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Stuck in a rut

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The data centre industry is experiencing unprecedented growth, largely fuelled by the rapid rise of artificial intelligence (AI). However, this surge in demand has further highlighted the significant shortage of skilled professionals available to design, build and manage these complex facilities.

Despite offering rewarding and well-paid career paths, the data centre industry continues to face challenges in attracting and retaining the necessary workforce, so we've asked a panel of esteemed industry leaders to assess the scope of the skills shortage and propose solutions. Their insights aim to shed light on the barriers preventing talent from entering the field and highlight strategies to strengthen the talent pipeline.

This issue also features an in-depth look at the latest advancements in network infrastructure management. Kevin Brown of Schneider Electric examines the next step in the evolution of data centre infrastructure management (DCIM) solutions. He's followed by Jeff Safovich of RiT Tech, who explores the development of DCIM through universal intelligent infrastructure management (UIIM).

Containment and cable management play crucial roles in enterprise and data centre network infrastructures, yet they are often overlooked and not given the attention they truly deserve. To put that right, we have three articles on this subject and in the first Michael Akinla of Panduit explains how structured cabling enables 1.6Tb/s for AI based data centres and offers insights on how to maximise performance, reliability and return on investment (ROI). Barry Roberts of Marshall-Tufflex then discusses how cable management systems that incorporate recycled content offer an environmental win and, last but certainly not least, CommScope's Jan Honig identifies the key product strategies for improving data centre sustainability.

Now in its 20th year, I'm looking forward to welcoming industry colleagues to the Inside_Networks 2025 Charity Golf Day on 21st May. As one of the highlights of the network infrastructure calendar, which raises much needed funds for Macmillan Cancer Support, I'm sure it will be another a hotly contested but good-humoured day that also offers a chance to catch up with familiar faces.

Rob Shepherd
Editor

Inside_Networks
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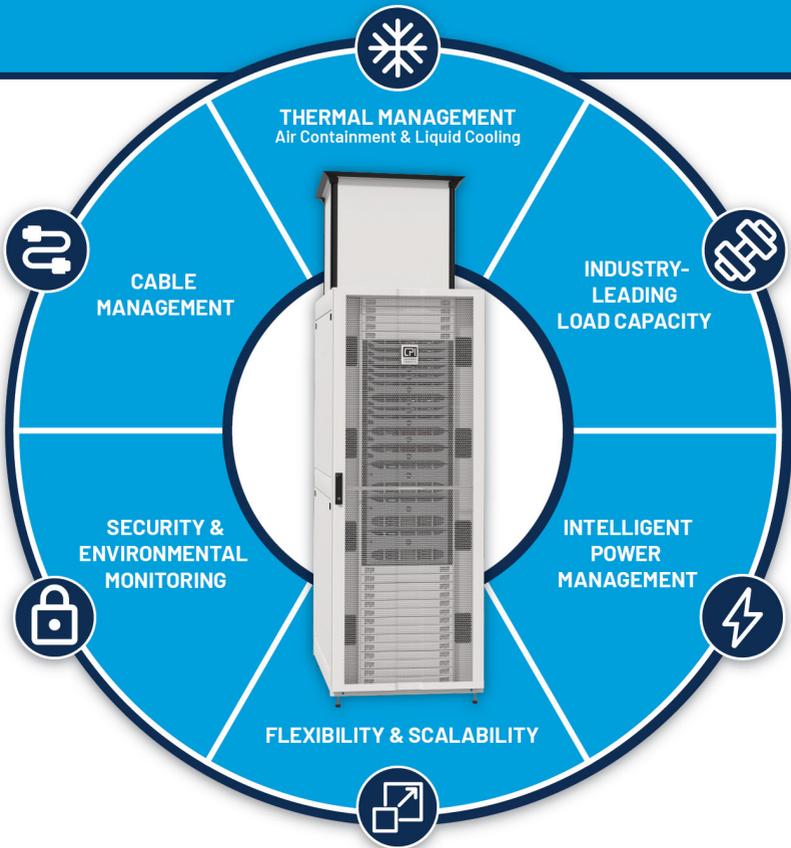
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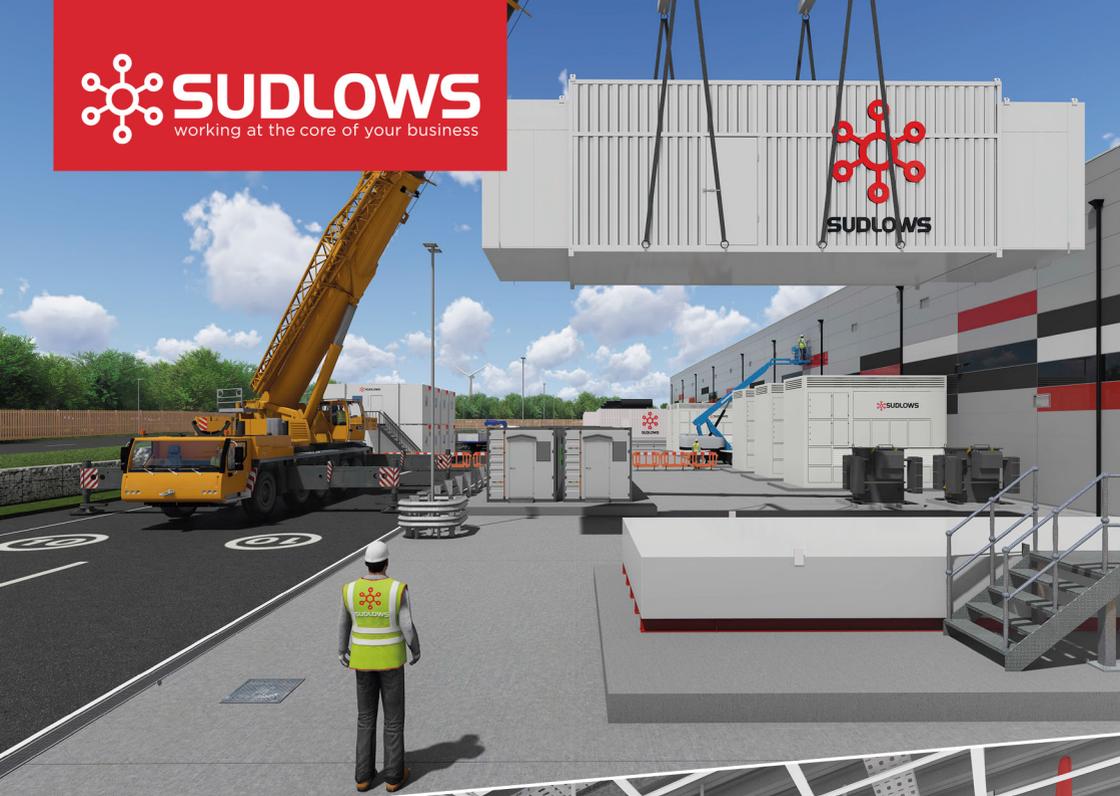
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Majority of UK public believe data centres are crucial to innovation

Research conducted by Telehouse has revealed that 73 per cent of UK adults see data centres as key to innovation, in a major indicator that the public is supportive of the UK government's strategy to push forward data centre investment. In January, the government announced plans to 'turbocharge artificial intelligence (AI)', fuelled by expansions to data centre infrastructure.

Telehouse surveyed over 2,000 UK adults and found that 48 per cent of respondents believe data centres have a positive impact on the services they use every day. 50 per cent want schools

Mark Pestridge

and universities to offer programmes focused on data centre technologies and potential careers.

'It's encouraging to see public recognition of data centres as critical drivers of innovation continuing to grow, particularly as they have become essential to the way we live our lives,' said Mark Pestridge, executive vice president and general manager at Telehouse Europe. 'Our sector needs to continue to drive awareness of the real world benefits data centres provide – from supporting the economy and creating jobs, to enabling technologies like AI.'

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Kao Data announces funding for the first 20 community projects from its Kao SEED Fund

20 community groups across Stockport have been awarded a total of £30,000 in funding from Kao Data's Social Enterprise and Environment Development (SEED) Fund. The company, which is developing a £350m data centre in Stockport, launched the Kao SEED Fund last November and more than 65 applications were received.

Successful projects include plastic donation stations for the Plastic Shed organisation, funding for Reddish Men in Sheds to repair donated bikes and courses run by the Siyanda Trust. Meanwhile, Marbury Road

Edible Garden in Heaton Chapel will offer therapeutic sessions for young people and Re:Dish in Reddish can now buy a printing machine to create its own tote bags for its social supermarket.

Kell Degnen from Marbury Road Edible Garden, said, 'This will allow us to reach our neighbours, and it means we can do social therapeutic horticulture with them, which will be run by a trained practitioner, who also used to be a volunteer with us. This is all thanks to the Kao SEED Fund.'

HireHigher and CyrusOne drive data centre awareness at Rising Stars in Schools event

HireHigher's partnership with CyrusOne to address the ongoing skills shortage in the data centre industry recently brought together 90 sixth form students from St Mark's Catholic, Gunnersbury Catholic and Logic Studio Schools in London for the largest student digital infrastructure conference in the UK. It marked three years of HireHigher and CyrusOne's efforts to broaden awareness of the integral role data centres play in society and the job opportunities they generate, particularly amongst the Gen Z age group.

A recent independent survey commissioned by CyrusOne, titled Listening to Communities, explored how the public perceives data centres in Europe. It found that those aged 16-24 years were least likely to know that data centres play a role in enabling digital applications such as WhatsApp.

Adelle Desouza, founder of HireHigher, commented, 'It's testament to CyrusOne's commitment to attracting the best talent to the industry that they have once again joined us to host an event for sixth formers. If the industry wants to attract top talent, we need to ignite more passion in the young workforce of the future, ensuring they are well informed and inspired, and understand what options there are for them in the industry.'

Espria urges businesses to take control of their connectivity amidst the UK's 5G challenges

The UK has some of the slowest 5G speeds in the G7, with mobile coverage challenges impacting businesses nationwide. Industries reliant on real-time data are particularly affected. With businesses unable to rely on national infrastructure improvements alone, they must proactively assess their connectivity strategies.

'Businesses should consider dedicated leased lines,' said Clinton Groome, chief executive officer at Espria. 'Unlike shared networks, these solutions provide reliability and stability, keeping operations running smoothly. Leased lines represent the gold standard for business connectivity, offering dedicated, high speed, and uncontended internet access with maximum reliability.'

Clinton Groome

EPI receives three TIA Star Awards for third consecutive year

EPI has received three prestigious Telecommunications Industry Association (TIA) Star Awards for the third consecutive year. EPI has certified more TIA-942 facilities than any other company, holding over 96 per cent market share.

The TIA Star Awards celebrate the organisations and individuals that demonstrate exceptional contributions to the data centre industry and leadership in advancing industry's best practices. The three TIA Star Awards were

Tom McGarry

given to EPI, Edward van Leent, chairman and CEO of EPI Group, and Joseba Calvo, managing partner of EPI Americas.

Tom McGarry, vice president of standards at TIA, said, 'EPI has been a key player in the TIA, significantly advancing the TIA-942 certification program and developing standards at TR-42. Edward Van Leent and Joseba Calvo have earned multiple awards for their exceptional contributions and TIA congratulates and thanks EPI for their contributions and leadership.'

