy consumption. The best way to reduce unproductive energy use is to increase utilisation through consolidation and virtualisation. Imposing idle limits without considering performance is likely to preclude the sale and deployment of many high performance energy efficient servers, driving the market in the wrong direction – away from larger machines that can consolidate work towards a proliferation of smaller devices with a much larger combined energy and resource footprint.'

Data centres are energy intensive and operators are already strongly incentivised to improve efficiency. Operators are worried that these proposals will reverse the productive trend towards larger, more efficient machines, limit choice, create market distortion and render the EU sector less efficient because operators and their customers will be prevented from accessing the best devices.

Fryer concluded, 'For colocation providers, the proposals create a potential situation where customers who would usually reduce their infrastructure requirements at each refresh stage by consolidating activity on to fewer, more powerful machines, will instead have to deploy more devices and increase the burden they impose on infrastructure. Under this perverse situation, EU operators are rendered uncompetitive because their customers are forced down a less efficient, more expensive route. Data is the most mobile commodity on earth and those customers may simply choose a location outside the EU.'

94 per cent of organisations recognise the importance of the cloud in improving customer experience

Research from Aspect Software and the Cloud Industry Forum has revealed that most organisations are aware of the vast potential of cloud services in enhancing the customer experience, with 94 per of respondents stating that cloud has an important role to play. Despite this widespread recognition, adoption of cloud technology for customer engagement remains low overall, with businesses needing to do more to secure the boost to competitive advantage that cloud can bring.


Stephen Ball

Aspect's Clear Skies for Customer Service report, which surveyed 100 C-suite decision makers in both IT and non-IT roles, from organisations with over 1,000 employees across multiple sectors found that many organisations are failing to take full advantage of this technology, with only 37 per cent of IT leaders saying that their organisation currently uses a cloud based system.

Stephen Ball, senior VP Europe and Africa at Aspect Software, said, 'The research reveals that although organisations are aware of the potential for cloud to bring greater efficiency and a more joined-up customer experience, there is still a lot of work to be done in order to bridge this gap between perceptions and actually having the technology in place.'

Gartner forecasts worldwide public cloud revenue to grow 17.3 per cent in 2019

The worldwide public cloud services market is projected to grow 17.3 per cent in 2019 to $206.2bn, up from $175.8bn in 2018, according to Gartner. In 2018, Gartner forecasts that the market will grow 21 per cent, up from $145.3bn in 2017.

The fastest growing segment of the market is cloud system infrastructure services – infrastructure as a service (IaaS) – which is forecast to grow 27.6 per cent in 2019 to reach $39.5bn, up from $31bn in 2018. By 2022, Gartner expects that 90 per cent of organisations purchasing public cloud IaaS will do so from an integrated IaaS and platform as a service (PaaS) provider, and will use both the IaaS and PaaS capabilities from that provider.


Sid Nag

'Demand for integrated IaaS and PaaS offerings is driving the next wave of cloud infrastructure adoption,' said Sid Nag, research director at Gartner. 'We expect that IaaS only cloud providers will continue to exist in the future, but only as niche players, as organisations will demand offerings with more breadth and depth for their hybrid environments.'

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Cheque presented to Macmillan Cancer Support following Inside_Networks 2018 Charity Golf Day

The Inside_Networks 2018 Charity Golf Day raised an amazing £10,409.20 for Macmillan Cancer Support and the money was recently presented at Hanbury Manor PGA Championship Course in Ware, Hertfordshire.

L-R Andrew Stevens of CNet Training, Mark Cumberworth of Slice Golf & Events, Liam De Roe of Macmillan Cancer Support and Glenn Gardiner of Hanbury Manor

The Inside_Networks 2019 Charity Golf Day will take place on 22nd May. Places are already being snapped up quickly, so those interested in taking part are advised to register early. To enter a team or get more information about various sponsorship opportunities that are available **CLICK HERE** to email Mark Cumberworth of Slice Golf & Events or call 07769 696976.

Impact of gender targets and initiatives in tech sector challenged by new report

Search Consultancy's Technology & Transformation division has conducted research to determine the contributing factors behind the shortage of women within the UK's tech sector.

The results initially painted an optimistic picture of female representation in the overall professional landscape, with women making up 42 per cent of the average company's workforce. However, a closer look into tech roles specifically revealed that women made up just 21 per cent of the average tech team. However, while nearly 50 per cent of respondents said they felt the sector offered the same career advancement opportunities to men and women, 18 per cent of those surveyed said their organisation did not consider cross-training or accommodating women returning to work after career breaks.

In addition, the data showed no discernible correlation between the number of women in tech teams and the presence of gender targets. Furthermore, there was no concrete link between the number of initiatives a company had in place, and the percentage of women appointed to tech roles. Overall, targets and initiatives appeared to have little of the desired impact in terms of levelling the gender playing field within the sector.

Search Consultancy's managing director, Kate McClorey, said, 'The overall picture of the contemporary tech sector is one in which women are a growing presence, albeit a slow growth. Pinning down the driving factors behind this growth is difficult. Targets and initiatives seem to have little effect, and there is evident hostility towards the perceived move towards positive discrimination. Yet many women in the sector still feel that there is a lack of equal opportunities.'

Inaugural Pink Elephant Regatta raises over £1,000 for Ellen MacArthur Cancer Trust

Four teams and 40 competitors recently took part in the Pink Elephant Regatta in aid of the Ellen MacArthur Cancer Trust. Crews from Rittal, LMGiQ and Rellium competed in two races on 50ft yachts in the Solent.

The Ellen MacArthur Cancer Trust's main aim is to help children and young adults regain their confidence through sailing. Each year 2,800 young people in the UK finish cancer treatment. Survival rates are increasing, but studies show teens and young adults remain vulnerable post-treatment because it comes at a time of rapid social and emotional development.

'The data centre and IT industry have been very good to us over the years and today is a chance to give back to those that appreciate our support,' said Tim Clogg, Pink Elephant Regatta organiser. Clogg awarded the DCD Cup to Rittal's Scott Cunningham, who won overall. In second place was David Millington of Trellium, while Paul Bird of LMGiQ came in third and Neil Battery of Rittal fourth.

Those interested in entering the 2019 Pink Elephant Regatta should **CLICK HERE.**

Vodafone report links cyber readiness with better business results

A report from Vodafone highlights that the more cyber ready a business becomes, the better its overall business outcomes. Vodafone's Cyber Ready Barometer notes 48 per cent of cyber ready businesses are reporting more than five per cent increases in annual revenue as well as high stakeholder trust levels. Despite this, the research also shows that only 24 per cent of businesses globally could reasonably call themselves cyber ready.

Cyber readiness, according to the report, is a mix of different measures including cyber operations, cyber strategies, cyber resilience, an understanding of risk and employee awareness. Key findings include:

- Healthcare, technology and financial services sectors are the most cyber ready with retail and education the least
- Businesses in India, the UK and the USA are the most cyber ready while the Republic of Ireland, Singapore and Germany perform less well
- Larger enterprises are most likely to be cyber ready but can be hampered by management and control issues

Vodafone Enterprise cyber security lead, Maureen Kaplan, commented, 'There is clearly a common desire for both employees and employers to do the right thing, but a big discrepancy in understanding. This research demonstrates that businesses must create digital cyber security policies, which are compatible with their workforce, not just to tick a box.'

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London remains Europe's data leader

According to the second annual Global Interconnection Index (GXI), a market study published by Equinix that analyses traffic exchange globally, Europe is projected to lose its second space spot behind America to Asia. Although Europe's interconnection bandwidth is still growing fast (48 per cent) and expected to contribute to 23 per cent of interconnection bandwidth globally by 2021, Asia is not only projected to overtake Europe but will grow faster at 51 per cent. America still holds the top spot, and is projected to have the largest capacity for interconnection bandwidth globally.


Russell Poole

Across Europe, interconnection bandwidth in London, Frankfurt, Amsterdam and Paris is expected to outgrow other European markets by at least 10 per cent. Frankfurt and Amsterdam are both projected to outpace London in terms of growth. London's interconnection bandwidth will grow by 52 per cent, Frankfurt by 58 per cent and Amsterdam by 57 per cent.

Russell Poole, managing director UK at Equinix, added, 'Despite Brexit and political uncertainty in the UK, the GXI reveals that London is projected to show strong growth, accounting for more than 35 per cent of Europe's interconnection bandwidth growth. London's digital acceleration shows that post-Brexit, interconnection bandwidth continues to be driven by the secular growth of global data traffic and the massive shift in IT to support this data explosion.'

NEWS IN BRIEF

Snowflake Computing has appointed Thomas Tuchscherer as chief financial officer (CFO) to drive the company's next phase of financial growth.

Only one third of senior executives in UK organisations admit their company insurance currently covers them for a security breach and for the financial impact of data loss, despite the fact that 81 per cent agree that it is vital their organisation is insured against information security breaches. This is according to the latest Risk:Value report from NTT Security.

APCON has appointed Mike Simmonds as its new director of EMEA operations.

StarLeaf has been named in The Sunday Times Tech Track – one of the most prestigious listings for rapidly growing technology companies in the UK. The Watford-based company was ranked 48th in the 100-strong list.

The need for sp

Hi Rob

With as much as 2.5 quintillion bytes of data produced every day, data is now the currency that fuels digital transformation strategies. Data has become an economy that businesses the world over thrive off. But all of this data must be appropriately and securely managed, and that presents businesses with a challenge.

Indeed, with spend on IT storage having increased by nearly 25 per cent in the past four years, and forecast to increase by an additional six per cent by 2019, data centre providers are under pressure to deliver facilities on demand. However, with the average build time for data centres sitting at 18-24 months, many providers are struggling to justify two years of investment with zero return in the short-term.

At e-shelter, we decided to tackle this problem head-on by creating our own agile data centre construction plan – this has meant we have been able to halve the average build time. This is a method that has not been seen previously in our industry. We have streamlined our construction processes by undertaking all design, procurement and project management from the beginning. As a result, we completed construction and delivery of Building H at our Frankfurt 1 campus in nine months.

The project was not without its challenges. In the initial phase, adverse weather conditions delayed the foundation stages by a full month. Yet we managed to use the delay not only to our advantage, but to our customers' as well. We used this time to refine our scheduling and planning process and to speak with contractors directly.

All parties involved collaborated more closely, finding ways to optimise

peed

processes by holding workshops to plan and troubleshoot specific aspects of the build. When the weather improved and core works began, the team had already made sufficient progress to start planning final fit-outs. Working partnerships had been established with an approach to optimisation that continued throughout the build.

The capacity to collaborate and project manage effectively, and the inclination to plan ahead, proved increasingly important as the build progressed. In a similar way, we managed the entire construction of Building H in a responsive manner that flexed over time, according to need. Thus, project management was initially month-by-month, but this evolved into very hands-on, day-by-day management as the build progressed. The construction team met every morning for half an hour to ensure project management and actions were aligned, and that any opportunities for efficiency gains were seized.

Having delivered Building H in just nine months to extremely high specifications by developing an individual building design, construction and project management programme, we were able to provide data centre capacity quickly, efficiently and in a flexible way.

Ulf Achenbach
e-shelter

Editor's comment

Communication is a key part of agile construction and, as well as helping to ensure projects are completed quickly, it also helps enable opportunities to be exploited during the process. Colocation data centre service providers need to be responsive to market demands by scaling facilities quickly and to the highest standards possible.

Get it right first

Hi Rob

Modern networks demand ever higher and guaranteed performance from the transmission lines used. In order to meet these requirements, all factors that can ensure future proof structured cabling must be taken into account.

The main driver is constantly increasing data rates. For example, networks that are designed for Gigabit Ethernet with Category 5e and Category 6 or performance Class D/E, are being switched to copper on routes that can transmit at least 10 Gigabit Ethernet, and must therefore have bandwidths of at least 500MHz – meaning that Category 6A/ Class EA is applicable.