60 per cent of business leaders are unsure about their organisation's readiness for data and AI

According to research by the Business Performance Innovation Network, Growth Officer Council and EncompaaS, 60 per cent of business leaders are uncertain about their organisation's readiness for data and artificial intelligence (AI) – highlighting a significant barrier to progress as adoption rapidly expands.

The report surveyed 170 global business decision makers to explore how AI and data strategies differ across business models and uncovered a stark disparity between expectation and readiness. Despite 79 per cent anticipating a competitive advantage

Sachin Agrawal

from generative AI in the next 18 months, just 13 per cent described themselves as 'extremely confident' in their organisation's data and AI maturity. Key barriers include data accuracy and reliability (69 per cent), AI integration and implementation challenges (68 per cent), and ethical concerns including governance and trust (58 per cent).

Sachin Agrawal, managing director for Zoho UK, commented, 'AI is already having a transformative impact on business processes such as data analysis, forecasting and customer experience. However, maximising these benefits requires a foundation of high quality, well governed data.'

Over two fifths of IT workers smoke as research reveals industries with highest smoking rates

Although smoking rates fell to 16.5 per cent of people aged 16 or over in 2024, progress has flatlined since 2020. Alternix surveyed 1,000 UK workers to reveal which industries smoke the most, or use vapes or other nicotine products.

It found that those in the media and internet industry smoke the most. IT workers follow in second place, with two in five (43 per cent) of workers smoking tobacco products. Just three per cent of the industry vapes, with 32 per cent of IT

David Phillips

workers quitting smoking within the last five years. 14 per cent have never smoked or used nicotine products before.

David Phillips, lead content writer at Alternix, commented, 'It's interesting to see the difference in smoking habits between professional industries. About one in eight people smoke, which is reflected in our findings and highlights that smoking is still a big part of workplace culture.'

NEWS IN BRIEF

Stuart Harvey, CEO of Datactics, has been appointed to techUK's Scale-Up Council, furthering its commitment to supporting high growth technology businesses and advocating for policies that accelerate innovation and economic expansion.

Colt Data Centre Services (Colt DCS) plans to develop four new data centres in Germany. The four facilities will consist of Frankfurt 4 and 5 and Berlin 1 and 2. The two Frankfurt data centres will be built on an 18-acre site and provide a combined 63MW of IT capacity, while the Berlin data centres will be constructed on a 9.5-acre site and provide a total 54MW of IT capacity. Colt DCS is targeting first phase ready for service at Frankfurt 4 and Berlin 1 by the end of 2028, with renewable power contracts already secured.

Legrand has acquired Computer Room Solutions (CRS), a provider of data centre infrastructure in Australia.

DataVita has become the first data centre operator in the UK to secure the Open Compute Project's (OCP) Ready for Hyperscale certification. So far, it has only been awarded to three other companies in Europe and is one of the sector's most recognised and sought-after accreditations.

The London Internet Exchange (LINX) has achieved recertification for the Financial Supplier Qualification System (FSQS) registered mark. This certification is highly regarded by leading purchasers in the financial sector and reflects LINX's continued commitment to meeting industry standards and demonstrating robust credentials.

Think about the future

Artificial intelligence (AI) is creating massive demand for power within data centres. Louis McGarry, sales and marketing director at Centiel, explains how the company is responding to this challenge

▶ When it comes to uninterruptible power supplies (UPS), the challenge is around speed of deployment and how to continue to maintain and deliver the highest levels of quality. This is second nature to Centiel. Our Swiss factory is renowned for quality and we have already adapted our manufacturing process to deliver even larger systems within a short timescale.

We also work with data centres to help them integrate and manage energy better and StratusPower, our fourth generation multi-award winning true modular UPS, is key. As well as providing market leading nine nines (99.9999999 per cent) availability, equating to milliseconds of downtime per year, it is also highly efficient and sustainable.

Our UPS modules are 95 per cent recyclable based on mass and we source components responsibly. Furthermore, StratusPower has the ability to scale to almost any size. This means data centres can have a UPS that is entirely decentralised/distributed up to 1.8MW, yet with a layer of added sustainability. The true modular nature of StratusPower also means it offers flexibility for AI's increasing and dynamically changing loads.

AI is very much in the 'now' yet we must also think of the future. Crucially, in the face of power hungry AI, StratusPower offers the potential to integrate with renewable energy sources. Energy can be taken from the mains at the same time as renewables to reduce cost. It also offers the potential to discharge batteries throughout the day and recharge with renewables. StratusPower's 30-year design life, where capacitors only need to be replaced every 15 years instead of 4-5 years, further improves sustainability and lowers total cost of ownership.

Centiel's team of experts support customers, providing information and calculations so they can make informed decisions on the most appropriate equipment selection and how to manage it in the most efficient and sustainable way. This may be through training on how to utilise different modes to maximise efficiency, through hibernating modules to reduce energy use, or how to introduce peak shaving to use energy storage better.

Talk to Centiel today to see how we can work together to develop a sustainable AI driven future. **CLICK HERE** for further information or to send an email **CLICK HERE.**

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Data quality must keep pace

Hi Rob

Artificial intelligence (AI) adoption is advancing at breakneck speed, with recent Semarchy research showing that 75 per cent of organisations intend to invest in AI technologies this year. However, this rapid uptake brings various challenges, threatening to derail ambitious AI goals.

Chief among these challenges is poor data quality, compounded by security vulnerabilities. Our research shows that 47 per cent of businesses currently allow employees to use public AI tools with company data, augmenting the risk of breaches and intellectual property leaks. This has been illustrated by Samsung's recent ChatGPT ban, implemented due to a sensitive data leak. Samsung's oversight is demonstrative of the very real consequences of inadequate AI governance.

Organisations now face a critical challenge – balancing AI innovation with robust data protection and security protocols. Those that rush AI adoption without establishing proper data governance expose themselves to significant risks. Data breaches are the most immediate threat, occurring mainly when employees use public AI tools for company work. These platforms can compromise sensitive corporate information – as Samsung discovered – by allowing data to be processed, stored or incorporated into third-party models outside an organisation's control.

Beyond these concerns, inadequate AI governance can violate regulations like the General Data Protection Regulation (GDPR) or the California Consumer Privacy

Act (CCPA), resulting in hefty penalties or reputational damage. Additionally, substandard data management inevitably leads to AI models that are trained on flawed, biased or outdated information, making them less effective and potentially embedding harmful biases into operations.

Creating a centralised, secure data environment ensures AI systems only draw from trusted, authorised information. This infrastructure is essential for organisations intending to leverage AI whilst preserving data integrity and security.

Here's what businesses can do to establish effective AI governance. First, develop explicit policies governing data usage in AI models. These policies should prevent sensitive information from ending up in public AI platforms and definitively outline appropriate AI use throughout the organisation. This preventative strategy stops the threat of any sensitive information being leaked.

The second step is to organise and label data assets to clarify what information

with accelerating AI adoption

can safely enter AI systems, versus what needs extra protection. This categorisation simplifies decision making regarding which datasets are suitable for AI training, and which contain confidential information that requires increased security protocols.

Third, keep everything in check with comprehensive data monitoring. An effective governance framework should track data usage patterns, ensuring legal compliance and industry best practice. By vigilantly observing AI interactions with corporate data, security teams can catch weaknesses and mitigate risks before breaches occur.

Organisations lacking robust data foundations risk AI implementation failures that can drain resources, overload employees, delay returns on investment and damage customer confidence. Implementing master data management (MDM) allows organisations to create a structured data ecosystem that supports secure AI adoption. MDM establishes a single source of truth, allowing companies

to innovate safely while staying in control of their data assets.

AI is becoming a must have for businesses trying to stay ahead, but security cannot be an afterthought. While our research confirms businesses' enthusiasm for AI, it also reveals a disconnect between ambition and readiness. Organisations rushing into AI initiatives without establishing robust data governance frameworks risk exposing themselves to serious data breaches, regulatory violations and a competitive disadvantage.

Progress requires a balance between innovation and security. MDM provides the foundation for responsible AI implementation – creating a structured, secure environment for AI systems to access high quality, authorised data. By prioritising strong data governance before investing in AI adoption, organisations can ensure AI boosts innovation and growth without becoming a risky weakness.

Craig Gravina
Semarchy

Editor's comment
Many organisations continue to take a 'gung-ho' approach to AI adoption that not only threatens their security but also their reputation, should the worst happen. Craig's observation about there being a 'disconnect between ambition and readiness' hits the nail on the head. Ultimately, good data governance needs to be given a lot more attention than it is at present if AI is going to help businesses rather than hinder them.

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Sticking point

Despite providing excellent career opportunities, the data centre sector continues to struggle with a shortage of skilled professionals. To explore the severity of this issue and suggest potential solutions, Inside_Networks has brought together a panel of industry experts to offer their views

▶ It's no secret that the data centre sector is booming, driven largely by the rapid expansion of artificial intelligence (AI). Yet a critical challenge remains – there is a significant shortage of people to build, operate and manage these facilities. Without a steady pipeline of qualified professionals, it is possible that data centres may struggle to maintain the high levels of service reliability that businesses and consumers expect.

Despite the sector's importance as critical national infrastructure, attracting new talent has become an ongoing problem – even though there are more training courses than ever, as well as initiatives such as the Digital Futures Programme at University Technical Colleges (UTCs) that promote clear career progression pathways. To compound the issue, for those already working in related industries the lack of awareness about career opportunities in this sector means that many capable individuals overlook it when considering their futures.

To find out what needs to be done, Inside_Networks has assembled a panel of experts to discuss this issue, examine how serious the skills shortage is and, just as importantly, outline the measures needed to get people into the data centre sector.

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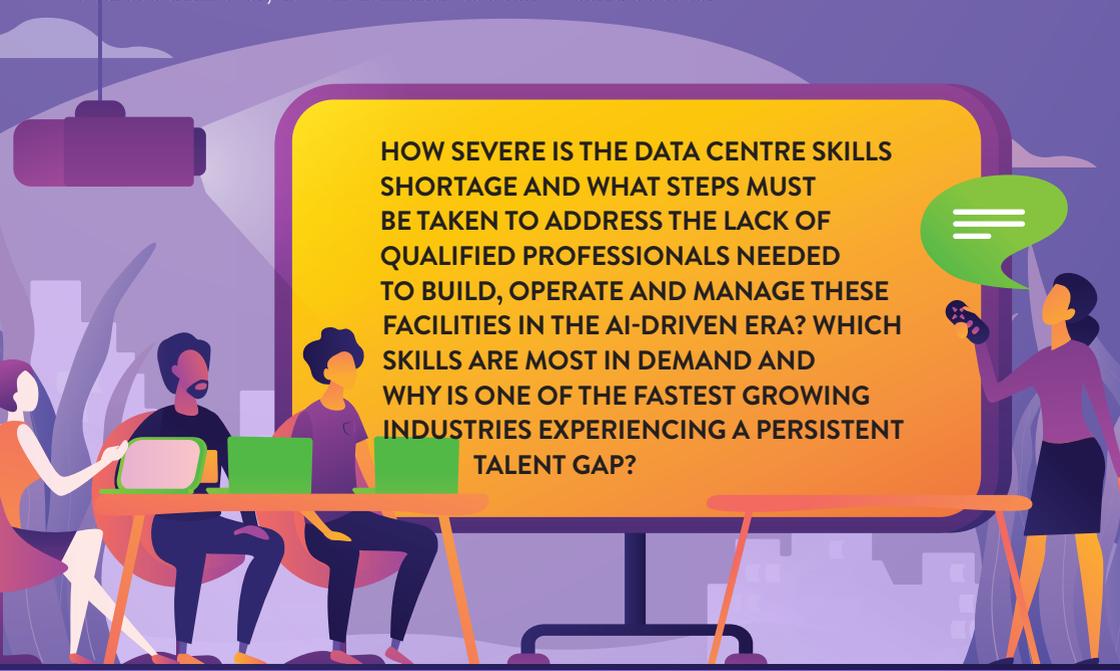
HOW SEVERE IS THE DATA CENTRE SKILLS SHORTAGE AND WHAT STEPS MUST BE TAKEN TO ADDRESS THE LACK OF QUALIFIED PROFESSIONALS NEEDED TO BUILD, OPERATE AND MANAGE THESE FACILITIES IN THE AI-DRIVEN ERA? WHICH SKILLS ARE MOST IN DEMAND AND WHY IS ONE OF THE FASTEST GROWING INDUSTRIES EXPERIENCING A PERSISTENT TALENT GAP?

EMMA FRYER
DIRECTOR OF PUBLIC POLICY EUROPE AT CYRUSONE

No data centre conference is complete without a heartfelt call to action on our skills gap, to the extent that we sound like a Greek chorus bemoaning the intransigence of fate rather than an industry more in control of its destiny than perhaps any other – and one that should be a magnet for talent.

The primary problem is that nobody has ever heard of us. In a recent survey CyrusOne commissioned it appears that 65 per cent of 16-24 years olds in Europe believe the internet runs by magic and only 35 per cent associate the digital services they know and love with physical infrastructure. We cannot expect people to want to work in a sector that, as far as they understand, doesn't exist.

Our first job is to explain who we are and what we do. I view this task with mixed emotions. Having spent 10 years demystifying the sector to a small number of highly intelligent civil servants – a non-trivial task – the scale of the challenge is daunting.

Secondly, we must associate ourselves with things that resonate. A career operating a data centre may not entice but how about an invitation to run the internet? Better already.

Thirdly, like good military tacticians, we need a coordinated, multi-pronged approach. Besides raising awareness generally, we need to engage directly through outreach to schools near existing clusters. Familiarising young people with our sector, however, only goes so far – it is up to us to bridge the gap between the skills that emerge from our education system and those that are required in our facilities. We can't rely on other people to do this for us. Government may be able to encourage science, technology, engineering and mathematics (STEM) subjects in schools, but only we know what we really need.

I think there is scope for optimism. The UTC Digital Futures Programme is joining the dots between schools and employers and demonstrating that the industry can work collectively towards the common good. And let's face it, the scale of our problem is a true reflection of spectacular growth – it is part of the price of success.

> 'NO DATA CENTRE CONFERENCE IS COMPLETE WITHOUT A HEARTFELT CALL TO ACTION ON OUR SKILLS GAP, TO THE EXTENT THAT WE SOUND LIKE A GREEK CHORUS BEMOANING THE INTRANSIGENCE OF FATE RATHER THAN AN INDUSTRY MORE IN CONTROL OF ITS DESTINY THAN PERHAPS ANY OTHER.'

ANDREW STEVENS
CHIEF EXECUTIVE OFFICER AT RSAS

The longstanding skills shortage is now critical. According to Allied Market Research, the global data centre market is expected to surge from $187.35bn in 2020 to $517.17bn by 2030, yet the demand for skilled professionals continues to outpace supply. This shortfall threatens not just industry growth but the digital infrastructure that powers today's world and tomorrow's innovations.

Several factors contribute to the skills gap:

• An aging workforce – obvious.

• Lack of industry awareness – obvious.

• Misalignment between education and industry needs – core skills like IT, engineering, and heating, ventilation and air conditioning (HVAC) provide a good foundation that can grow with more specific professional training as individuals carve out their career. However, employer support and patience to nurture these skills and further experience is a must.

With AI evolving data centres, two critical skills stand out:

• Energy management – optimising energy use is vital for cost efficiency and sustainability.

• Automation expertise – AI-driven systems require professionals to implement and manage automated processes to enhance operational efficiency and reduce human error.

A multi-pronged approach is essential to close the talent gap:

• Educational partnerships – industry aligned curricula like the UTC's Digital Futures Programme, which is designed and delivered by the industry, provides a steady pipeline of industry ready talent.

• Training and certification – upskilling both new and existing professionals ensures the workforce evolves with technological advancements.

• Diverse hiring – expanding recruitment beyond traditional tech backgrounds introduces fresh talent.

• Internal training – companies like Kao Data have developed in-house academies to build expertise from within.

• Apprenticeships and internships – degree apprenticeships combine academic learning with in-house hands-on experience. Internships offer short-term work placements to gain practical experience. Both help students understand the career opportunities and build a talent pipeline for employers.

Enough talk, it is now time to act. The industry must prioritise skills and talent development. With a dedicated approach, alongside an openness to new, powerful tools such as AI-driven work simulation for recruitment and onboarding, boundaries really can be pushed. It will drive innovation and sustain the digital infrastructure that the world relies on.

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'ENOUGH TALK, IT IS NOW TIME TO ACT. THE INDUSTRY MUST PRIORITISE SKILLS AND TALENT DEVELOPMENT.'

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JOHN BOOTH
TECHNICAL DIRECTOR AT THE NATIONAL DATA CENTRE ACADEMY

At the time of writing there were 4,284 vacancies in the UK according to Jobsite and with the number of new projects announced as part of the UK governments AI Opportunities Action Plan, this will rise considerably over the next 5-10 years. Add the impending 'grey tsunami', where 50 per cent of existing personnel are likely to be retiring by 2035, and we are facing a real operational crisis.

So how to address the problem? It's well known that most people working in the sector 'fell' into it via other career paths, establishing themselves in electrical, mechanical, IT or construction disciplines prior to entering the data centre space. This can be a good thing, as it means that our people gain experience in other areas such as manufacturing, facilities management and construction, with potentially transferable skills that we can use. However, it also means that we are at the end of a long educational/work journey which doesn't help our immediate needs.

We need to be more visible, promoting the data centre sector as a destination of choice far earlier than we do at present. This means going into schools at Year 7 with a nationwide programme developed by the sector to explain what it is that we do. This could be part of the existing STEM programme.

Then, we need to create a formal entry level route via an apprenticeship programme. This programme should cover all the elements needed to design, build and operate a data centre. We should also support the various initiatives such as the UTCs, the inclusion of data centre specific modules within existing apprenticeships or develop our own data centre engineering apprenticeship and, potentially, a data centre engineering degree.

This is an issue that is being actively discussed. In March we held a Data Centre Skills Big Tent at the National Data Centre Academy to investigate how we develop the apprenticeship scheme. We are now working with the sector, education providers and the government to develop the data centre engineering apprenticeship.

> 'WE NEED TO BE MORE VISIBLE, PROMOTING THE DATA CENTRE SECTOR AS A DESTINATION OF CHOICE FAR EARLIER THAN WE DO AT PRESENT. THIS MEANS GOING INTO SCHOOLS AT YEAR 7 WITH A NATIONWIDE PROGRAMME DEVELOPED BY THE SECTOR TO EXPLAIN WHAT IT IS THAT WE DO.'

ANDY HIRST
MANAGING DIRECTOR CRITICAL INFRASTRUCTURES AT SUDLOWS

There are a few reasons contributing to this situation. Many professionals working in the critical infrastructure industry live and breathe the sector, attending countless networking events, trade shows, awards events and so on. With global growth continually projected, we believe it is the field to work in and take it for granted that everyone outside the sector knows this.

Unfortunately, this is not always the case. Even though some organisations within the data centre arena promote the sector to universities, colleges and schools, it is surprising how many students at all levels are not aware of it. I have attended meetings and presentations to heads of engineering, students and even deans, and although some see the value in introducing this sector to students, not many do. Sadly, the majority simply do not appreciate the size of the sector, its growth and the dynamic opportunities it offers.

This is not a new frustration. At Sudlows, our biggest success stories are the young fresh engineers we nurtured and developed, who have now progressed to become industry experts. Interestingly, although many had completed a degree in engineering, they were not even aware at the time about what a data centre was, except for snippets from news articles. The skills shortage is not just solely about students coming through the ranks of academia though, equally important is attracting apprentices and site engineers.

The shortage of skills not only affects company growth, quality and timescales, but introduces additional problems. Once a company has invested in the future by upskilling individuals, suddenly they become high profile targets to be recruited by competitors. Although it is natural progression for professionals it does compound the problem. The wider issue is further compounded by a significant number of existing industry professionals rapidly nearing retirement.

The future is promising for the digital infrastructure sector. However, there will be some turbulence caused by lack of skill sets, especially with the onslaught of AI applications. The onus is on industry leaders to highlight the opportunities of the data centre industry by reaching out to the younger generation.

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'I HAVE ATTENDED MEETINGS AND PRESENTATIONS TO HEADS OF ENGINEERING, STUDENTS AND EVEN DEANS, AND ALTHOUGH SOME SEE THE VALUE IN INTRODUCING THIS SECTOR TO STUDENTS, NOT MANY DO. SADLY, THE MAJORITY SIMPLY DO NOT APPRECIATE THE SIZE OF THE SECTOR, ITS GROWTH AND THE DYNAMIC OPPORTUNITIES IT OFFERS.'

JEROEN SCHLOSSER
VICE PRESIDENT OPERATIONS AT NLIGHTEN

The very fact that our industry is expanding so rapidly – fuelled by AI demand – is a key part of the skills shortage challenge. From what we're seeing in the Frankfurt, London, Amsterdam, Paris and Dublin (FLAP-D) markets, finding the right talent for operations and technical roles at salaries aligned with our business model is a challenge.

Salary levels and talent availability play a key role. For example, in Frankfurt, it has taken us 6-7 months to find the right operations lead for our data centre. However, in Tier 2 and 3 cities, where our edge locations are in smaller business hubs, we see a strong talent pool.

It is important to develop strategies for attracting new blood into data centres, while also retaining and leveraging the latent skills that may already exist within the workforce. This means thinking more creatively. The industry has been overly male dominated for too long. Practice diversity and inclusivity to ensure significantly more people from all walks of life, irrespective of gender or ethnicity, are considered for positions of responsibility.

And with this, offer greater flexibility as well as mentoring for transferring practical knowledge and experience. This is key to building employee self-confidence, motivation and the sharing of experiences and ideas. As a scale-up company that offers competitive salaries along with the benefits of a fast growing organisation, the entrepreneurial mindset we seek in new hires – along with the ability to take on diverse responsibilities – gives us a competitive edge over larger industry players.

For positions that cannot be filled from within the current workforce, consider potential candidates working in related industries. This might include those working in the wider construction sector where there is significant opportunity for the transference of skills. For more general roles such as project management, be open to considering graduates from non-engineering backgrounds. Furthermore, consider recruiting from further afield, not just from within the local region or country concerned.

Clearly, the industry also needs to work more closely with education – further and higher – to more clearly define and align their curriculums with the real-life skills and qualifications required by the data centre industry, encompassing civil, mechanical and electronic engineering, operational management and IT.