In data centres, Category 8 and Class I and II – up to 2000MHz bandwidth – have already put their foot in the door in order to achieve speeds of up to 25/40 Gigabit Ethernet. In addition, new technologies, such as power over Ethernet (PoE), power supply for end devices via copper data cable, often in conjunction with the direct connection (MPTL) of LED lighting, access points and surveillance cameras, are finding their way into the cabling world.

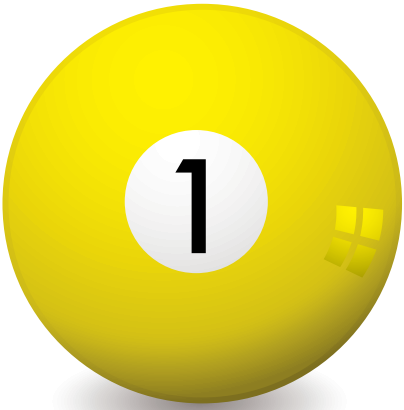
On the optical fibre side, multi-fibre systems are currently competing via MPO connectors with new cable types such as OM5. Transmission speeds of up to 400 Gigabit Ethernet are on the agenda here and the permitted loss budgets for such channels make the first decimal place relevant.

Overall, the space between the permissible limits of the transmission paths and the minimum requirements of the applications is getting smaller. Three main factors contribute to ensuring compliance. The first, and usually decisive, factor is the selection of high quality components such as cables and connectors, but also patch cables.

Therefore, when selecting components, you should always pay attention to the use of products from reputable manufacturers. Their material is usually more expensive, but they guarantee a reliable performance. Also the long-term warranty programs of reputable manufacturers give long-term confidence to the installed links. In order to be able to give these guarantees, the selection of a suitable system and the requirement of qualified personnel for the installation are important. This is the second important factor for a functioning system. The qualification of the installers can be verified either by a recognised external training company or by manufacturer training.

The third factor is the proof of conformity of an installation, which is connected with the use of modern measurement

t time



technology. In order to test the quality of cabling, two levels of test and measurement equipment have been established over the last few years. The first is the so-called qualifiers that determine the performance of an installation by means of application tests and, on the other hand, there is the classic certification measurement equipment, which analytically explores a cabling system using many individual measurement parameters and derives conformity with structured cabling standards from these individual parameters.

The latest generation of qualifiers use data rates of up to 10 Gigabit Ethernet to obtain information on the performance of a data link. In addition, these modern testers also offer the opportunity to test existing systems, which were previously only used up to Gigabit Ethernet, for the possibility of transmitting 2.5 or 5 Gigabit Ethernet. Even fibre optic lines can now be qualified by these devices up to 10 Gigabit Ethernet.

The classic certification devices have just made the leap to the next performance level. Since the publication of Category 8 according to ANSI/TIA or Class I and II ISO/IEC, and the appearance of the first suitable components, there is a need for measurements up to 2000MHz on copper data lines. In addition to the extension of the frequency range and the development of standards compliant measuring adaptor solutions, there are new accuracy classes for these measuring ranges, which either already exist (ANSI/TIA) or are in a final phase (ISO/IEC).

In order to meet the increased requirements for fibre optic networks, both the required measurement accuracies have been tightened and the normalisation procedures have been revised. In addition, the quality of the test signal was again clearly specified, with encircled flux being a key factor, while the fibre optic measurement cables used must now also be of defined quality.

Only if all of the above factors are met will networks be created that can meet today's and tomorrow's requirements.

Alfred Huber
Softing

Editor's comment

As Alfred makes clear, there's no substitute for quality. This applies to everything from the structured cabling system used, to those installing it and the test and measurement equipment employed to make sure that a system operates as it should.

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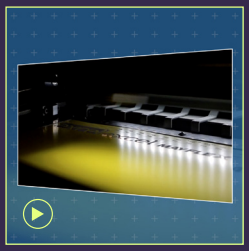

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Investment planning

A network cabling infrastructure is vital to ensuring uptime and a failure to get it right can be like building a castle on quicksand. Inside_Networks has assembled a panel of industry experts to examine the key specification and purchasing considerations and how long it is reasonable to expect structured cabling to be in-situ for

There is a huge responsibility on those making network infrastructure decisions within enterprises and data centres to get things right first time and make sure that a structured cabling system is able to handle what is expected of it. Choosing the right cabling infrastructure begins with an analysis of business needs and goals and this makes it easier to determine the business processes likely to be employed, the applications needed to run these processes and the IT architecture required to support them.

Although there is a wide variety of cabling solutions to choose from, budget often dictates what type of system is possible and all too often low cost is mistaken for value – something that can lead to problems further down the line. Part of the decision making process should involve looking at a return on investment (ROI) and, in particular, how long the installed cabling will be in-situ for, while being able to achieve the desired performance levels. A failure to do so can prove to be a false economy if cabling has to be ripped out and replaced after five years or so.

Unfortunately, ROI can be difficult to measure due to the constantly changing nature of network configuration, and trying to predict what to install and when to install is far from a precise art. To compound the issue, it is widely acknowledged that the vast majority of failures in the network infrastructure are due to problems in the physical layer. Yet it is also the case that all too often physical layer connectivity is the last thing considered by an end user to be important.

Network cabling should not be thought of as a short-term investment and planned properly. So, in order to try and narrow down what is a reasonable time to expect structured cabling to be in-situ, Inside_Networks has assembled a panel of experts to provide their views, along with the key criteria to consider when specifying a cabling infrastructure.

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.

WHAT DO YOU CONSIDER A REASONABLE AMOUNT OF TIME FOR STRUCTURED CABLING TO BE IN-SITU? IN ORDER TO MAXIMISE RETURN ON INVESTMENT (ROI), ENSURE OPTIMUM LONGEVITY AND MAKE IT AS FUTURE PROOF AS POSSIBLE, WHAT ARE THE KEY CRITERIA TO CONSIDER WHEN SPECIFYING A CABLING INFRASTRUCTURE?

LEE FUNNELL
TECHNICAL MANAGER FOR EUROPE, RUSSIA AND AFRICA AT SIEMON

Selecting the right cabling solution really starts at the design phase, where thought must be put on the long-term ICT and business strategy. Considerations such as the expected growth rate of the company including future employee numbers, the different types of technologies a business will need to support and changing trends in the way people work are all critical factors that influence the cabling option that will best suit business needs.

Considerations around applications and IT hardware are also influential. What type of applications is a business is using today and which applications it will be using over the next two, five and even 10 years? When will the business require active equipment upgrades and what data rate will the active equipment be offering when the upgrade and migration is needed?

Category 5e or Category 6 cabling solutions, for example, both support 1000BASE-T, with Category 6 offering increased bandwidth performance. In five years, when a business needs to migrate active equipment to support a larger workforce and to keep up with the data demands of a growing business, will the installed cable roadway support the higher demands of 10GBASE-T when the active equipment migration takes place?

The likely answer is 'no' and the case for using a Category 6A cable solution becomes more evident, as some manufacturers will guarantee data throughput performance for up to 20 or 25 years, thereby supporting increased network speeds and providing future proofing whilst still being backwards compatible with lower performing systems such as Category 5e and Category 6.

Category 6A also leads the way in intelligent buildings, supporting not only voice and data systems, but also building automation, IP CCTV, new high speed wireless access (802.11ac) points and many other applications.

It is strongly advised to avoid installing or specifying a design that can be sometimes looked at as 'interim' cable today to only be forced to replace the installed cable sooner than expected at a cost. Instead, it is recommended to install cable that will serve your business today and in the long-term, and Category 6A is the way to go.

'Selecting the right cabling solution really starts at the design phase, where thought must be put on the long-term ICT and business strategy.'

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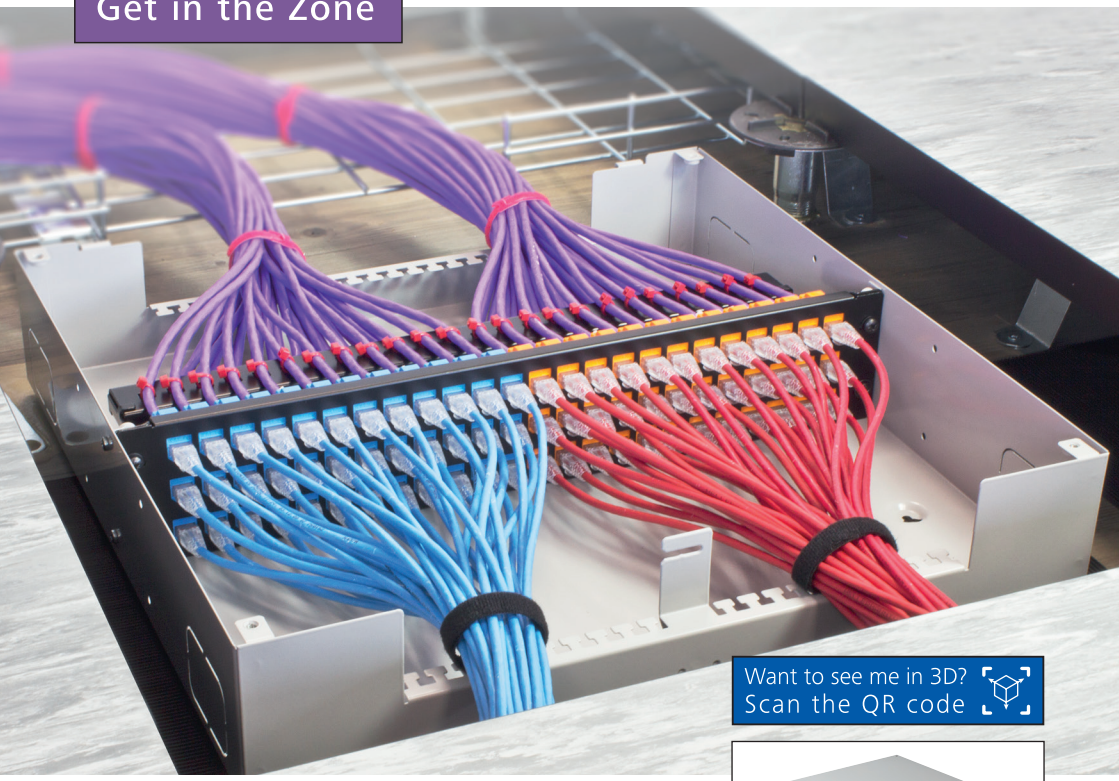

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Stay in touch with us!

ALAN BULLEN
MANAGING DIRECTOR AT LYNX NETWORKS

As an industry, we should pat ourselves on the back for installing excellent data cabling solutions for the past 25 years – systems that are so good that we're rarely asked to replace old cabling. When we are asked to, it's usually part of a building refurbishment or because the space is being used for a new purpose. Typically, we see cabling systems in use for at least 15 years. That compares very favourably with what I estimate is the seven year average life of a core switch or the five years of a server.

To get the best return on a cabling system it has to be designed with the future in mind and installed in compliance with the EN 50174 family of standards. It's not rocket science and it's what the standards are there for. The installation of the cable, enclosures and connectors is only part of the story. The standards, importantly, also say how it should be tested, labelled and documented – this is vital for the longevity of the cabling system.

As a company we always recommend Category 6 (Class E) as a minimum, and Category 6A (Class EA) if there is a chance they might want 10 Gigabit Ethernet at anytime in the foreseeable future. However, many customers still ask for the lower cost Category 5e because they say they'll never need more than Gigabit Ethernet, even though the latest standards say nothing less that Category 6 should be installed. I'd always recommend Category 6A for wireless access points on the basis that that's where the bandwidth and the higher power PoE will be required in the future.

Future proofing can be prohibitively expensive, and achieving a good ROI relies on not over spending. However, investing wisely in a cabling system fit for purpose is a no brainer. Additions and changes are far more expensive that getting it right first time. Professional design is the key, not just paying for potential bandwidth that will never be used.