> 'IT IS IMPORTANT TO DEVELOP STRATEGIES FOR ATTRACTING NEW BLOOD INTO DATA CENTRES, WHILE ALSO RETAINING AND LEVERAGING THE LATENT SKILLS THAT MAY ALREADY EXIST WITHIN THE WORKFORCE. THIS MEANS THINKING MORE CREATIVELY.'
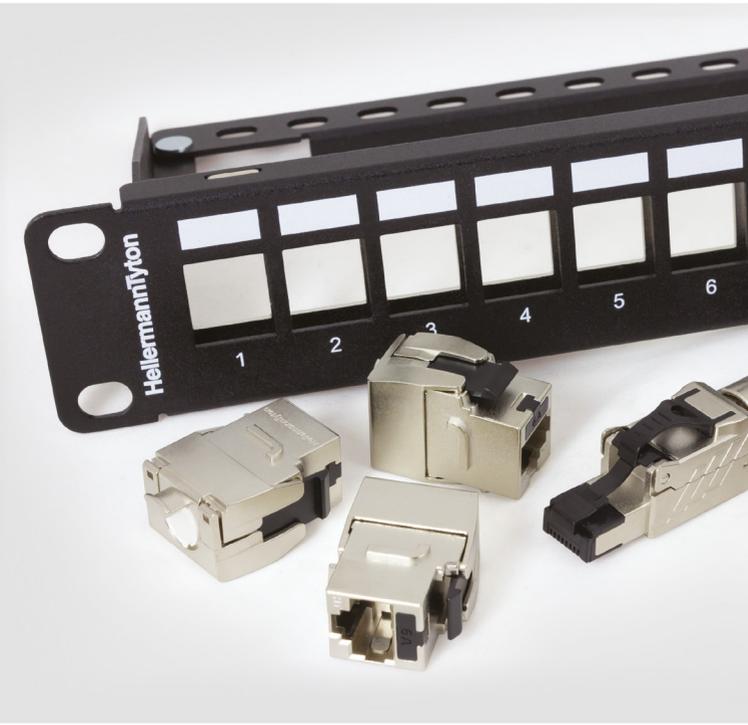
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CARRIE GOETZ
PRINCIPAL AND CHIEF TECHNOLOGY OFFICER AT STRATEGITCOM

The skills shortage has been real for quite some time. I believe that in many ways this is a self-inflicted wound, as we have known that there is a skills shortage for years. We are falling behind in fixing the problem on a few fronts.

First, we are not doing the best job of introducing this industry and the depth and breadth of it to kids when much of the 'what will I be when I grow up? is decided by 7-8 years of age. Despite being digitally native, we don't discuss data centres or the careers they offer anywhere near as much as we should.

I recently spoke to a room full of students from multiple IT classes. Two people had heard of a data centre. We have capstone projects, but data centres are not offered as an industry. We do a very poor job of discussing our jobs as a destination rather than as a career you 'fall into'.

Coding is often the only exposure young children have to any technology as a career. Coding is a particular skill that many don't like and, as such, students may write off technology in its entirety, instead of viewing coding as a subset.

People in the industry, me included, are working on apprenticeships nationwide that would be approved through the US Department Of Labor. One aspect of the apprenticeship is for an employer of the apprentice to offer ongoing employment. There is a disconnect with human resources (HR) and hiring personnel nationwide that still demands a bachelor's degree, even for the most menial jobs. Of the companies that have removed degrees from the requirements, many often list degrees as desired.

With AI, we have the ability to bridge language gaps and, more importantly, knowledge gaps. AI will remove the mundane first, freeing-up resources for more strategic thoughts and planning. These are exciting times and we need to embrace our tools as assets and attract people to make sure they remain useful. If we commit to meeting people where and how they want to learn and work, diversity and talent shortages begin to solve themselves. We need to start younger.

> 'WITH AI, WE HAVE THE ABILITY TO BRIDGE LANGUAGE GAPS AND, MORE IMPORTANTLY, KNOWLEDGE GAPS. AI WILL REMOVE THE MUNDANE FIRST, FREEING-UP RESOURCES FOR MORE STRATEGIC THOUGHTS AND PLANNING.'

MARK ACTON
HEAD OF TECHNICAL DUE DILIGENCE AT FUTURE-TECH

One of my biggest frustrations when it comes to the so-called skills gap within our sector is not the lack of available talent for our sector, but the way that we insist on cutting ourselves off from it!

There is certainly a shortage of qualified engineering professionals worldwide for all sectors, not just data centres, but the solution to that is getting more young people into STEM at an early age. That is probably more about influencing parents rather than young people themselves. This is something that we can contribute to as a sector, but not fundamentally change by operating alone.

Given that there is a shortage of qualified engineers out there, and that we are fishing in a relatively small pond, we should clearly be doing a far better job of highlighting the data sector as a career of choice rather than continuing to hide in the dark. HR departments also have a lot to answer for by screening out very capable candidates who do not match their corporate minimum requirements in terms of qualifications and experience.

Most of us who have been in the sector for any length of time came in through some form of back door route. We were allowed to develop in-situ. Many of the more senior people currently in the sector would probably not make it through the selection process today if they were to present with the same level of skills and experience they had when they first joined.

Ultimately, there is an immense amount of talent out there and we just need to do a far better job of gaining access to it. Part of this is making our sector more attractive as a career option but also being more welcoming and more willing to 'grow our own'.

Let's be far more willing to hire based on capability, culture and attitude rather than pieces of paper. We need to allow people to develop in roles and put HR departments back in their boxes when it comes to hiring the talent that we want, rather than what HR determines.

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'MOST OF US WHO HAVE BEEN IN THE SECTOR FOR ANY LENGTH OF TIME CAME IN THROUGH SOME FORM OF BACK DOOR ROUTE. WE WERE ALLOWED TO DEVELOP IN-SITU. MANY OF THE MORE SENIOR PEOPLE CURRENTLY IN THE SECTOR WOULD PROBABLY NOT MAKE IT THROUGH THE SELECTION PROCESS TODAY IF THEY WERE TO PRESENT WITH THE SAME LEVEL OF SKILLS AND EXPERIENCE THEY HAD WHEN THEY FIRST JOINED.'

From the ground up

Michael Akinla of Panduit explains how structured cabling enables 1.6Tb/s for artificial intelligence (AI) based data centres and offers insights on how to maximise performance, reliability and return on investment (ROI)

▶ Today's performance orientated organisations are embracing AI as the next step in productivity, speed to market and value. AI training and inference sessions are pushing data centre operators to demand ever-higher network data speeds – ranging from 400Gb/s to 800Gb/s and even up to 1.6Tb/s.

BUILDING BLOCKS

The latest high performance optical fibre cables can comfortably accommodate these speeds, while structured cabling architectures serve as the backbone for ensuring scalability, efficiency and optimal performance in AI workloads. As data transmission needs grow exponentially, cabling designs have significantly evolved, moving away from traditional low density connections towards high density, scalable and more efficient systems.

AI-driven networks require substantial computational power and smooth high speed data transmission, prompting a shift in network architectures to meet these escalating demands. Traditional duplex LC connections, which use two fibres per link, are being replaced by MPO-based connectivity. AI graphics processing unit (GPU) powered servers now utilise eight-fibre MPO-08 connectors, as specified in IEEE 802.3df, which supports aggregated 800Gb/s data rates over eight duplex lanes (16-fibres) for both multimode 800GBASE-

SR8 and singlemode 800GBASE-DR8 channels – unlike the 2-fibre duplex LC used in conventional servers.

This change effectively multiplies the fibre count by at least four when deploying 8-fibre MPOs in AI pods within data centres. Given AI's requirement for large numbers of servers, fibre density in these environments can be up to eight times higher than in traditional data centres, using conservative estimates.

SUPPORT STRUCTURE

This transition also supports the growing adoption of parallel optics infrastructures, which, combined with the dramatic increase in fibre usage (by a factor of eight), is essential to meet the bandwidth demands of AI. However, this shift introduces new challenges in fibre density and management that must be addressed to fully harness the potential of AI-driven systems.

The rapid adoption of 400Gb/s and 800Gb/s network speeds requires significantly more fibre links. AI clusters rely on angled physical contact (APC) multifibre MPO connections for server to leaf links, and your more traditional singlemode MPO connections for leaf to spine links, which means fibre volumes have increased exponentially. Without a structured approach, data centres risk excessive cable congestion, increasing

difficulty in maintenance and reducing airflow optimisation.

AI workloads operate within clustered architectures, often requiring shorter cabling runs, with a large percentage of AI networks built in <50m SuperPods. This means propagation latency due to the additional connection points that structured cabling introduces is not a concern, as light propagation delay over such distances (<50m per SuperPod) remains below 250 nanoseconds, which is negligible compared to switching and signal processing delays.

FACTS OF THE MATTER

The misconception that structured cabling introduces excessive latency compared to direct point to point cabling is being countered with strong evidence that latency from structured cabling is minimal. Moreover, most delays in AI networks arise from forward error correction (FEC) and buffering at the switch level, not from the additional fibre connectors that only introduce optical loss.

Another of the concerns against structured cabling in AI networks is that added connector loss may cause channel performance risk. This argument should be discussed in context of working with transceivers fully compliant with Ethernet channel specs which allocate connectivity losses of 1.5dB for multimode fibre channels and about 2.5dB for singlemode fibre

channels.

The concern can be addressed even when looking at proprietary designs. Extensive testing shows that when keeping connector losses within the mentioned limits and observing good installation and cleaning practices, links will comply with IEEE 802.3df. Thus, a well designed structured cabling infrastructure does not negatively impact latency sensitive AI workloads.

RIGHT FIRST TIME

To maximise ROI, optimise longevity and ensure seamless operation, structured cabling systems must be designed with the following criteria in mind:

• Scalability and modularity

Data centres must implement modular patch panels and high density MPO cabling to allow for seamless upgrades as network speeds increase. A structured approach allows for better management of fibre expansion without requiring frequent overhauls.

• Optimised cable pathways and management

High density cabling can lead to congestion

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SuperPod with Overhead Distribution Racks
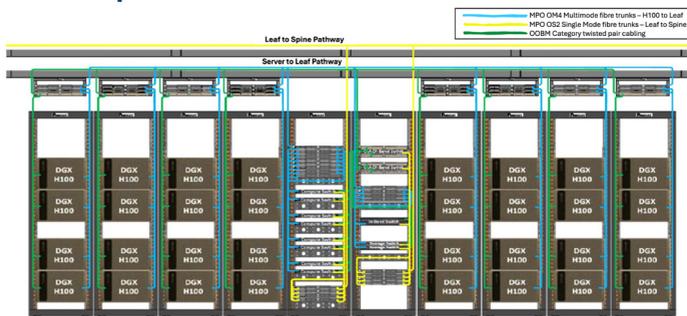
'AI-driven workloads demand high speed and high density network infrastructures, making structured cabling essential for modern data centres.'

• Energy efficiency and sustainability
As AI workloads consume significant amounts of power, structured cabling can contribute to power efficiency through the

in pathways, negatively impacting airflow and serviceability. Structured cabling mitigates these risks by consolidating multiple fibre runs into high count trunks. This approach significantly reduces the physical footprint of fibre pathways, with estimates showing a reduction of up to 70 per cent in pathway utilisation when structured cabling is deployed.

adoption of multimode fibre. Multimode transceivers consume up to 15 per cent less power than their singlemode counterparts, making them an attractive option for AI workloads operating within shorter reach distances.

POINT OF ORDER
While some organisations still rely on direct

• Reliability and reduced network downtime
Structured cabling improves maintainability and minimises the risks associated with excessive cable slack, improper bend radii and disorganised cable management. Implementing structured pathways ensures that connections are well documented, labelled and accessible, which simplifies troubleshooting and reduces mean time to repair (MTTR).