'As a company we always recommend Category 6 (Class E) as a minimum, and Category 6A (Class EA) if there is a chance they might want 10 Gigabit Ethernet at anytime in the foreseeable future.'

ROB HICKFORD
MARKETING MANAGER AT HELLERMANNTYTON

Looking across the industry at different manufacturers and suppliers, it is fairly commonplace for a 25 year warranty to be offered on structured cabling systems. While a lengthy warranty offers end users peace of mind, with guarantees of performance over that period, what it doesn't account for is the fast paced developments in technology and the consumer or behavioural changes that, in turn, place increased demands on an infrastructure.

Installation of a quality network infrastructure system requires significant investment. In a new build development scenario, there is a great opportunity to install the highest performing, best quality system during fit out stages. When deciding on what system to install, consideration needs to be made not only for how the network will be used in the near future but also how it might be utilised in say 10 years' time. In a retrofit scenario, not only do you have the cost of the new system, you need to consider the disruption an upgrade may cause to existing business operations.

In both of the above scenarios a Category 6 system should be the minimum considered but when factoring in longevity and future proofing of the infrastructure, perhaps a Category 6A system should be the focus. Not only will its performance stand up to today's usage but it will more than cope with the demands placed on the network much further down the line.

When specifying the cabling infrastructure in a project, budget will often play a large part in the decision making process. The importance of the cabling network in any business cannot be underestimated. You could invest in the best performing, premium system and be safe in the knowledge that it will tick the boxes in terms of future proofing and standing the test of time, however, if budget does not allow this then smarter decisions need to be made. Go too cheap and you could run into problems and pay for it later on.

'While a lengthy warranty offers end users peace of mind, what it doesn't account for is the fast paced developments in technology and the consumer or behavioural changes that, in turn, place increased demands on an infrastructure.'

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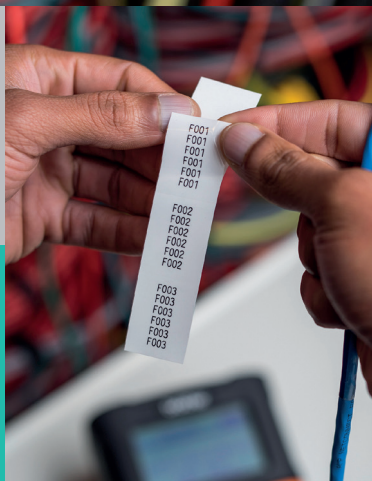

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PAUL CAVE

TECHNICAL PRE-SALES MANAGER AT EXCEL NETWORKING SOLUTIONS

I have been asked this quite often lately, due to changes in technology, revisions of standards and even the advent of the Construction Products Regulation (CPR).

I got involved with one of the first structured cabling systems to be installed in the UK in the mid to late 1980s. The building involved has been subsequently refurbished due to company reorganisations at least three times – each time including the cabling. Both this and the change of occupants have been the key factors in the lifetime of a cabling system up until the last few years, leading to a typical age of around 7-10 years in most commercial organisations. Further to this, both CENELEC and ISO standards state that a structured cabling system should have a life expectancy of at least 10 years.

I would argue that older cabling systems will be replaced at a far faster rate over the coming years. Some may dispute this and state a longer life expectancy, however, it really comes down to bandwidth requirements of the organisation. If they want to take full advantage of the technology that is coming, they must react.

Part of this faster rate of change is being made more complex with the inexorable rise in devices that can be both connected and powered by the structured cabling. This will only increase once IEEE 802.3bt – four pair power over Ethernet (PoE) – is published, leading some organisations to assess their cabling to see if it is truly fit for purpose for the technology they are looking to deploy in the near future.

In 2016, we saw 802.3bz for 2.5 and 5 Gigabit Ethernet being ratified and claims that they could be driven over legacy cabling, however, the ISO 11801 series that was published at the beginning of the year is clear in its guidelines. It states '6.3.2.2 Requirements - 6.3.2.2.2 Horizontal balanced cabling shall provide Class E or better channel performance as specified in ISO/IEC 11801-1:2017, 6.3. Class EA or better performance is recommended for support of applications with data rates exceeding one gigabit per second.'

Cabling systems that were installed as little as five years ago were not designed with any of these factors in mind.

> 'I would argue that older cabling systems are set to be replaced at a far faster rate over the coming years.'

OLI BARRINGTON
MANAGING DIRECTOR UNITED KINGDOM & IRELAND AT R&M

Within the office space, a reasonable length of time to plan for a cabling system to be in-situ is around 15 years – although recent history suggests potentially much longer.

Category 6 was first released by the TIA as a standard in 2002. Very few organisations have a communications related reason to upgrade from existing Category 6 systems, as users requiring 10Gb/s at the desktop is not something likely to happen anytime soon. System manufacturers give an indication of their expectations through the warranties they offer and, depending on the system, these can range from 15-25 years.

Within the data centre space, things are a lot more dynamic and the need for faster communications speeds is ever present. A more realistic life expectancy for a cabling system in a data centre would be five years.

This could potentially be increased with a move from multimode to singlemode optical fibre connectivity, and wavelength division multiplexing (WDM) technologies for multimode fibre such as the Cisco BiDi solution for 40Gb/s communication. However, communications speed isn't the only factor influencing life expectancy of a cabling system. As switching fabrics have evolved, the number of links required in a single rack has increased massively, which drives data centre managers to continually evaluate their connectivity architecture – and improve when necessary.

In the office space, the expectation and tendency is to install the cabling system and then forget about it for at least a decade, or probably longer, as building leases and tenancy agreements are often shorter that the planned life expectancy of a cabling system. However, the data centre is much more fluid, with constant changes in requirements of a cabling system and a greater need to use the very latest physical layer technologies. Key considerations should be headroom to meet future bandwidth needs and adaptability to increase or decrease density as and when required.

'Communications speed isn't the only factor influencing life expectancy of a cabling system. As switching fabrics have evolved, the number of links required in a single rack has increased massively, which drives data centre managers to continually evaluate their connectivity architecture.'

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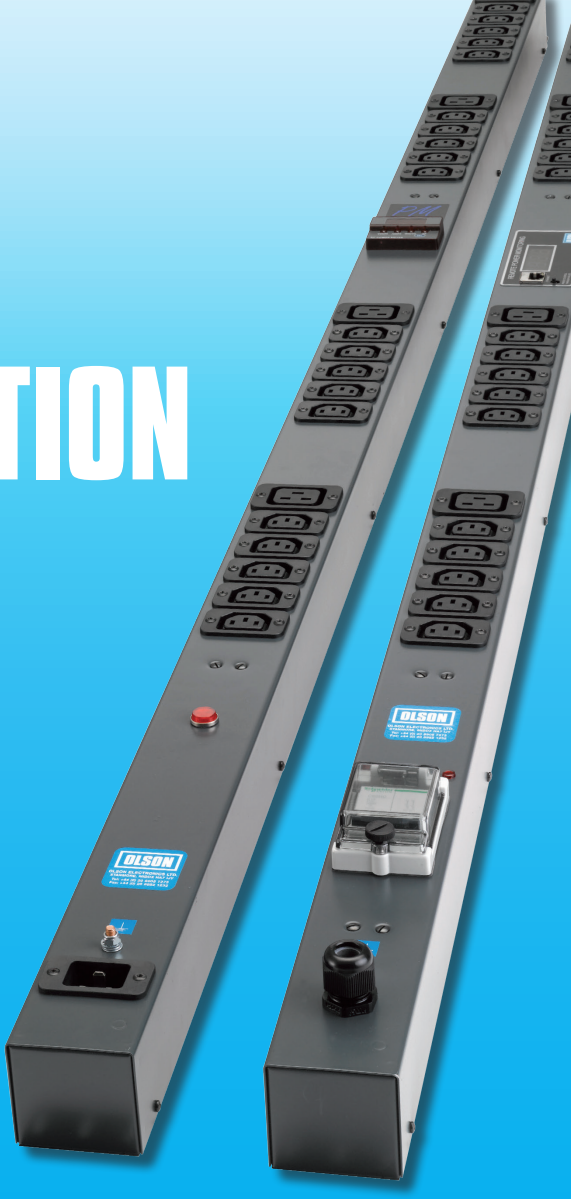

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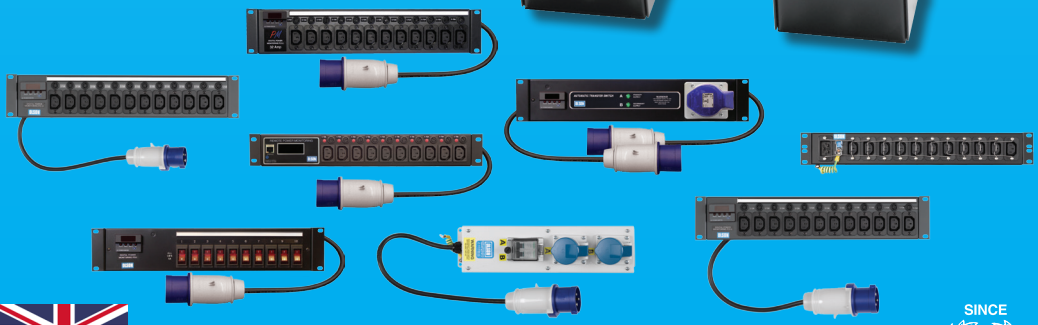

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KEITH STEWART
PRODUCT MARKETING MANAGER AT NETWORKS CENTRE

Copper cables, predominantly used in people spaces, are the part of a structured cabling system that cannot easily be swapped out. Ask any network cabling industry professional what type of structured cabling should be specified for a new people space and, leaving aside brands, you're likely to get the same answer. It will usually be to specify the highest copper and optical fibre data speed cabling that you can afford.

On average, companies move or refit people spaces every seven years and this usually aligns with a refit and renewal of a structured cabling system. Coincidentally, the industry best data speed in copper moved from 100Mb/s (Category 5e) in 1999 through 1000Mb/s (Category 6), and to 10000Mb/s (Category 6A) in 2006 – a span of just seven years. This represents a 100-fold increase in data speed. Running 10 Gigabit Ethernet, the speed/bandwidth on Category 6A is adequate for data hungry server and workstation applications for the foreseeable future. This should mean the longevity of copper connectivity is increasing, as Category 6A has been around for 12 years.

However, speed is not the only factor and the CPR has brought about improved fire resistance of cables. Unlike data speeds, which are a customer choice, this is more likely to be a mandatory requirement of the building owner, as it involves life safety considerations. In this case Euroclass Cca or B2Ca data cables will be specified and, even if simply extending an existing LAN, the cabling will need to be CPR compliant.

Another factor to consider when planning infrastructure cabling is PoE. Latest PoE++ standards deliver up to 90W using all four pairs of a data cable (IEEE802.3bt) and, whether new or existing, cabling will soon need to meet a new specification criteria – resistance unbalance. If this is significant between the pairs, it can have an adverse effect on transmission performance. This, coupled with the preference for a larger cross sectional area of copper conductor, as is found in Category 6A or Category 7A cables, may also render an existing installation as unsuitable.

> 'On average, companies move or refit people spaces every seven years and this usually aligns with a refit and renewal of a structured cabling system.'

Capturing the zeitgeist

Steven Carlini of Schneider Electric examines why the Internet of Things (IoT) makes data centre management as a service (DMaaS) a more compelling software solution

Over time, a number of different technologies have been damned with the faint praise of being called 'the technology of the future'. Often the label has been attached for so long that the realisation gradually dawns that the future is the only place in which the particular technology will ever be adopted! Meanwhile, the real world continues to use alternatives that are sufficient in terms of utility, whilst being superior in terms of cost or user simplification.