Panduit labs have tested structured links for AI to ensure link performance

	Structured Cabling	Point to Point Cabling
Low Latency	**Good** Fiber connectors do _not_ affect Latency	**Good** Fewer components
High Cable Density	**Good** Can consolidate multiple cables into few higher count trunks reducing pathway usage by up to 70%	**Poor** Higher number of cables = more congestion
Ease of Installation	**Good** Simpler to run Permanent Link before cabinets are installed and add jumpers later	**Medium** Only one cable from Server to Switch, but difficult to debug / rework
Slack Cable Management	**Good** Panels offer space for slack and Jumpers are simple to estimate length = less slack	**Poor** Difficult to correctly measure length = more slack

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• Future proofing with high density connectivity
The transition to high speed networking requires infrastructure that supports evolving standards. The shift towards 16-fibre MPO connectors for 800Gb/s deployments allows for network scalability while maintaining compatibility with existing 400Gb/s systems. Investing in structured cabling that accommodates future higher density connectors ensures a seamless migration path for increasing bandwidth needs.

point to point cabling for their high speed AI networks, this approach introduces several challenges:

• Increased fibre management complexity
Point to point cabling can create a chaotic infrastructure with excessive slack, making moves, adds and changes difficult.

• Limited scalability
Expanding point to point networks requires additional fibre runs, which leads to congestion and inefficient space utilisation.

• Higher operational costs
The difficulty of maintaining and

troubleshooting point to point systems increases operational expenses over time.

By contrast, structured cabling provides a well organised, scalable and maintainable network infrastructure that is better suited for AI-driven environments.

PRACTICE MAKES PERFECT

Good installation practices and complying to industry standards, such as IEEE802.3df for 800Gb/s over multimode fibre, provide guidelines that help maintain network integrity and facilitate future upgrades. They also ensure compatibility and performance consistency, as well as longevity and reliability of the cabling infrastructure.

Factors such as mapping and documenting the physical infrastructure are critical, especially as network speeds get progressively faster. Complete and accurate records must be kept from day one to create a data base that can be used to audit current installations and are invaluable when changes need to be made.

ROADMAP TO 1.6TB/S

The future of structured cabling is evolving in line with industry trends. As networking standards advance towards 1.6Tb/s and beyond, structured cabling solutions must adapt. Emerging technologies such as co-packaged optics (CPO) and next generation small form factor connectors, such as MDC, are expected to further optimise fibre management in AI workloads. Additionally, enhanced modulation techniques, such as PAM-4, will enable higher transmission rates over existing fibre infrastructure, reducing the need for frequent cabling replacements.

AI-driven workloads demand high speed and high density network infrastructures, making structured cabling essential for modern data centres. The transition from LC to MPO, increasing fibre density and the need for scalable and efficient network architectures highlight the importance of a structured approach. By implementing best practices in structured cabling, organisations can optimise network performance, minimise latency concerns, reduce pathway congestion and ensure a future proof infrastructure.

MUST HAVE

With AI workloads continuing to expand their effect on our daily lives, a structured cabling approach is not just beneficial, it is a necessity for ensuring seamless operation, scalability and long-term reliability in high performance data centres. ◼

MICHAEL AKINLA

Michael Akinla is business manager central Europe north at Panduit. He brings over 20 years' experience in the deployment of Panduit's most complex solutions and has extensive experience in working with several large global accounts to bring about significant improvements in terms of higher bandwidth deployments, reduced Power Usage Effectiveness (PUE) ratings and lower total cost of ownership (TCO).

Scratching the surface

Data centre energy efficiency measures often focus on cooling systems and server optimisation, however, embodied carbon in the physical infrastructure is often overlooked. Barry Roberts of Marshall-Tufflex discusses how cable management systems that incorporate recycled content offer an environmental win

▶ Data centres have become the backbone of our digital infrastructure, housing vast networks of servers and equipment that keep our connected world functioning. A less visible but nonetheless crucial aspect of these facilities is the extensive cable infrastructure housed within them.

SHARE OF VOICE

Carbon emissions in buildings, including data centres, fall into two primary categories – operational carbon and embodied carbon. Operational carbon refers to the emissions generated during day-to-day operations – primarily from energy consumption for power, cooling and lighting. The data centre industry has made significant strides in this area, with innovations in server efficiency, cooling technology and renewable energy sourcing.

However, embodied carbon – the CO2 emitted during the extraction of raw materials, manufacturing, transportation, installation and eventual disposal of building components – has received considerably less attention. To truly achieve net-zero by 2050 and effectively address the climate emergency, both operational and embodied carbon must be tackled simultaneously.
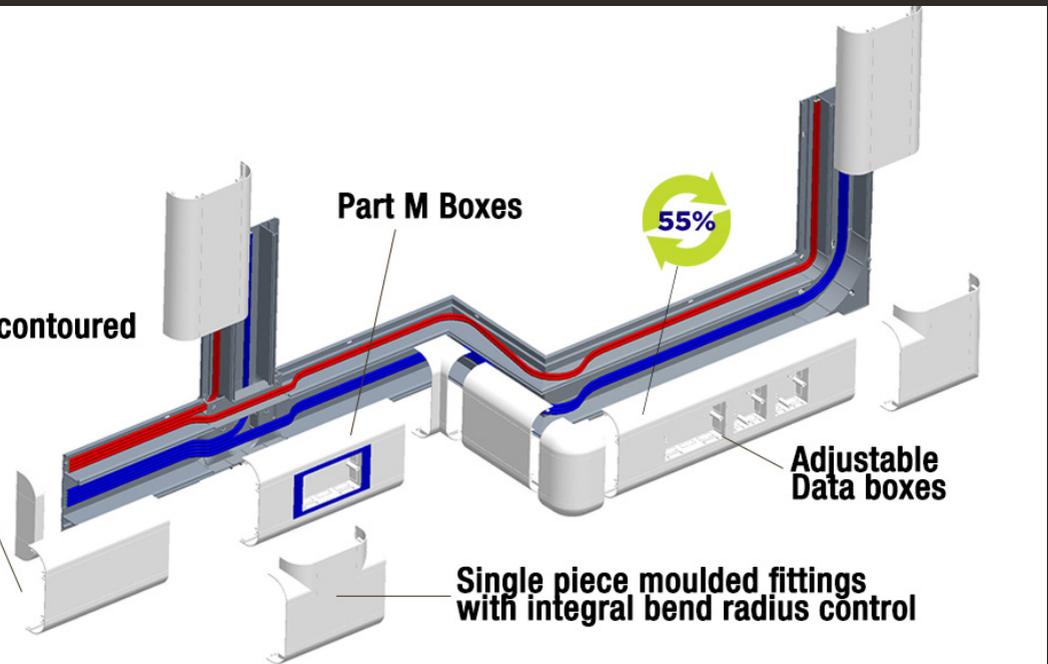
OPPORTUNITY KNOCKS

Data centres, with their complex infrastructure and frequent refresh cycles, present a unique opportunity to address embodied carbon. From raised flooring and racks to the extensive network of cable management systems required to house and organise massive cable plants, each component contributes to the facility's overall carbon footprint. By examining each element of a data centre project and identifying opportunities for carbon reduction, designers, engineers and owners can make meaningful progress toward sustainability goals.

While often overlooked as a contributor to embodied carbon, cable management systems represent a substantial component of a data centre's interior infrastructure. In larger facilities, the sheer volume of cable management products, including trunking, conduit and containment systems, means that the environmental impact of these components is significant. By specifying PVC-U cable management systems manufactured using recycled materials, data centre designers can make a considerable impact on a project's overall sustainability profile.

Gently profile

'As data centre owners and operators face increasing pressure to demonstrate environmental responsibility, specifying cable management systems with recycled content represents a straightforward and cost neutral way to reduce embodied carbon and support sustainability objectives.'

Part M Boxes

contoured

55%

Adjustable Data boxes

Single piece moulded fittings with integral bend radius control

SPEND AND SAVE

The environmental benefits of using recycled PVC-U in manufacturing are well documented. Research from the Sustainable Industrial Systems Group at the University of Manchester found that PVC-U products manufactured using recycled content have between 17-20 times less embodied carbon than those made from virgin plastic. When applied to the scale of cable management systems in a typical data centre, the potential carbon savings become substantial.

For nearly three decades, Marshall-Tufflex has been incorporating reclaimed PVC-U into its manufacturing processes. The amount of recycled material used in each range varies but, as an example, one trunking solution is manufactured using 55 per cent recycled material, and maxi trunking lengths are manufactured using 100 per cent recycled material. This not only reduces embodied carbon but also embraces circular principles by diverting significant amounts of plastic waste from landfill.

'While often overlooked as a contributor to embodied carbon, cable management systems represent a substantial component of a data centre's interior infrastructure.'

SPECIFICATION CHOICES

For data centre designers and infrastructure specialists looking to improve the sustainability profile of their projects, several key factors should be considered when specifying cable management systems:

• Prioritise recycled content

Look for manufacturers that are transparent about the percentage of recycled material used in their products. I advocate for a minimum of 50 per cent recycled content in PVC-U cable management products and would call on the industry to make this the standard by 2028. This simple specification requirement can drive significant environmental improvements across the sector.

• Understand the source of recycled materials

The recycled content used in cable management systems typically comes from post-industrial waste such as offcuts and discarded material from manufacturing processes. This contributes to circular economy principles and reduces the need for virgin materials.

• Don't compromise on quality

Specifying products with recycled content shouldn't mean accepting lower quality or performance standards. Choose manufacturers who implement rigorous quality testing regimes to ensure that recycled content products maintain the same performance characteristics, appearance and durability as those made from virgin materials.

• Consider whole life benefits

While the primary focus may be carbon reduction, consider the additional benefits of specifying recycled content products. These include waste reduction, resource conservation and the potential to contribute to green building certification schemes such as the Building Research Establishment Environmental Assessment Method (BREEAM) and Leadership in Energy and Environmental Design (LEED).

SIMPLE STEP

As data centre owners and operators face increasing pressure to demonstrate environmental responsibility, specifying cable management systems with recycled content represents a straightforward and cost neutral way to reduce embodied carbon and support sustainability objectives. While no single measure can address all the environmental challenges faced by the industry, combining multiple targeted interventions, including responsible material specification, can lead to significant cumulative benefits.

The data centre sector has an opportunity to lead by example in addressing both operational and embodied carbon, setting new standards for sustainable infrastructure development. By making informed choices about seemingly minor elements like cable management systems, the industry can make meaningful progress toward a more sustainable future – one specification decision at a time.

BEST OF ALL WORLDS

For data centre designers, engineers and operators looking to improve their sustainability credentials, choosing

PVC-U cable management solutions with high recycled content from trusted manufacturers offers a simple yet effective step toward reducing environmental impact without compromising on quality, performance or aesthetics. ◼

BARRY ROBERTS

Barry Roberts is national specification manager at Marshall-Tufflex and brings over 35 years of experience to this role. His career began with a five-year electrical apprenticeship, leading to roles as electrician, quantity surveyor, project manager, and mechanical and electrical services engineer. Roberts has contributed to diverse projects including rail, government buildings, data centres and educational facilities.

Panduit

Panduit's FlexFusion XGL cabinets for network and server equipment provide maximum capacity to manage high cable density in data centre, enterprise or colocation deployments. Available with lockable door solutions, FlexFusion XGL cabinets offer a secure solution for 19-inch rackmount IT equipment, providing extensive cable management options with high thermal efficiency, and are suitable for hot aisle/cold aisle or thermal containment.

Manufactured in welded steel, the cabinets come in fixed configurations of 600mm and 800mm widths, 1070mm and 1200mm depths and 42RU and 48RU heights. Front single hinge door and split hinged rear doors provide 80 per cent open perforation, maximising cooling airflow to the IT equipment. Meanwhile, a 170° door open angle minimises aisle obstruction and horizontally split side panels enable easy interconnection of equipment in a side-by-side configuration, while brush cable top-of-cabinet entry points reduce air leakage.

FlexFusion XGL cabinets are available in black and white. They retain maximum scalability for future moves, adds and changes, and offer a massive static weight capacity of nearly 1.6 tons and a rolling load of up to 454kg.

CLICK HERE to find out more.
www.panduit.com

Cable Management Warehouse (CMW)

When it comes to keeping installations safe, organised and compliant, effective containment and cable management solutions, like those from Marshall-Tufflex, are essential.

Sterling Curve Dado and Skirting are stylish curved perimeter systems that are easy and cost effective to use. Sterling Curve is a sleek data compliant medium sized trunking system with three segregated compartments. The adaptable system has one or two curved data compartments designed to stop clutter, avoid dust traps and make cleaning easy.

Marshall-Tufflex has been committed to sustainability for over 30 years, using recycled materials in many of its products. The Sterling Curve Dado profile contains 55 per cent recycled content, while the Skirting profile contains 52 per cent.

CLICK HERE to see the full range of Marshall-Tufflex cable management solutions available from CMW or get in touch by calling 01234 848030.
www.cmwltd.co.uk

Excel Networking Solutions

Excel Networking Solutions has introduced the Environ Racks Configurator, an online tool designed to simplify the selection of Environ racks and accessories. This tool guides users through a step-by-step process, ensuring they choose the right racks, shelves and accessories for their specific needs.

By offering compatibility checks, downloadable specification sheets and an opportunity to create a list of materials required, the configurator streamlines ordering and reduces errors. It is ideal for installers, specifiers and distributors looking to save time and improve efficiency when planning rack installations.

Excel's Environ range is known for its reliability and flexibility, and this new tool further enhances the user experience by making rack specification easier than ever. Available now on Excel's website, the Environ Racks Configurator is free to use and helps professionals quickly and accurately configure their rack solutions.

CLICK HERE to find out more and see how it can streamline your next project. **www.excel-networking.com**

HellermannTyton

HellermannTyton has developed a full data centre connectivity solution, designed to offer high density optical fibre capacity, excellent cable management and panel housing. RapidNet Ultra is a cassette based pre-terminated system that delivers a wide variety of options and flexibility when designing the data centre network.

RapidNet Ultra takes the existing data centre fibre solution beyond today's requirement. It offers an even greater fibre density while accommodating very small form factor connectivity and supports tomorrow's requirements for high bandwidth, advanced network architectures and Ultra Ethernet.

To support the RapidNet Ultra solution, HellermannTyton has also produced its Data Centre Cabling Guide, which is designed to help specifiers and data managers choose the best RapidNet system to achieve their network design. It covers everything from optical transceivers to polarity and data centre architecture and topology, assessing the key benefits and considerations at the design phase.

To complete the data centre solution, HellermannTyton can now offer a fibre duct raceway with the addition of a rack solution due to be released in 2025.

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

Panduit

The FlexCore optical distribution frame (ODF) from Panduit offers a versatile and secure front access cabling system that also provides improved protection for critical optical fibre connections.

Utilising innovative cable management and simple, intuitive cable routing, the FlexCore ODF simplifies and reduces time for moves, adds and changes. With standard locking doors and optional locks on each enclosure, the FlexCore ODF solution enables multi-tiered security – an important addition for multiple client access.

The system manages up to 3,168 fibres

30% Faster Moves, Adds and Changes

per frame, and provides multiple configurations using just three modular building blocks. This flexibility allows for design customisation and scalability, while optimising both product availability and system density. Compared to typical data centre cabinets, the FlexCore ODF can reduce floorspace in a data centre by 50 per cent. In addition, with side panels and doors with locks, the FlexCore ODF solution allows the system to be completely enclosed and secure.

CLICK HERE for more information on the FlexCore ODF. **www.panduit.com**

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to know

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Inside_Networks

MEDIA KIT 25

Shaping the future

CommScope's Jan Honig identifies the product strategies for improving data centre sustainability

▶ When we talk about sustainability, our discussions typically revolve around carbon footprint data and how the decisions we make today impact our net-zero targets. One of those decisions is the adoption of artificial intelligence (AI) and continued investment in its growth. Despite AI's many realised and projected benefits, it also has an insatiable demand for power – Goldman Sachs Research forecasts a 50 per cent increase in global power consumption by 2027, rising to 165 per cent by 2030. The exponential growth in power usage shows no signs of slowing, consequently the same is true for the new technologies and network infrastructure needed to support AI.

POWER DEMANDS

Amid mounting external pressure, major tech companies have made bold climate commitments in recent years. However, the rapid rise of AI now threatens to push many of these goals out of reach, with reported emissions increasing over the past five years driven largely by higher energy use at data centres and growing supply chains.

It's evident that the future growth of AI needs a strong carbon mitigation plan involving manufacturers and vendors across the entire supply chain. With this in mind, and despite a historically cautious mindset, the data centre market is now taking decisive steps to address its environmental impact. More specifically, data centre providers are focused on reducing the carbon intensity of the energy consumed, with initiatives such as reducing water use and eliminating diesel generators being common topics of discussion. Less commonly discussed is the role of cabling and connectivity, yet it has its own part to play.

A CLOSER LOOK

For successful AI data centre cabling and connectivity, it is crucial to scrutinise products and materials. This includes optical fibre and cable networks in data centres and across the supply chain. While cabling infrastructure might not seem like a significant contributor to greenhouse gas emissions it does contribute both directly in the case of the carbon footprint of cable manufacturing, and indirectly, for instance

when unstructured cabling blocks airflow and forces cooling systems to work harder.

Innovations in cabling design, combined with the integration of lifecycle and eco-design principles into product development, can minimise waste, reduce operational carbon footprints and help contain AI's contribution to escalating climate risks. The following insights can help data centre owners reduce their environmental footprint of their broader operations, such as manufacturing, transportation and the use of these materials in their facilities.

RETHINKING CONSTRUCTION

Choosing the right building blocks for data centre connectivity goes a long way toward helping data centres meet their sustainability goals. For example, 16-fibre trunk is the most flexible way to support speeds of 400Gb/s and above, allowing network managers to reduce their power draw and maximise the value of their cabling investments. Beyond energy efficiency, 16-fibre trunks also enhance on-site labour efficiency and reduce space requirements, ultimately improving day two

operations by minimising truck rolls and their associated CO_2 emissions.

Another impactful way data centre operators can advance their sustainability efforts is through innovative fibre cabling designs. A standout example is rollable ribbon fibre cable. While smaller diameter cables already offer advantages in pathway weight and space savings, rollable ribbon cables take this a step further, allowing for significantly higher fibre counts in smaller cable diameters. For example, up to six 3,456-fibre cables can be installed in a single 10cm duct – more than double the density compared to traditionally packed fibres. These cables not only reduce the use of plastics and other related materials but also offer enhanced fibre protection and routing flexibility than traditional central tube ribbon cables.

LIFECYCLE ASSESSMENTS

As part of their sustainability commitments, data centre operators should conduct in-depth evaluations of the materials and chemicals used in their products. These efforts can drive the development of innovative technologies that help reduce

'It's evident that the future growth of AI needs a strong carbon mitigation plan involving manufacturers and vendors across the entire supply chain.'

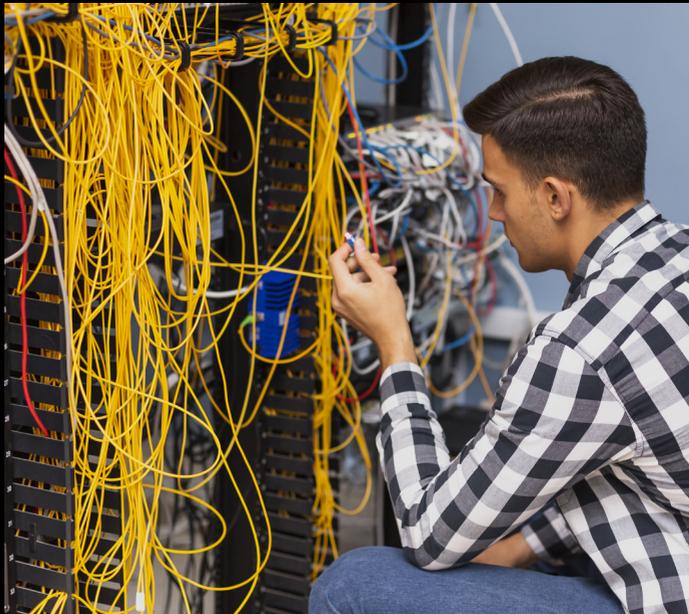the environmental footprints of their facilities.

For example, companies can complete lifecycle assessments (LCAs) and environmental product declarations (EPDs) for their copper and fibre cable portfolios. LCAs quantify the potential environmental impacts of products or processes from raw material extraction to end of life disposal, while EPDs measure the environmental effects of products and are increasingly used to calculate the embodied carbon of a data centre.

MATERIAL WORLD
The demand for more zero waste products is driving innovative approaches to material use and design. It's a trend that supports the growing momentum of the circular economy. This, in turn, encourages forward thinking product development. To stay ahead, data centre operators should integrate lifecycle and eco-design thinking into their product development processes, as well as contribute to circular economy principles. Doing so enables the creation of products that use fewer raw materials and consume less energy.

Many operators have introduced eco packaging, replacing single use plastics with renewable and recyclable materials such

as paper and cardboard. This sustainable packaging is now used across a range of products including copper jacks, outlets, patch panels, patch cords, faceplate solutions and fibre optic systems. In some cases, plastic wrapping around cables has been eliminated entirely to meet various environmental standards.

PACK IT UP
Efforts to reduce the environmental impact of transporting goods include the use of plain, multipack shipping cartons, which maximise packing density while minimising waste. These streamlined cartons not only reduce the volume of materials that must

be discarded or recycled but also improve overall shipping efficiency. Additionally, new returnable and reusable packaging for raw materials can be folded after use and sent back to the supplier for reuse. Their design also allows for double and triple stacking, enabling the data centre industry to increase shipment capacity and reduce freight costs.

As products continue to decrease in size, the industry is shifting to packaging that complies with postal service guidelines, helping reduce both transportation emissions and packaging waste. Using fewer materials in packaging leads to less demand for raw resources and improves distribution efficiency through lighter, more compact shipments.

Further sustainability gains can come from the use of low impact, vegetable-based printing inks on packaging. Unlike conventional petroleum-based inks that emit volatile organic compounds (VOCs) and contribute to climate change and pose health risks, vegetable-based inks are renewable, mineral free and are now comparable to oil-based inks in quality and cost. Additionally, their lack of heavy metals enhances biodegradability and eliminates over 99 per cent of VOCs.