FALSE DAWN

Data centre infrastructure management (DCIM) software is an example of a technology that has been heralded by vendors and market analysts as a fast evolving tool for the efficient operation of the always on, network-centric and connected world in which we live. In reality, however, data centre operators have been cautious and slow to embrace such an all-encompassing solution for a number of valid reasons.

> 'For those looking to harness the power of the IoT, DMaaS has become the key to unlocking secure, sustainable and data operational efficiency – it is truly a technology whose time has come.'

For a start, the installation of sufficient sensors or metering points to gather data and monitor all aspects of a data centre's operation can be complex, expensive and time consuming. As such, many have been reluctant to undertake such a task for the perceived benefit that would ensue. There have also been security concerns about transmitting valuable operational data across networks including the internet in a way that guarantees confidentiality and protects against malicious intrusion.

Many established data centres already utilise software management solutions to monitor the surrounding infrastructure. These often come in the form of facilities management tools or point solutions from IT and other

vendors that have until now, provided sufficient information on systems status, maintenance schedules and load utilisation. This installed base of applications, which also includes asset management software, may have been a hindrance to the adoption of infrastructure management solutions and DCIM suites.

VISION THING

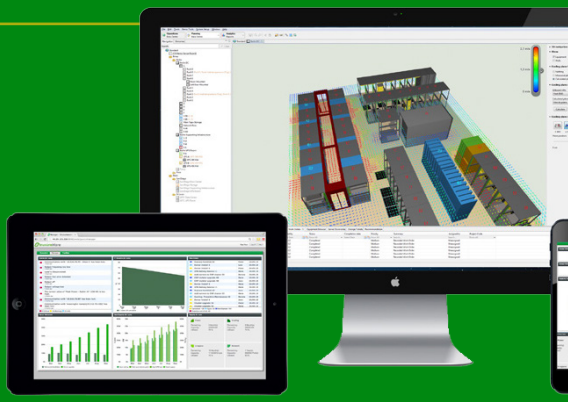
A combination of technology push in the form of more equipment being delivered with built-in network connected sensor capabilities as standard, and market demand – caused by the proliferation of the IoT, and a greater number of localised data centres at the edge – is making the deployment of cloud based data centre management systems a more cost effective necessity for the resilience and efficiency of remote and distributed IT installations, as well as regional data centres.

Cisco expects that by 2020 there will be as many as 50 billion network attached devices globally. Within the same timeframe, a further 20.8 billion IoT enabled devices will also be connected, which will help drive a threefold increase in global data centre traffic during the next five years.

The IoT is not only a phenomenon that is driving both trends and the adoption of new technology within the data centre market – it is also enabling more efficient operation as it grows.

SERVICE PROVIDER

As more sensors are built into products



including UPS, racks, switchgear and cooling systems, the task of gathering data about their status becomes easier and more cost effective. Furthermore, the growth in the availability of secure cloud based services means that the collection and anonymisation of infrastructure data points in remote monitoring centres, and the transmission of alerts and operational instructions to smartphone applications, can be achieved safely.

These developments are helping to spur the acceptance of DMaaS, which differs from existing DCIM systems in a number of ways. DCIM systems typically gather information from infrastructure equipment in a single data centre and may be deployed as an on-premise solution, although they do have the capability for management via remote web-based platforms. This capability also enables the use of third party, outsourced maintenance services.

However, DMaaS software differs, by gathering a larger volume of information from a broader range of IoT enabled equipment across several data centre locations. It uses big data analytics to enable the user to make more informed, data driven decisions that mitigate unplanned events or downtime, more quickly than traditional DCIM solutions.

STRATEGIC DIRECTION

DCIM can, of course, make operators aware of maintenance schedules, loading levels and potential problems at a single data centre level. DMaaS will aggregate status information from a number of different geographically located facilities via the cloud into 'data lakes', which can be stored for future trends analysis, helping to plan operations at a more strategic level.

For example, the aggregation of temperature related data and the effects of, say, a recent heat wave on the operation of one data centre might reveal the costs incurred through the additional cooling energy required. A service provider may consequently plan to host certain applications at another data centre less affected by warm weather during the peak summer season. In this way, cooling costs can be minimised, enabling improvements in both efficiency and savings in power consumption.

Cloud-based DMaaS systems also simplify the task of deploying new equipment and upgrading existing installations with software updates across a number of locations. Managing upgrades on a site-by-site basis with only on-premises management software is far more challenging, resource intensive and time consuming.

TAKING THE PLUNGE

A small challenge remains for the adoption of such software systems by the data centre industry. Despite the greater availability of network ready sensors built into individual products, there are few broad data standards available for reporting status data. Consequently, many pieces of equipment report similar features – including current voltage and temperature – in very different formats. Normalisation of all this data remains an onerous task for software developers but it

is essential if effective use is to be made of DMaaS systems.

The ability to monitor sensors from different vendors is key. However, only one such vendor neutral DMaaS solution exists in the market today, enabling the user to gather information from IoT-enabled data centre infrastructure products.

DIGGING DEEPER

With sensor and control technology being built into products at all levels, much deeper insight can be gained into the inner workings of a data centre. Condition based maintenance provides early warning of likely equipment failures so that repairs can be made, or replacements ordered. With lead times on critical equipment sometimes as long as six months, timely scheduling of product replacement is absolutely vital to ensure both uptime and the smooth operations.

The in-depth monitoring of cooling systems can also reveal areas were the airflow is being restrained and impacting operations. The information from servers themselves being fed into algorithms, which allow applications running on under-utilised systems to be moved to a smaller number of servers for greater efficiency.

Of course, if only a few heavily loaded systems are in use, the effects of one of them failing can be catastrophic, so the algorithms can be set to include a risk buffer, where a preset amount of system redundancy is built in to provide a trade off between reliability and system efficiency.

All of this is facilitated by analysing the historic data gathered over a long period of time, to identify trends and plot the optimal course of action.

The combination of secure cloud based services, IoT ready data centre solutions and the greater breadth of operational information for analysis are driving the adoption of DMaaS.

THE TIME IS NOW

What's more compelling, is that DMaaS is also more efficient, more cost effective, faster and simpler to deploy than traditional on-premise DCIM solutions, which continue to be utilised in many of today's data centres. For those looking to harness the power of the IoT, DMaaS has become the key to unlocking operational efficiency – it is truly a technology whose time has come. ■

STEVEN CARLINI

Steven Carlini is vice president innovation and data centre, IT Division CTO office at Schneider Electric. He is responsible developing integrated solutions and communicating the value proposition for Schneider Electric's data centre segment including enterprise and cloud data centres.

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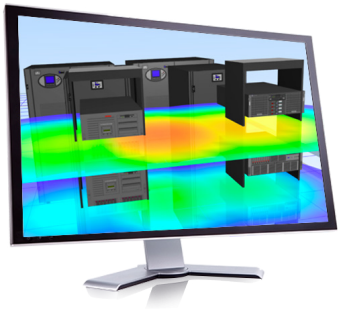
Vertiv

Vertiv has designed the Trellis platform as a DCIM solution that mirrors the way data centres actually work, rather than merely forcing change to compensate for the gaps created by managing with multiple point products.



True to the principles of DCIM, the Trellis platform provides a single solution for unified management of IT and facilities infrastructure. With powerful visualisation, the user experience gains a distinct benefit.

Designed as a modular platform, it allows the user to invest at a level that the need and then scale with their future developments, sure in the knowledge that all modules are completely interoperable.

The Trellis platform has been recognised by trusted industry sources as the very best DCIM solution. Those sources are Enterprise Management Associates (EMA), International Data Corporation (IDC), Forrester and IBM, which chose the Trellis platform as the best DCIM technology to integrate with its Tivoli suite.

For more information **CLICK HERE.**
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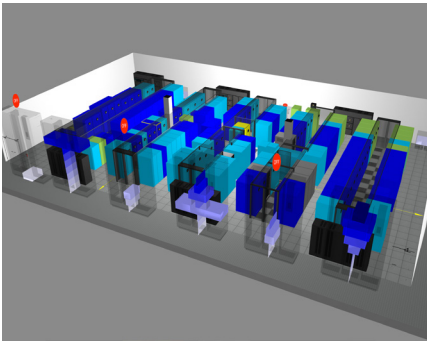
With its new EkkoSoft Critical 4.1 software as a service (SaaS) powered 3D thermal visualisation and optimisation software, EkkoSense delivers unrivalled mechanical and electrical (M&E) capacity planning and simulation capabilities.



In addition to full cooling and power capacity planning coverage, EkkoSoft Critical 4.1 features true real-time 'what if?' simulation support. It's the first time a single SaaS solution has combined advanced simulation, full M&E capacity planning, power monitoring and thermal optimisation capabilities – all at a fraction of the cost of traditional complex DCIM suite solutions.

With EkkoSoft Critical 4.1, data centre managers can now benefit from real time visibility of their critical heartbeat operational data, while advanced 3D simulation capabilities offer the ability to experiment safely with their rack, power and cooling layouts – confident that EkkoSense's real time optimisation software will deliver optimal M&E configurations.

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Nexans

The Nexans LANsense automated infrastructure management (AIM) system is intended to be used in conjunction with other data centre management tools to provide information on the physical and network layer connections – offering a complete traceable path between core, edge and end devices.

Whilst initial documentation of the installed and tested infrastructure may be correct at handover, keeping it up to date is a critical task. This must be managed to ensure that it remains reliable in order to plan future growth and manage availability and security. LANsense automatically updates records of physical connections in real time to ensure documentation is 100 per cent accurate, so that:

- Redundancy can be maintained by ensuring back-up connections are not accidently disconnected
- The physical location of faults can be identified, improving recovery times
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LANsense is a combined hardware and software solution, which can be integrated into existing software tools.

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Sensorium DCIM, available from EDP Europe, is a flexible and modular DCIM platform that uses 64bit .NET architecture to deliver unrivalled performance and expandability.

As well as providing centralised management of assets, Sensorium is built around a real time monitoring system that enables it to handle the critical data from power distribution units (PDUs), rack security systems, temperature sensors etc. in such a way that alarms are instantly reported.

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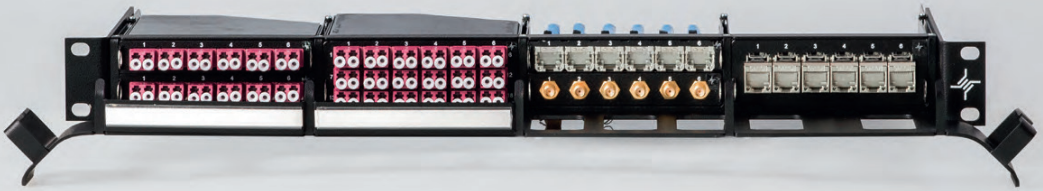

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Keeping it real

Mark Gaydos of Nlyte Software explains why combining artificial intelligence (AI) with a data centre infrastructure management (DCIM) solution will reduce reliance on human intervention and help decrease the risk of human error

We've all heard of infamous data led security services such as MI6 and MI5, working around the clock to keep the world safe. However, there's a new addition to this group of acronyms operating even more discretely but with just as big an impact in keeping not only us safe but keeping our data secure and efficient – AI.

UNDER ATTACK

Data centre and colocation providers across the globe have become essential to every facet of leisure and business. No matter whether it is an individual looking to stream a movie or a businessman receiving personnel data from a corporate server, it is highly likely a data centre or colocation provider has been at the heart of it. However, for all of this to still remain possible, data centre and colocation providers face a constant battle against bad actors.

These actors come in many forms, from poor efficiency and inadequate cooling to poor asset management and cyber security threats, and all can have a detrimental effect on the running of a facility. However, AI powering DCIM is combating these threats, external and internal, to act sooner, prevent lasting damage and take the fight back.