DRIVING FORCE

While each initiative may appear small and lacking impact on its own, collectively they can significantly shape a greener future and drive innovation and progress. As AI continues to escalate carbon footprints, integrating sustainable practices into cabling and connectivity becomes crucial. By embedding the highest standards of sustainability into corporate culture, global operations, data centre management and employee education, operators can minimise the environmental impact of their operations. Through innovative cabling designs, smart engineering and energy efficient solutions, they can reduce waste, lower carbon emissions and build world class networks that deliver exceptional performance while promoting environmental responsibility. ■

JAN HONIG
Jan Honig is vice president sales data centre solutions for Europe at CommScope. Over the last seven years, together with his Benelux team, Honig has been responsible for all sales activities at the client, business partner and consultant level in the enterprise business.

BCS makes senior appointment to support critical infrastructure service

BCS has appointed Philip Dekker as head of service for its critical infrastructure cost management service. Dekker joins BCS from Johnson Matthey, where he was global commercial director, and he will lead the company's specialist cost management teams, developing its service and looking for opportunities to provide tailored and innovative solutions to clients.

Dekker said, 'Joining BCS reflects a significant step in aligning my career goals with a company that values innovation, professionalism and excellence.

Philip Dekker

I was drawn to is reputation for delivering mission critical solutions and the focus on empowering businesses to thrive in complex, high pressure environments. The opportunity to be part of a team that tackles intricate challenges and implements cutting edge strategies is incredibly exciting.'

Portus Data Centers appoints Jörgen Venot as director of international sales

Portus Data Centers has appointed Jörgen Venot as director of international sales. He is a seasoned international C-Level executive and entrepreneur with extensive management experience and a proven track record in delivering major colocation, high performance computing and data centre sales.

Active in the data centre industry for over 15 years, Venot was previously chief sales officer at Data Castle, having joined the company in 2023 from The Data Center Group, where he was head of sales and marketing. While there he had also served as international sales director of DC Products, the company's edge IT security products subsidiary.

Jörgen Venot

'I believe my knowledge of the international data centre industry, from strategic business development to operations, investment, design, planning and construction, will be invaluable in my new role,' said Venot. 'I am looking forward to ensuring we accelerate and maximise existing and new international client business opportunities in the Germany, Austria and Switzerland (DACH) region, as well as in other strategic European edge markets.'

Rebecca Nye and Raul Guerra join Excel Networking Solutions to focus on its Elevate data centre portfolio

Excel Networking Solutions has appointed Rebecca Nye and Raul Guerra as account directors for digital infrastructure Europe. Nye joins the company from Legrand, where she held various senior sales positions for almost 10 years, while Guerra was previously enterprise national account manager at Vertiv.

Nye and Guerra will focus will be on the new Elevate brand and technology partnerships. Andrew Percival, Excel Networking Solutions' managing director, commented, 'Rebecca and Raul bring a wealth of knowledge and experience, and will help drive the demand for the Elevate brand and our technology partners within the data centre market.
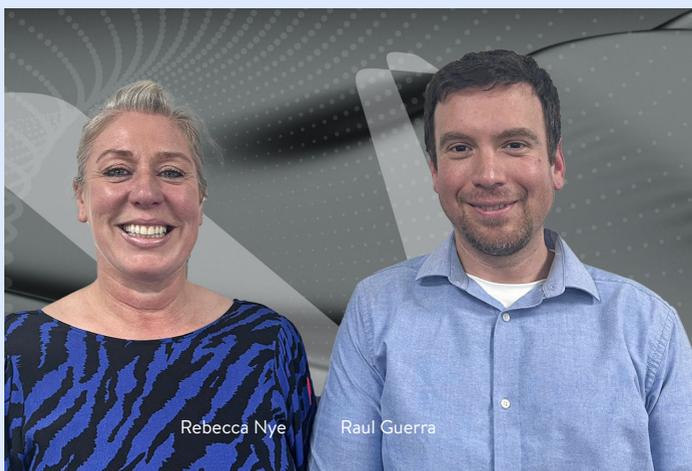
Rebecca Nye   Raul Guerra

They will work alongside our sales teams to sell and support the brand to our existing client base, who work in the data centre space.'

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CHANNEL UPDATE IN BRIEF

As part of its ongoing growth across Europe, nLighten has appointed Justin Nesbitt as managing director of nLighten UK. Nesbitt joined nLighten in October 2023 as UK sales director, following the acquisition of Proximity Data Centres. Since then, he has been instrumental in driving new business, strengthening strategic partnerships and solidifying nLighten's position as a leader in edge data centre solutions.

Mayflex has achieved BS EN ISO/IEC 27001:2022 certification for information security management systems (ISMS). ISO 27001 is a globally recognised standard that outlines the requirements for establishing, implementing, maintaining and continually improving an ISMS.

Black Box has appointed Jai Venkat as the company's chief revenue officer in the Americas. Venkat will lead revenue strategy and execution, driving growth, bolstering account management and accelerating revenue across all industry verticals and horizontal practices.

Vertiv has signed an authorised service partner program agreement, focused on IT monitoring and management, with Collaborate IT. Serving UK and Ireland, the partnership brings together Collaborate IT's 20 years of expertise working with data centres, server rooms and IT at the edge, and the Vertiv suite of IT management tools and devices.

Pedal to the metal

With over two decades of experience in technical and operational leadership, Mike Hoy knows what it takes to keep pace with constantly evolving client needs. Rob Shepherd spoke to him about his life and career, and the service and technology challenges faced by data centre operators

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

MH: When I am not volunteering and coaching young cyclists, I work as the chief technology officer (CTO) at Pulsant. While I only stepped into the role in June last year, my career at Pulsant began in 2016. Over the years, I have played an integral role in shaping the company's technology roadmap, notably contributing to the launch of platformEDGE, our edge computing offering and, more recently, Pulsant Private Cloud.

Day-to-day, I lead the organisation's technology agenda, ensuring our platformEDGE digital infrastructure adapts to clients' evolving demands, particularly in artificial intelligence (AI) and edge computing. Also, through strategic technology investments, I ensure that clients have access to the tools and technologies needed to meet their evolving business needs.

RS: How and why did you decide to embark on a career in data centres?

MH: I started my working life thinking I wanted to be a mechanical and electrical engineer. I was fascinated by everything from industrial electrical installations,

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robotics and the control systems behind them. Ultimately, I found myself gravitating more towards the latter and grew my career around systems and IT infrastructure.

Around 2007 I joined the management team of a small northeast-based managed service provider with aspirations to expand into the realm of data centres. We built the NE-2 facility that is now part of Pulsant's platformEDGE – which includes a network of 14 data centres across the breadth of the UK. This experience, and subsequent integration into the wider Pulsant organisation, combined my early day enthusiasm for mechanical and electrical engineering with my compute and network experience growing a managed service provider business.

RS: How do you think wider society perceives the data centre sector and is there enough understanding amongst the general population about what they are and what they do?

MH: Given how integral data centres are to the functioning of our lives, it's amazing that research from Telehouse found that over two-thirds of the UK population don't know what they are or what they do. Fortunately, once people understand the economic benefits of the sector, they feel a lot more

> 'There's a growing perception that data centres are just unsightly, power hungry buildings that people don't want near them. Changing this perception will be a challenge without a better understanding of how critical digital infrastructure is to everyone.'

positively about data centres.

That said, there's a growing perception that data centres are just unsightly, power hungry buildings that people don't want near them. Changing this perception will be a challenge without a better understanding of how critical digital infrastructure is to everyone – and what steps industry players are taking to address the potential downsides of their operations.

We need to shift the focus to the positives. Data centres play a vital role in enabling AI-driven diagnostics in healthcare, powering e-learning platforms and supporting high performance computing for breakthroughs in drug discovery, to name just a few. If the benefits could be more widely communicated and understood, then I think the general population would be far more welcoming towards data centres.

RS: 'Cloud-first' strategies are increasingly being rethought – why and what's next?

MH: While the public cloud offers clear advantages, cost concerns are becoming impossible to ignore. In addition, challenges such as vendor lock-in and the complexities of managing data across multiple regions

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'Investing in regional data centres not only helps stimulate local economies but also broadens access to technological resources, extending beyond just the major urban hubs.'

are driving a shift in mindset.

We are also seeing uncontrolled cloud sprawl, where cloud workloads grow unchecked, leading to escalating expenses. At the same time, strict data sovereignty regulations in Europe are compelling organisations to reconsider how and where they store and process their data. These regulations are adding another layer of complexity to the already challenging cloud landscape, forcing companies to find solutions that not only meet compliance requirements but also allow for optimal performance and cost management.

As a result, businesses are moving away from an all-in cloud approach in favour of hybrid strategies that blend public cloud, private cloud and on-premises infrastructure. This shift isn't just about cost savings, it's about regaining sovereignty over critical data and workloads.

RS: How important is network connectivity in achieving true data sovereignty, ensuring compliance with local laws while protecting privacy and security?

MH: When thinking about data sovereignty, I break it down into three key areas – processing, moving and storing data. For each of these, it's essential to know exactly where your data is at all times. Of these, moving data – network connectivity – is the hardest to track. The complexity of distributed networks, dynamic routing and security layers makes it difficult to ensure data remains within legally required jurisdictions.

If you can't guarantee that your data stays where it is legally bound, you risk regulatory fines and reputational damage. Understanding and controlling data movement is crucial to maintaining compliance and protecting your organisation.

RS: How is the growth in AI affecting the data centre sector and what opportunities, and difficulties, is it presenting?

MH: Interest and investment in AI infrastructure have surged, with even the UK government making significant commitments. Its 10-year plan aims to build a world class AI compute ecosystem, focusing on what it calls AI Growth Zones, increasing funding for AI research hubs and AI security initiatives.

So far, the emphasis has largely been on hyperscale AI facilities, but as real-world AI applications mature, particularly those reliant on inference, demand for edge infrastructure is set to grow. The real challenge will be keeping pace with demand while ensuring these data centres have access to sufficient power, especially in regions already facing grid constraints.

Also, AI applications demand real-time data processing and, as data volumes grow, data centres must be equipped to handle large scale data transfers while minimising latency. Achieving adequate bandwidth and maintaining low latency networks are increasingly challenging, especially when managing geographically dispersed systems or edge computing environments.

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RS: Do growing AI workloads and the trend toward repatriating data to private clouds highlight an urgent need for standardisation in data migration across diverse environments?

MH: Just as banking regulations have made it easier to switch accounts, the push for clearer rules on cloud migration could simplify the planning process for AI infrastructure. By standardising data movement, businesses will be able to adopt hybrid cloud models that are better suited to their AI needs and overall objectives.

As AI workloads are increasingly spread across different environments, a standardised approach will drive faster adoption, encourage best practices and help organisations lead the way as the AI market continues to grow. Additionally, by setting common standards, the industry will encourage collaboration and knowledge sharing, allowing organisations to work together in solving common challenges and advancing AI technologies. Ultimately, this regulatory clarity and standardisation will help businesses take the lead in an increasingly AI-driven world, positioning them to succeed as the AI market continues to evolve and mature.

RS: It's that crystal ball moment – how do you see the world of data centres developing over the next few years and what would you like to see happen?

MH: In 2024, the UK government officially classified data centres as critical national infrastructure, rightly acknowledging their crucial role in the country's digital economy. However, it remains unclear what this designation will mean in practice. Downtime often arises from issues with external suppliers, partners or clients, which underscores that digital resilience is a broader, ecosystem-wide challenge. I'm hopeful this will lead to greater collaboration across the sector to minimise disruptions.