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HELPING HAND

The complexity of a data centre, combined with increasingly sophisticated and damaging attacks from cyber criminals, is making it near impossible for facilities managers to recognise suspicious

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ven the smallest vulnerabilities.'

behaviour on their own. According to Cybersecurity Ventures, the damage from attacks on industrial, business and financial organisations around the world could accumulate to $6tn (£4.7tn) by 2021.

Fortunately for us, we now have AI to wade through the increasing levels of data and encryption to help prevent data breaches. The technology is constantly monitoring every part of the network by sending bots to scour every remaining inch of the infrastructure. This gives managers the means of dealing with the growing influx of data while learning and adapting to overcome new, never-seen-before malware, as well as recognising suspicious user behaviours and detecting anomalous network traffic. It can also collect and analyse forensic data, scan code and infrastructure for vulnerabilities, potential weaknesses and configuration errors.

Not only that but implementing AI solutions with DCIM can reduce reliance on human intervention by reducing the hours spent on round the clock monitoring and decreasing the risk of human error in response.

ON TARGET

Not only is it important to keep data safe, it is also imperative to understand where data is, how it is held and where storage improvements can be made. To do so, data centre and colocation providers must have a single view into the facility and the data they are holding. Such a granular level of visibility requires DCIM.

A DCIM solution will address data centre analytics by collecting, normalising and creating patterns of facilities and IT data and streaming it to a control centre. The solution then uses its machine learning capabilities to extract predictive models to send the analysis back to a visual dashboard to display the potential vulnerabilities, such as future hot server rows or under utilised racks.

- Collecting – capturing data from all distributed silos such as servers; sensors; heating, ventilation and air conditioning (HVAC); building monitoring software; power distribution units (PDUs); processors and many other points.

- Analysing – advanced content analytics enables facilities managers to understand not just what happened, but also how and why.

- Actioning – refining data into a visual state so team members may quickly comprehend current conditions, as well as increased operational efficiencies and cost savings.

By implementing these three steps facilities managers can proactively identify potential future issues and pre-emptively move server workloads. The net result is greater control of the infrastructure with more resiliency and increased reliability.

EFFICIENCY DRIVE

DCIM not only allows facilities managers to target the data they hold, it can also help mine additional environmental data. This is the exact reason why many data centre and colocation providers are turning to DCIM powered by AI for the everyday running of their facilities.

The technology can improve efficiency by using algorithms that collect data from thousands of sensors all around the network and, in turn, feed into an AI system that is modelled on neurons found in the human brain. The AI system then analyses the broad range of indicators, from energy consumption levels to safety

constraints, in order to identify the best course of action.

This makes the process more unified, as AI is creating a cohesive platform for the infrastructure strategy by incorporating the processes, tools and workforce – focusing on end-to-end solutions allowing initiatives to work together by design to reduce duplicate effort. For example, by recording airflow, the system can identify if any of the air filters are clogged then notify the team, and in turn push the air through less clogged filters until they are changed. Once changed, the system resumes service as usual.

LOOK AHEAD

The next step in the future of AI and DCIM in the data centre will come in the form of a self-healing infrastructure. As mentioned previously, AI uses machine learning and algorithms to learn from its many inputs, evolving and making itself better with each new input. This means the more it is used, the more it will grow.

This use could take many shapes and forms such as software that can write or rewrite itself to prevent, amend or stop any breaches or faults without human interference. The future is exciting, but what about now?

THE TIME IS NOW

Now is an exciting time for the data centre and colocation market. Facilities managers can rely on AI and DCIM to help build greater resilience, increased reliability and stronger security. As AI continues to learn and we continue to use it, the more we can extract meaningful data with DCIM at its core to nullify even the smallest vulnerabilities. ■

MARK GAYDOS
Mark Gaydos is chief marketing officer for Nlyte Software. He is responsible for leading the marketing and sales development teams to drive revenue growth.

Mist – AI is in the

Available from Mayflex, Mist is the modern wireless network powered by the cloud

Traditional wireless WLAN platforms are over 15 years old and leverage monolithic code bases that are expensive to scale, prone to bugs, and difficult to manage. They are not equipped for the scale and complexity of today's mobile users, and do not provide the reliability needed for business critical operations.

Why it matters

Wi-Fi is finally predictable and reliable, with visibility into the user experience. Plus, automated Wi-Fi operations with self-healing saves IT time and money – up to 40 per cent in operational expenditure.

In addition, you can finally deliver new indoor location services with ease and scale – like wayfinding, proximity messaging, analytics, and asset location. This brings new value to businesses by way of better employee/customer/guest engagement and better resource optimisation.

This is all now available with the Mist Learning WLAN – available exclusively in the UK from Mayflex.

With its modern microservices based cloud architecture, Mist delivers unprecedented scale and agility, and offers ground breaking subscription services for Wi-Fi assurance, artificial intelligence (AI) driven assistance, user engagement, and asset visibility. Mist has an inline AI engine for unprecedented insight and automation and enterprise grade access points combine Wi-Fi, Bluetooth Low Energy (BLE) and the Internet of Things (IoT) for amazing wireless experiences in a cost effective manner.

AI

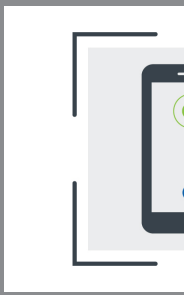
Mist built an AI engine into the Mist platform that eliminates the need for overlay sensors, data collector hardware, and extra software – bringing much needed automation and insights to IT.

Proactive IT automation

- Configure new sites in minutes with no human errors
- Correlate user events and dynamically capture packets for fast troubleshooting
- Create automated workflows for rapid troubleshooting and notifications
- Automatically self-correct and/or optimise the WLAN in real time

Insight

- Unprecedented visibility into the user experience
- Set, monitor and enforce wireless service levels
- No more hunting and picking



e air

through dashboards
- Predict problems before they occur
- Understand location patterns and user behaviour for actionable business insight

Mist Cloud

Mist looked at how big data and AI companies correlate data with performance and scale and harnessed the same principles in the Mist Cloud.

Services scale up or down elastically when they're needed without requiring expensive hardware. The failure of one service does not impact others, with 100 per cent API programmability. Services are designed independently of one another using optimised technology stacks chosen specifically for that service.

Adding or removing features is simple, and bugs are fixed in near real time without network disruption.

Microservices

Mist splits core functions into microservices, which are developed and managed independently of one another.

Subscription services

Mist enables wireless to be deployed and operated as a service from the Mist Cloud. Subscriptions are purchased on an annual basis and can be easily mixed and matched.

Access points

Mist converges Wi-Fi and BLE and IoT in enterprise grade access points that deliver unique benefits.

Mist Learning WLAN from Mayflex

Mist Learning WLAN is exclusively distributed in the UK by Mayflex. Mayflex is a distributor of converged IP solutions, with headquarters in Birmingham.

When dealing with Mayflex installers can be assured of the following:

- Free next day delivery service on all products to the UK mainland as standard
- Large stock availability – 98 per cent of orders fulfilled from stock
- Online Track and Trace programmes, giving you a quick and easy way of checking on the progress of your delivery
- Knowledge and expertise with a dedicated team of sales and technical professionals
- An accredited training academy with fully qualified instructors

Are you interested in becoming a Mist Partner in the UK? Register your interest with the Mayflex team and find out when the next training sessions are taking place by **CLICKING HERE** to send an email.

CLICK HERE to register for a Mist Wireless Wednesday Webinar.

www.mayflex.com

R&M opens production facility in India

R&M has inaugurated its state-of-the-art production hub in Bangalore. This manufacturing facility is built under the Make in India initiative, a step towards the government's vision to create sustainable competitiveness and prosperity. The new facility is dedicated to production, warehousing and the production of fibre optic solutions.

Michel Riva, CEO at R&M, said, 'Since we have established our operations in India, we have made significant investments. Opening the production facility is another milestone in deepening our commitment to India. Today's announcement reaffirms R&M's long-term commitment to India, a strategic location for digitisation, innovation and technology. The new building will support our organisation in continuing our growth strategy in India as well as in the whole APAC region. The new plant in Bangalore will also play a cornerstone within our international production network to increase the overall flexibility and competiveness of R&M worldwide.'

Mayflex appoints John May as new account manager

Mayflex has appointed a new account manager to manage and develop accounts in the south east of England, with a specific focus on the security product portfolio as part of the converged solution. John May comes to Mayflex from a security distribution background, so is familiar with the business model used by Mayflex to reach the market and its customer base.


John May

May's career background is largely security based and has encompassed a variety of responsibilities including business development, field sales and account management, all of which have equipped him with an excellent foundation for the role he has undertaken with Mayflex.

May commented, 'I am looking forward to meeting with my customers, helping them with their individual project requirements and supporting them with expertise and advice. I want to make Mayflex the go to distributor when opportunities arise for security projects and installations.'

Networks Centre completes move to new headquarters

Networks Centre has moved into its new headquarters in Ashington, West Sussex, which follows the migration of the company's warehouse and completes the company move.

Networks Centre's managing director, Duncan Lindsay, said, 'Networks Centre had been at its previous address for over 13 years, so this marks an important milestone in the company's development. Our continued success had been taxing us because, as we grew organically, having our warehouse spread across seven industrial units increasingly restricted workflow efficiency. The new facility consolidates everything. It has been fully equipped with a dedicated training centre and conference suite and increases our warehouse floorspace by over 25 per cent. The move also affirms Networks Centre's position in the top tier of UK network infrastructure distributors.'

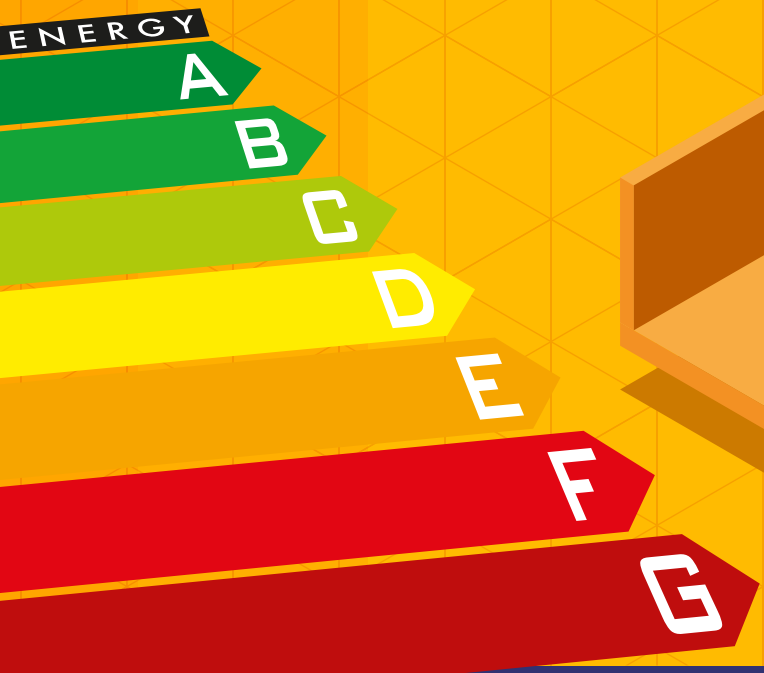
CHANNEL UPDATE IN BRIEF

Bluepoint Technologies has achieved SafeContractor accreditation, demonstrating that it takes its health and safety responsibilities seriously, that all paperwork is up to date and meets legal industry requirements, and that the company always works to recognised health and safety standards.

Equinix has appointed Charles Meyers to the position of president and chief executive officer (CEO). Meyers succeeds Peter Van Camp, who has served as interim CEO since January 2018 and will resume his role as executive chairman.

Tata Consultancy Services (TCS) has joined the InfinityQS channel partner program to form a new strategic alliance.

Jane Ashworth has joined Lenovo as director of channel and SMB. With over 20 years' experience, she has held senior positions at a variety of major blue-chip organisations including HP, Sony and more recently, running the education technology organisation, SMART Technology.



How low can you go?

John Laban of the Open Compute Project (OCP) examines energy use in European data centres and how an open networking approach can help lower usage and save money

It's no secret that European data centres are growing rapidly. At the same time they – just like data centres in other regions – consume lots of energy. According to the European Commission, by 2020 data centres in Europe will use 259TWh of electricity, which represents 1.7 per cent of the world's total energy consumption. Rising energy prices are starting to impact their business model though, which is why an increasing number of data centres are relying on new designs and new technologies from the likes of OCP to help them drive down their energy usage and costs.

SPOT CHECK

Many European policymakers have identified data centres as one of the fastest rising sectors when it comes to energy consumption. The price of energy in Europe is on the rise, which, according to the British Computer Society's Data Centre Specialist Group, has impacted

'According to the European Commission, by 2020 data centres in Europe will use 259TWh of electricity, which represents 1.7 per cent of the world's total energy consumption.'

data centre business models for many. As a result, energy security and availability are becoming issues for data centres in Europe.

The European Union's Ecodesign Directive (Directive 2009/125/EC) establishes design requirements for servers and online data storage products that will be placed on the market. The regulations declare that, beginning on 1st January 2019, internal power supply unit (PSU) efficiency at 20 per cent, 50 per cent, and 100 per cent rated load level and power factor at 50 per cent rated load level must meet specific efficiency and power factor requirements. Four years later, on 1st January 2023, the efficiency and power factor requirements will increase again. On 1st January 2026, they increase once more. By 2030, these design requirements are estimated to result in annual energy savings of approximately 9TWh.

GET WITH THE PROGRAM

Europe also has its own voluntary energy efficiency program – the EU Code of Conduct for Data Centres. Created as a resource for owners who are facing ever-increasing energy costs, it provides energy efficiency best practices, minimum procurement standards and a means for reporting annual energy consumption.

In addition, standards like EN 50600-4 and ISO/IEC 30134-2:2016 provide key performance indicators for data centre Power Usage Effectiveness (PUE) levels that European data centres can follow. The EU has also sponsored quite a few research programs to develop new technologies and methodologies to lower the energy usage of data centres.

TARGET PRACTICE

When it comes to guidelines for general energy usage in Europe, the EU's 2020 climate and energy package is a set of binding legislation that will help Europe meet its climate and energy targets. As part of this package, the EU has set a target for all new buildings to be nearly

zero energy by 2020.

Key EU climate and energy objectives for 2020 include:

- 20 per cent cut in greenhouse gas emissions from 1990 levels
- 20 per cent of EU energy coming from renewables
- 20 per cent energy efficiency improvement overall

This legislation is what will ultimately force managers to make changes to the way they operate their data centres, and compel them to look for other options – such as adoption of OCP initiatives – so they can meet these requirements.

TAKE THE CHALLENGE

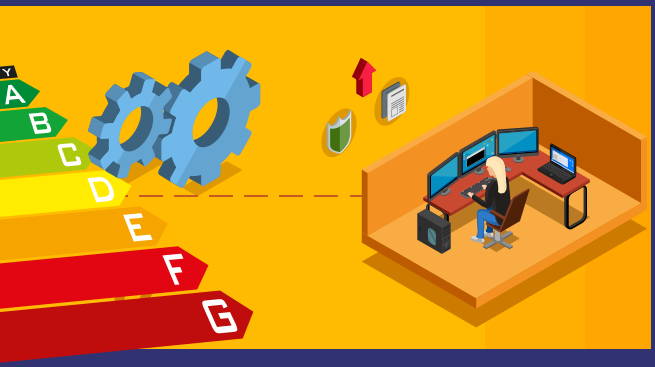
While the environmental impact associated with more efficient, more sustainable data centres is understood, it ultimately comes down to costs. Interestingly, the Green Grid has found that data centre owners/managers don't want to commit capital funds to energy reduction tactics if the full return on investment isn't realised in less than two years.

The European data centre sector PUE average is 1.70, while the US average is 1.80. Google, however, has set a benchmark for the energy efficiency potential of European data centres. The company's data centres have been able to reduce PUE to an average of 1.12. According to a February 2018 report by Copenhagen Economics, if other European data centres could achieve this same level of energy efficiency, total data centre energy consumption would decrease from 76TWh to 50TWh.

It's also predicted that significant energy savings could be made if more organisations in Europe utilised cloud computing. Only 31 per cent of spending on cloud computing is currently done in Europe, while six per cent of spending on the adoption of infrastructure as a service is done in Europe. For now, owning and operating enterprise data centres seems to be the preferred option though, especially for economic heavyweights such as Germany. It's also important to note that data generated in Germany must, by law, be stored and processed in Germany.

LOOK AHEAD

Some European data centres are making interesting and impressive strides to reduce energy usage. For example, 4D Data Centres credits its 1.14 PUE to the use of evaporative cooling. An ITB2 data centre also uses evaporative cooling to significantly reduce energy consumption. Telehouse Europe claims to have one of the world's greenest data centres thanks to the same cooling technique.



Because data centre energy consumption is expected to continue to increase in Europe, there are many technology trends that may impact future energy efficiency initiatives, such as:

- Salt and antifreeze systems as power options

- Lithium-ion batteries and fuel cells
- Free cooling to take advantage of cold outside air
- A more serious pursuit of renewable energy – generated on-site or purchased from an outside source
- Using artificial intelligence for data centre management

OPPORTUNITY KNOCKS

Because the European data centre market is set to grow significantly, there's an opportunity for data centre owners to try new ways to cut energy usage and costs. This environment also supports the adoption of OCP initiatives. By questioning the way things have been done in the past data centre owners can benefit from designs created by the OCP community, which make it possible to independently choose compute, storage and networking hardware and software based on specific needs.

By re-examining hardware, and keeping in mind how it impacts other data centre infrastructure, OCP has reduced excess hardware materials. OCP designs also create more airflow to improve cooling efficiency, reduce unneeded power redundancy and power loss, and support more power density per rack.

ON REPORT

In its 2017 report Traditional vs. Open Compute Monitoring Fabrics: A Cost Analysis, IHS Markit indicates that data centres experience significant savings when implementing an open networking approach like OCP. A cost comparison of three different network monitoring fabrics – traditional, standard, and OCP approaches – shows that an open networking approach can save tens of thousands of dollars (or more). ■

JOHN LABAN

John Laban is European representative for the OCP Foundation. He began his career at the London Stock Exchange as a BT technician and, in the early 1980s, formed one of the UK's first structured cabling businesses and later returned to BT to design its first corporate LAN infrastructure. After leaving BT, Laban set up a design consultancy business and worked on some of the largest national and international projects.

Laban was the first BICSI RCDD in the UK and became a BICSI master instructor. He also became the first UK member of The Society of American Value Engineers, practicing systematic value engineering methods on ITS to eliminate waste and maximise value for his clients. He describes himself as 'a practicing engineer that teaches – not a teacher that teaches engineering'.

Mayflex

Available from Mayflex, the ECS2100 Series from Edgecore Networks is a range of web-smart switches designed for the small to medium sized enterprise (SME) market. The switches can be deployed in different target network topologies, from small to large. Besides powerful software features, the switches provide a complete solution from 1Gb/s to 10Gb/s, including both non-PoE and PoE options.

The ECS2100-28P is a Web Smart Pro Switch, which supports 24xGE PoE+ ports and four dedicated GE SFP ports. The PoE Budget offers a maximum of 192W and provides up to 30W of power to attached devices such as VoIP phones, wireless access points, and surveillance cameras, all over existing Ethernet cables.

As well as IPv4 and IPv6 features, the ECS2100-28P supports L3 static routing. It also includes green energy saving technologies, IEEE 802.3az and Green Ethernet. Using the Energy Efficient Ethernet standard, the switch automatically decreases power usage when network traffic is low.

For further details **CLICK HERE.**
www.mayflex.com

Uninterruptible Power Supplies (UPSL)

UPSL's PowerWAVE 9250DPA boasts the lowest cost of ownership in its class, delivering module and system efficiency above 97 per cent and significantly reducing typical power losses when compared with similar products currently available. The new UPS also supports Xtra VFI, further minimising power consumption.

The PowerWAVE 9250DPA supports lithium-ion battery technology and the associated energy storage benefits of longer life, lower cooling costs, faster charge/discharge and smaller space and weight requirement. It connects with UPSL's unique hardware and battery monitoring software to continuously safeguard an operation from any location.

Use of the decentralised paralleled architecture (DPA) technology with hot-swappable modules means that they can be removed and replaced in minutes, minimising downtime. With a physical footprint of just 0.73m^2, it offers one of the industry's highest power densities (342 kW/m^2), delivering scalable power from 50kW to 250kW (N+1) in a single frame, and up to 1.5MW when five units are connected in parallel.

To find out more **CLICK HERE.**
www.upspower.co.uk

HellermannTyton

At HellermannTyton we work hard to be a greener company. In addition to achieving ISO 14001 accreditation for environmental management, we continually assess our performance as a business and the impact our activities have on the environment.

Since we began evaluating, measuring and seeking to reduce our environmental footprint, we have reduced our energy and solvent usage and, through working with our supply base and internal initiatives, greatly increased our recycling activities – thereby reducing the amount of waste sent to landfill.

The HellermannTyton RapidNet solution carries it's very own environmental credentials as a pre-terminated system. At the factory, each cable is pre-terminated and cut to its specified length, minimising bulk cable waste.

On-site, RapidNet is ready to be installed and can be supplied on re-usable plastic drums, resulting in minimal packaging waste.

Our products are manufactured in the UK and therefore we have shorter logistics paths, resulting in a reduced carbon footprint and less environmental impact.

For more information **CLICK HERE.**
www.htdata.co.uk

Siemon

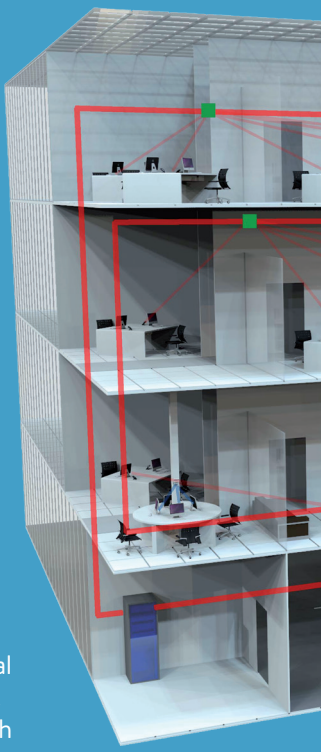
Siemon's cabinet solutions and accessories are now available in white and light grey, improving visibility and delivering a clean, modern look for today's data centres and telecommunications spaces. Cabinet accessories are also available in white and light grey to ensure a seamless look throughout the cabinets.

Lighter coloured cabinets reflect up to 75 per cent more light than black cabinets for overall improved visibility, making critical network connections and equipment easier to see in dim lighting conditions.

With improved visibility, lighting energy within these networking spaces may be reduced for potential operational cost savings. Lighter coloured cabinets are also less prone to visible scratches, and they blend well into surrounding décor.

For more information **CLICK HERE.**
www.siemon.co.uk

Box office smash



A study published by the European Commission* stated that the information and communication technology (ICT) sector generates up to two per cent of all global CO2 emissions. Guillaume Angeli at Nexans explains why fibre to the office (FTTO) offers a sustainable alternative to conventional network infrastructures

New applications are placing higher requirements on availability and redundancy, so IT departments constantly need to optimise data networks, whilst keeping the number of components in the network low to ensure energy costs are minimised. In the light of these trends, there is an urgent need to limit energy consumption growth in networks. One approach to realising this is through implementing a FTTO solution, which offers strong, enduring sustainability benefits.

LIGHT WORK

FTTO is a fibre based LAN cabling concept, where optical fibre is laid up from the central switch to a connection point in the office or workplace. Here, a dedicated Ethernet switch ensures intelligent media conversion from copper to fibre.

Each FTTO switch is connected to the central distribution switch with one or two SFP uplinks. Each of (usually) four ports has Gigabit Ethernet capability. Besides lower energy usage and support for features that enhance sustainability performance, FTTO offers levels of efficiency identical to, or even surpassing, those of traditional designs such as a gigabit passive optical networks (GPON). It offers high bandwidth reserves and advanced redundancies.

Centralising active network components may greatly simplify rollout, management and service of networks, significantly reducing IT infrastructure costs. In addition, intelligent features help increase the security of the network and minimise service costs. With FTTO, energy bills may be up to 70 per cent lower, total cost of ownership (TCO) is reduced by 40 per cent and installation time is reduced by 60 per cent.

LESS IS MORE

Compared to traditional solutions, FTTO requires less active and passive equipment, offering a simpler, more flexible cabling structure with no need for floor distributors. It combines the benefits of copper and fibre and delivers maximum flexibility and performance with minimum

energy waste, thus significantly improving energy efficiency and lowering cost. Cabling can also be reduced by up to three quarters of the volume required in a traditional rollout.

In a typical project with 1,000 user ports, floor distribution switches consume 3.79kWh when all ports are active. Another 4.09kWh is required for cooling, resulting in a total power consumption of 7.88kWh for distribution network per hour (69,039kWh per year). This figure should be multiplied by the number of operational hours per year.

FTTO network designs require no floor distribution switches and no cooling, so no power is required. That means a minimum of 51,942kWh per year may be saved! In a traditional network design project with 1,000 user ports cooling efficiency amounts to just 54 per cent – more energy is spent on cooling than actual data transport! In a traditional copper network, distribution rooms housing active floor

'With FTTO, energy bills may be up to 70 per cent lower, TCO is reduced by 40 per cent and installation time is reduced by 60 per cent.'

switches require energy to power and cool active equipment. Floor distribution switches usually consume a great deal of power and generate a great deal of heat. FTTO switches, however, consume a mere 1.7-2W per user port.

POWER OF GOOD

The power over Ethernet (PoE) protocol allows electrical power to be sent over Ethernet cabling along with data. A single standard RJ-45 twisted pair patch cord provides data connections as well as electrical power to a variety of electronic devices. Power may be carried along the same channel as the data, or it may be carried on dedicated channels in the same cable. No extra power sockets are required, as power and data can be transferred over the same network cable. Power is injected locally and only needs to run over 2-3m of patch cable rather than 90m, which means lower losses.

FTTO provides an ideal infrastructure for PoE/PoE+. Fibre connection is realised up to the workstation and only the last 2-5m to the end user device is covered by copper. As a result, up to 80 per cent less signal losses may be realised. The lower and more scalable number of ports on an FTTO switch makes it possible to provide all ports of an FTTO switch with PoE /PoE+ through an external power supply unit (PSU).

A network based on FTTO switches also supports Energy Efficient Ethernet (EEE).

This standard is based on the idea that a communication link should only consume power when data is being sent or received. Since the 1990s, most wireline protocols have used continuous transmission – consuming power when no data is sent. EEE signalling protocol – a modification of the normal 'idle' transmitted between data packets – allows a transmitter to point out gaps in the data, allowing the link to go into the 'idle' mode and resume when data reappears, following a predefined delay. Research shows power savings of up to 45-80 per cent, depending on the hardware used, while reduced heat dissipation also extends switch life.

ENERGY SAVER

With fibre, less energy is required to transport data over an optical channel – this means less heat is generated and less cooling is required. Furthermore, fibre may halve energy requirements through reduced signal losses. FTTO switches consume very little power, typically 0.5-1W per port for data transfer. The total power consumption (TPC) per active FTTO port is 2.8W, nearly half of the total power consumption per port by traditional network design with floor distribution switches. FTTO network designs can reduce power consumption by as much as 70 per cent.

Less energy usage means lower CO2 emissions and, therefore, increased sustainability. Let's take a look at kWh usage in relation to tons of CO2 produced. In traditional network designs – for example, with 1,000 ports – power consumption would total some 82,322kWh per year, which equals 49-57 metric tons of CO2. FTTO, however, can reduce this to 30,380kWh per year, which is 18-21 metric tons of CO2 or even lower**.

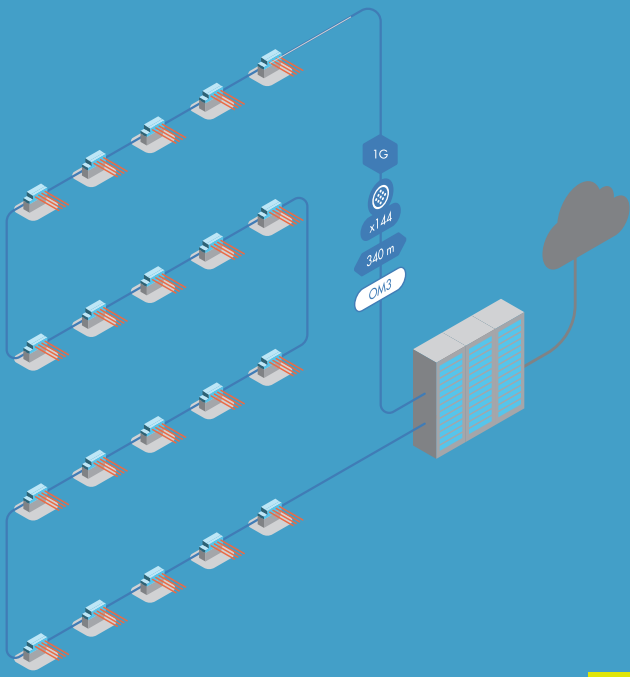
FTTO infrastructures may support several generations of active equipment. Both capital and operational expenditure can be entirely optimised based on new project requirements or network designs, while fibre optic networks easily accommodate increasingly higher data rates.

PORT OF CALL

FTTO is particularly suitable for environments with a high number of ports

in large buildings or across multiple buildings such airports, hospitals, educational facilities and the public sector.

FTTO technology not only supports the standard point-to-point topologies but also the cascading of systems, and these topologies can be realised with a wide variety of optical fibre cables. Design can be flexibly based on project requirements – redundancy can be designed in at the access level in a cost effective way by linking each network path. This would introduce a significant financial burden in a traditional LAN design.



SOLUTION PROVIDER

FTTO combines the benefits of both copper and fibre and provides a future proof solution with high bandwidths and minimum energy waste. It can provide significant cost benefits in specific situations, especially where large areas need to be covered or building requirements impose specific restrictions. With no energy hungry floor distributors and technical service rooms and support for energy saving features, FTTO could be considered the most sustainable solution in terms of CO2 footprint, waste and energy consumption. ■

* Trends in Data Centre Energy Consumption under the European Code of Conduct for Data Centre Energy Efficiency, European Commission, Joint Research Centre (JRC), Directorate C-Energy, Transport and Climate

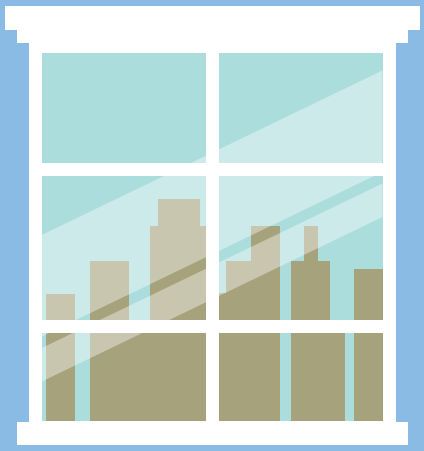
** CO2 output is different in each country, based on a national energy mix value.

GUILLAUME ANGELI

Guillaume Angeli is head of international sales at Nexans and has some 20 years of experience in the IT and telecoms industries. He has built up considerable expertise in the areas of FTTO solutions, as well as fibre networks for harsh environments.

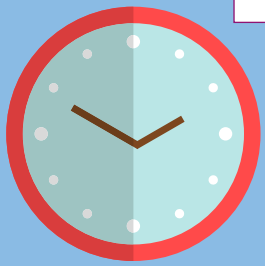
Quick clicks

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

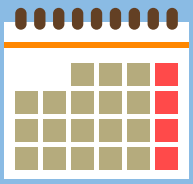


Austin Hughes has produced a new video that looks at rack access control. **CLICK HERE** to see it.

The Science Pushing Fiber Standards is a white paper from **Panduit.** **CLICK HERE** to read it.

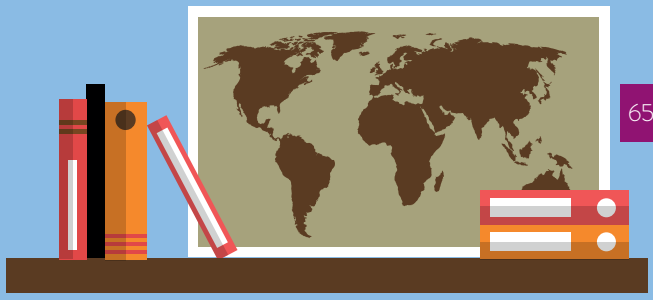


Schneider Electric's The Different Types of Cooling Compressors white paper examines differences between the many types of compressors and outlines the inner functions of five most common types. **CLICK HERE** to download a copy.



Ivanti has announced findings from a new survey carried out with **IDG Connect** entitled The CIO's Conundrum: Can IT Move from 'Keep the Lights On' to Creative Thinking?
CLICK HERE to download a copy.

CBRE's Data Center Trends H1 2018 report is a full analysis of market fundamentals and trends to watch in the US data centre market. **CLICK HERE** to obtain a copy.



What Are The Common Causes Of Data Centre Failure? How Do We Minimise It? is the title of a blog from **Infiniti.** **CLICK HERE** to read it.

Belden/Hirschmann has produced a new ebook addressing time-sensitive networking (TSN) and its role in industrial networks in the transition to Industry 4.0.
Time-sensitive Networking for Dummies can be downloaded by **CLICKING HERE.**

Exponential-e installs 10 Gigabit Ethernet service into The Ritz

Exponential-e has completed the successful installation of a 10 Gigabit Ethernet optical fibre circuit into The Ritz in London, one of the world's most prestigious hotels. The implementation positions The Ritz as the only hotel in the UK to be able to offer guests and staff the resilience and speed of a 10Gb/s service delivered over Exponential-e's 10GigE service.

The Ritz strives to be visionary and is constantly evolving in order to deliver the very best experience to its clients. As guests staying at the hotel seek to access more bandwidth hungry services and events incorporate technologies that require additional computing power, staff increasingly need access to real time data to enhance the luxury experience the brand is known for.

The network has been delivered through one connection, subsequently split by an Ethernet demarcation device and delivered through two separate SFP fibre ports. This has meant that both the corporate network and the guest connectivity are delivered from the same provider, but split into two different flexible bandwidths. At the same time, the hotel's network outlay has been greatly reduced by taking on the one, large-scale offering.

MainOne and Minkels announce expansion of MDXi

MainOne constructed West Africa's largest Tier III+ data centre for its data centre business, MDXi, in 2015. Just recently, MainOne and Minkels announced the second phase of the project.

MainOne has announced plans to expand MDXi into new territories across West Africa with a target to build new facilities in three new locations including Sagamu, Nigeria; Accra, Ghana; and Abidjan, Cote D'Ivoire, in addition to an ongoing expansion of its Lekki Data Centre in Lagos, Nigeria. Over the next 10 years, the company plans to build new data centres in each location and invest in infrastructure projects as part of a push to ramp up technology penetration in the region.

MDXi just received its Tier III Constructed Facility certification (TCCF) from the Uptime Institute in addition to the PCI-DSS certification, which certifies the data centre to process payment card information; the SAP Infrastructure Services license, which certifies the data centre as ideal for running SAP applications and infrastructure; and ISO 27001 and ISO 9001 certifications.

Stulz and Transtherm keep their cool on NGD expansion

When Next Generation Data (NGD) began the 100,000ft², ground floor expansion of its high security data centre in Newport, Wales, it relied on trusted supply chain partners Stulz UK and Transtherm Cooling Industries to deliver a substantial package of temperature management and plant cooling technology.

NGD specified 114 data centre specific GE Hybrid Cooling Systems from Stulz, plus a combination of 26 high performance horizontal and VEE air blast coolers and pump sets from Transtherm, to manage the inside air temperature of the new campus expansion.

As long-term suppliers to NGD, both Stulz and Transtherm understood the importance of just-in-time deliveries so that the new air conditioning system did not impact the build speed on site. Stulz devised suitable production alternations, which enabled it to successfully deliver their equipment within NGD's rapid build programme.

Equinix to open eighth Paris data centre in 2019

Equinix will open the company's eighth data centre – PA8 – in Paris in Q1 2019. Dedicated to the evolving needs of the company's largest cloud customers, PA8 will see an investment of $73m and provide enterprises with greater access to top providers. Equinix will also extend its relationships with strategic partners, as well as its leadership in the overall cloud ecosystem.

Paris continues to be a top market destination for global businesses that are undergoing IT transformation, which is largely driven by cloud adoption. To meet these needs, Equinix aims to provide enterprises in Paris with fast and highly secure private connectivity on a global scale.

The PA8 International Business Exchange (IBX) data centre will include approximately 850 cabinets in the first phase of build out. Today, more than 800 companies colocate in Equinix data centres in France to connect to business partners and customers across their digital supply chains.

Schneider Electric delivers data centre power upgrade to the University of Stirling

The University of Stirling has recently consolidated three data centres to two by outsourcing some applications to the cloud. Whilst this has increased resource utilisation within the two remaining data centres, planned development of the IT strategy means that rack space is now at a premium to accommodate new services, platforms and equipment. The university currently hosts around 590 servers, which are 84 per cent virtualised.

The availability of IT services is mission critical, as any outage would leave the university's 14,000 students and 2,000 staff unable to do their work. There are reputational issues at stake too – IT services must also be available to not only attract and support an international community of students located around the globe.

Following an evaluation of the power protection infrastructure, the project team decided to upgrade the uninterruptible power supply (UPS) system. Over the four phases of the upgrade a total of 44 Schneider Electric APC Smart-UPS Online UPSs were installed in the university's two data centres. This included a mix of 4.5kVA units to protect communications equipment and 6kVA UPS to protect servers and storage devices.

PROJECTS & CONTRACTS IN BRIEF

Nexans has reached a major milestone with the successful completion of a 6,000 km link across the South Atlantic Ocean based on its second generation repeatered submarine fibre optic cables. The new link will help meet the growing demand for high speed broadband in Africa and South America.

IBP Group, which trades as Conex Bänninger, has selected Comms365 to upgrade its European WAN. Comms365's SD-WAN technology service platform was used to meet the primary goals of increasing network capacity and reliability of pan-European site connections, as well as reducing network operating costs.

Lenovo and Pivot3 have formed a global strategic partnership to develop, market and sell a new set of edge computing solutions optimised for mission critical smart city security.

UKFast has opened a new state-of-the-art hosting facility, designed primarily to meet the needs of its growing number of government and public sector customers. The new Tier III data centre, named MaNOC 9, represents a multimillion pound investment and is equipped with multi-factor access security, CCTV systems, razor wire fencing and high security, single entry door systems.

Leviton

Today's data centres require a flexible infrastructure for quick and efficient moves, adds, and changes; the ability to increase network capacity while containing costs; and operational reliability with minimal downtime.

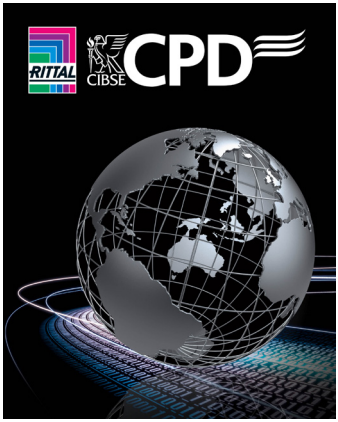
Leviton's comprehensive data centre solutions will help you solve your unique data centre challenges.

Leviton's cabling and connectivity are installed in the most advanced data centres in the world. Leviton also offers make to order products from the Leviton Data Centre Factory in Glenrothes, Scotland, giving IT managers the ability to customise their systems for maximum performance.

To learn more **CLICK HERE.**
www.leviton.com

Rittal

Rittal has developed two new accredited seminars as part of its highly respected Continuing Professional Development (CPD) series.



Challenging 'The Edge' – IoT looks at the rise of edge data centres. It considers how cloud storage, alongside the need for higher speed and low latency, has fuelled edge computing to support new technology such as 5G, as well as video content, machine-to-machine learning and the Internet of Things (IoT).

The second seminar – Open Compute Project (OCP) & Open19 Project – explores how OCP has provided guidance on how to build low cost, highly efficient data centres. The main thrust is to radically alter the way power is distributed to the server by switching to locally derived DC power, lowering power requirements and increasing airflow around the components, thereby reducing cooling costs. A core philosophy is that any participants who want to have hardware recognised as OCP-compliant must open source it.

Alongside this is the Open19 project, which is aimed at smaller data centre operators that are smaller in size, but which house the majority of the world's IT infrastructure. The seminar explores Open19 hardware, which is built around the standard 19-inch rack such as Rittal's TS IT.

To find out more **CLICK HERE.**
www.rittal.co.uk

CMS

Space is expensive, especially in the data centres and telecommunications rooms of telecommunications companies. High costs call for optimum usage with high density solutions. At the same time, connections have to be robust, reliable and easy to handle. And as there is a constant change in IT technologies – the cabling has to be highly flexible to allow efficient technology changes.

Available from CMS, Telegartner's new patch panel system HD3 - high density, high durability, high dynamic – offers the user the port density, ease of use, durability, performance and flexibility needed in the networks of today and tomorrow.

With fibre optic, twisted pair and coax modules for the cabling installation on-site, as well as to connect pre-terminated cables that can be combined individually and be installed and changed within just a few seconds, the new HD3 patch panel is the ideal solution for users who need a high density, high quality, easy to use, efficient, flexible and future proof solution.

Find out more by **CLICKING HERE.**
www.cmsplc.com

R&M

At the 44th ECOC, R&M presented a study on its innovative parallel optical connectors called QXB. These can be planned with 12, 24 and 32 parallel fibres and should make infrastructure and SAN management in hyperscale and large corporate data centres considerably easier.

The high purity fused silica lenses have an anti-reflection coating. No physical contact is required between optical fibre ends and cleaning contact surfaces is unnecessary. QXB connectors are inserted into the adaptor without force, regardless of the number of fibres. MPO connectors must always be completely removed if an individual fibre has to be cleaned or tested. This is not the case with QXB.

With QXB, measured values of a connection remain stable once installed and tested. Recurring costs such as cleaning, inspection and measurement do not even exist. Visual inspections and searching for transmission errors are a thing of the past.

To discover more **CLICK HERE.**
www.rdm.com

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Life on the edge

Jason Collier of Scale Computing goes beyond the hype to explain why edge computing is redefining the technology for today's data centre

Edge computing refers to computing that takes place outside of the typical data centre – this usually means bringing IT infrastructure closer to where data is being created and used. Although the terminology is new, the concept is not and has been around for a long time – an example being remote and branch offices (ROBO). These organisations require computing to take place in multiple locations, away from a main site. Other use cases include vehicles such as ships, planes and trains, manufacturing facilities and medical institutions. Organisations such as these have long had the need to manage and access data at multiple sites as it is essential to their day-to-day operations.

THE RISE IN AI AND IOT

Edge computing is becoming more prevalent and the rise in artificial intelligence (AI) and the Internet of Things (IoT) is bringing this to the forefront of business agendas. As these applications grow, there is a need for quick and instant access to data. This is where edge computing comes into effect. Sending and retrieving data to and from the cloud brings with it a time delay and there are rising concerns over connectivity. By analysing data at the edge of the network, organisations can deliver real time performance these applications need.

We are on the cusp of the possibilities this emerging technology can bring, and

as our journey moves forward the need for edge computing will become even more pronounced. Bringing data to the edge of the network will allow for real time analysis with no latency. These applications rely on data to operate and make informed decisions and bringing this closer will enable technology to advance. Edge computing will fundamentally allow these applications and IoT devices to respond, calculate and make informed decisions quicker, and smarter.

> 'We are on the cusp of the possibilities this emerging technology can bring, and as our journey moves forward the need for edge computing will become even more pronounced.'

Although edge computing can vary from a few remote locations to thousands spread across a vast distance, many sites will share the same requirements. Paramount to this is performance and network connectivity. This is because remote sites will likely not have the same levels of network connectivity as the main office/data centre. And the more widespread the remote sites are, the higher the likelihood that connectivity issues will arise.

THE ROLE OF THE CLOUD

For these requirements, local, on-premises computing resources can provide more finely tuned and reliable performance. Although cloud computing enables organisations to operate remotely and provides scalability and elasticity, it is not without its drawbacks, such as internet connectivity and latency. If these sites are dependent on cloud computing to operate, then network outages or cloud outages will cease operations.

Some edge computing use cases have very specific performance requirements

that are not always compatible with the capabilities provided by the cloud. For example, as we head towards smart cities and self-operating devices/gadgets, it's imperative that operations are not hindered by lack of internet connection or cloud outages. Likewise, applications that rely on real time data won't be supported by a cloud model. However, IoT and AI are not the only need driving edge computing infrastructure. The same applies for many of today's remote and branch offices, such as retail shops or manufacturing facilities. Many of these organisations rely on continuous connectivity to maintain business operations.

SMALL TALK

An edge computing strategy may well include some cloud computing services but it will most certainly include on-premises compute resources like micro-data centres. This is essentially on-premises technology scaled down to suit specific business models. The growth in edge computing is driving this demand because micro data centres eliminate the challenges around latency, connectivity and cloud outages – bringing data to the edge of the network.

But it's also critical to ensure micro data centres encompass all of the key requirements for remote sites including:

• Easy and rapid deployment

Organisations need to be able to deploy a solution at multiple sites without it taking days or weeks. This is particularly important if there are dozens or hundreds of sites, as it could takes days to set up a solution at each remote office, which might not be a viable option.

• High availability
The solution must be resilient when it comes to hardware failures and other types of outages. Organisations need systems that can continue operating, for example, if a drive fails or if internet connectivity is lost. Technology should enhance business operations, not slow them down or stop them.

• Disaster recovery
Data is critical and after an IT outage being able to recover and maintain operations is essential. Loss of data at a single remote site can come at a very high cost.

• Ease of use
It is unlikely that remote sites will have numerous IT experts on-site and ready to help, so the easier IT systems are to use the better. When there are dozens or hundreds of sites, the more that can be done by on-site, non-IT staff, the easier the systems will be to manage.

• Remote management
As many remote sites often rely on non-IT staff, trained IT pros will need to do some of the management tasks. Being able to do some, if not all, remotely will help to reduce costs and provide faster services, as the need to travel will be eliminated.

CENTRE OF ATTENTION

Edge computing is an IT infrastructure component that is getting a lot more attention as IT continues to grow and encompass every area of business and operation. With IoT on the rise, edge computing will grow, but organisations need to adopt a strategy that will also meet their remote site needs. Although not every environment is the same, these are common requirements and being able to deliver on remote IT infrastructure demands, while bringing data closer and to the edge of the network, will help organisations on their journey towards business success. ■

JASON COLLIER
Jason Collier is co-founder of Scale Computing and is responsible for the evangelism marketing of the company. Previously, Collier was vice president of technical operations at Corvigo, where he oversaw sales engineering, technical support, internal IT and data centre operations.

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