Another trend I expect to see develop is the regionalisation of data infrastructure. Investing in regional data centres not only helps stimulate local economies but also broadens access to technological resources, extending beyond just the major urban hubs. Unfortunately, many smaller organisations are overlooking their long-term digital strategy, a shortsighted approach that could hinder their future growth and ability to stay competitive.

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

MH: I have had the privilege of meeting and working with several fantastic colleagues and leaders over my career. One small piece of advice that always sticks with me when I am faced with a challenge or opportunity is to 'positively accept it or positively change it'. I have held this view when I step forward or lean into an opportunity. ∎

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'If you can't guarantee that your data stays where it is legally bound, you risk regulatory fines and reputational damage. Understanding and controlling data movement is crucial to maintaining compliance and protecting your organisation.'

Quickclicks

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

Sysdig has released its 2025 Cloud-Native Security and Usage Report. It provides insights into real world cloud security and usage trends, highlighting enterprise security progress while identifying key areas that demand attention. **CLICK HERE** to download a copy.

UK Data Centres: The Next Steps Needed To Drive The UK's Digital Transformation is a white paper from **Kao Data** that looks at how, as critical national infrastructure (CNI), data centres are crucial for enabling transformative technologies.
CLICK HERE to download a copy.

Understanding Mode Field Diameter (MFD) In Hyperscale And AI Data Centers is a white paper from **AFL.**
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Smart Solutions For Smart Buildings is a white paper from **AEM Precision Cable Test.**
CLICK HERE to read it.

Minimizing Cyber Risk And Doing It In A Simplified Way – The Key To Secure IT Infrastructure Success is a blog by Kevin Brown of **Schneider Electric.**
CLICK HERE to read it.

Data from the latest **Freshworks** AI Workplace report revealed that 61 per cent of employees now consider AI as a necessary tool, leading to an expected increase in AI investment across most organisations during 2025.
CLICK HERE to download a copy.

Data Centre Challenges – The AI Dichotomy is a blog by Mike Holmes of **Aginode.**
CLICK HERE to read it.

Exceeding expectations

Kevin Brown of Schneider Electric examines the next step in the evolution of data centre infrastructure management (DCIM) solutions

▶ The challenge is on for organisations to run IT infrastructure that is resilient, secure and sustainable. The enterprise IT landscape shows not only an abundance of data but also an increased dependency on IT and we see a hybrid IT environment that comes in so many forms – enterprise data centres, edge IT rooms, private cloud, on-premises and more. Infrastructure is complex and sprawling across various environments, regardless of the terms. The challenge for chief information officers (CIOs) has taken on new significance with the risk of power outages and cybersecurity topping the list of business concerns, as well as sustainability regulations taking hold in some parts of the world.

MEETING THE CHALLENGE

DCIM software has changed significantly since its inception. It was born as a concept to address challenges relevant for enterprise data centres, with features that evolved to support the colocation environment. However, this version of DCIM was not oriented to support the complexities of the hybrid IT environment that most CIOs face.

Three years ago, our company modernised our DCIM software portfolio to meet this challenge and lead the industry toward a new evolution of DCIM. The industry needed to rethink its approach and create solutions that were able to provide customers and partners with the ability to have the most resilient, secure and sustainable IT infrastructure possible – including hybrid IT – not just data centres.

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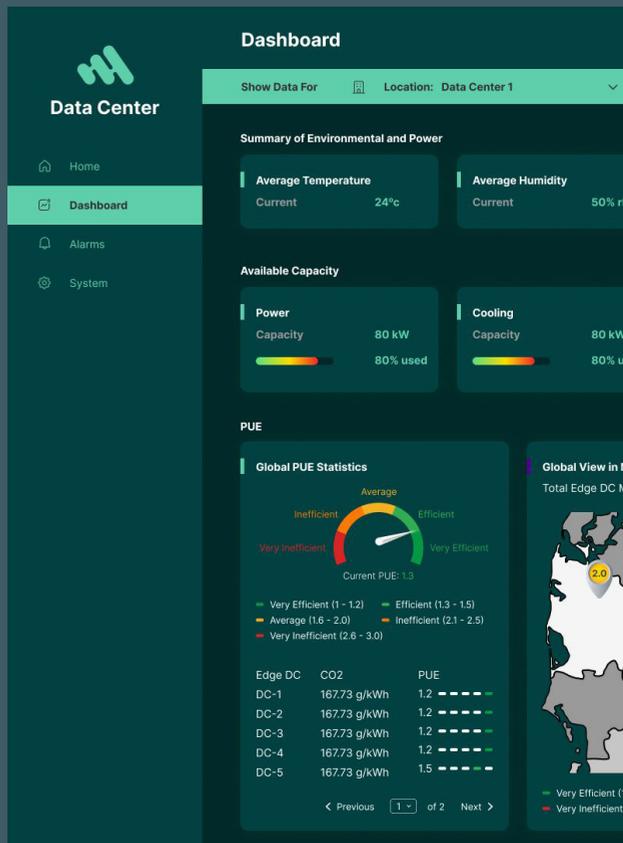
DRILLING DOWN

Many people talk about resiliency, security and sustainability in big, broad terms. I don't. I like to get into the details of each one because that is where you can see the differences. For example, with resiliency the focus is on lowering the risk of downtime while boosting resources and optimising space. For security, we must help customers minimise cyberthreats by ensuring firmware updates are simple to apply, in addition to providing reports to identify devices that are configured improperly relative to the company's security policy. In only the last 2-3 years newly emerged software tools have revolutionised this process.

We've also witnessed an increasing demand from customers to ensure the DCIM software itself is cybersecure. DCIM vendors are now investing in cybersecurity certifications which demonstrate that standards are in place, assuring customers and partners of the reliability and security of systems. We've also seen a renewed interest in monitoring and managing the physical security of the IT environment.

And when sustainability enters the conversation, the industry needs to focus on how DCIM helps to report on metrics for new regulations. Some DCIM tools have evolved to assist in reporting against the regulations – not only for large data centres but also smaller environments. Years of modelling and applying algorithms have produced the ability to report at a very granular level on energy consumption, carbon usage and resource efficiency. We can identify wasted energy, resources and use of assets. Again, we are experiencing the rapid pace of technology because this capability did not exist two years ago.

NEXT STEPS

With this focus on resiliency, security and sustainability, we introduced the concept of DCIM 3.0, which is designed to meet the needs of large data centres but leveraging modern capabilities to meet the needs of the hybrid IT environment. We are excited by not only our own progress but the DCIM industry as well. When you focus on what organisations need to succeed, you help them accomplish it – especially when it is simple to use. And now, three years later, we are prepared to introduce the next step in the DCIM evolution.

While we have made much progress against our vision of DCIM 3.0, we recognise that the capabilities of DCIM need to continue to improve and expand, while continuing to simplify. And here is

'When you focus on what organisations need to succeed, you help them accomplish it – especially when it is simple to use.'
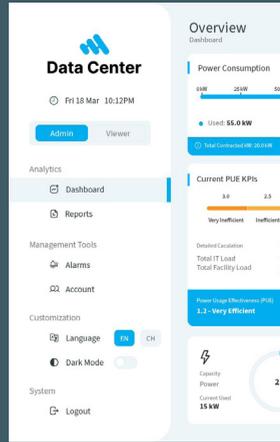
where I will get into more detail. We now propose that the industry needs to evolve how it views DCIM.
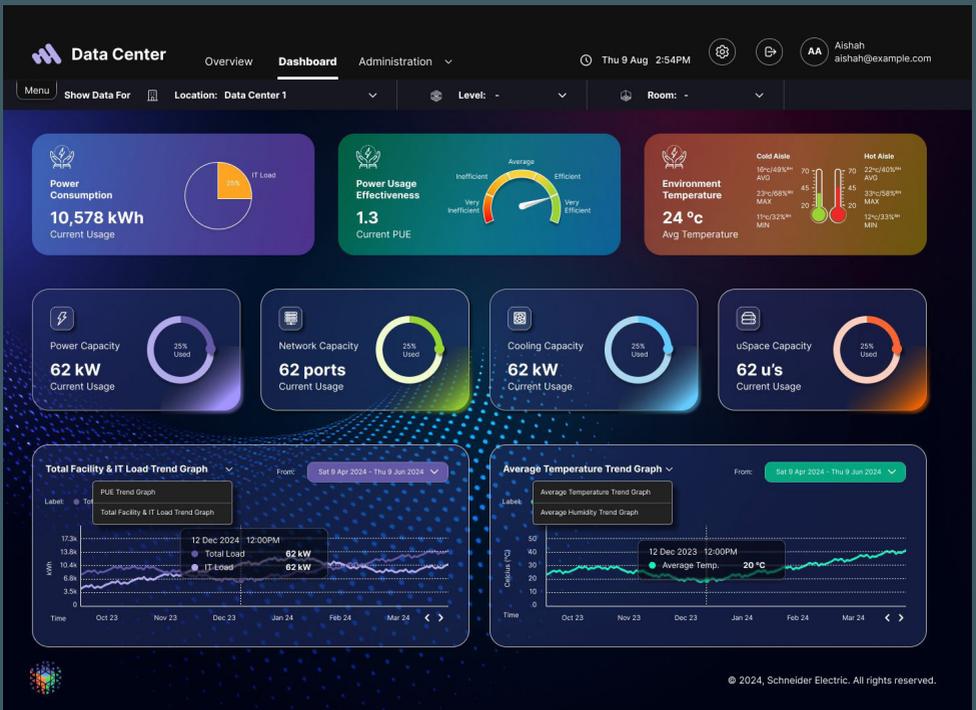
SIX OF THE BEST
DCIM helps IT managers accomplish four main tasks – monitor and control infrastructure assets, monitor the physical security and environment, make a connection to the information technology (IT) layer and model a digital twin of the IT and operational technology (OT) assets.

These four capabilities have not always been clearly messaged but various tools were available to meet these needs. We need to simplify this suite of tools and integrate them more tightly for greater ease of use.

However, with the advancement of artificial intelligence (AI) and modelling tools, there are improved capabilities to optimise cooling systems through machine learning. Meanwhile, new, easier to use airflow optimisation tools – also known as computational fluid dynamics (CFD) tools – have emerged. The capabilities

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Provide by Schneider Electric

SUCCESS STORY

The challenge is on for CIO organisations to build and operate IT infrastructure that is resilient, secure and sustainable. The latest evolution of DCIM is here to help them succeed. ■

of technology have advanced so rapidly that these highly sophisticated modelling engines are capable of being readily deployed in almost any environment.

With all six of these in-demand capabilities grouped and working together, DCIM offers its most comprehensive approach to date – just in time for the AI age.

MARCH OF PROGRESS

The acceleration of technology has enabled capabilities that were not possible until now. At the same time, the IT landscape has continued to evolve and grow in complexity. We are leveraging data driven insights to help customers automate tasks and become more proactive in addressing possible issues, all while ensuring we are doing so with a focus on the efficiency of the hybrid IT and data centre environment.

Successfully helping customers meet their challenges goes beyond a portfolio of products. Of course, the six pillars of a portfolio mentioned above are essential, but it also takes the ability to install, configure and integrate the DCIM tools. In other words, the industry needs to participate more holistically in ensuring customers benefit from this technology.

KEVIN BROWN

Kevin Brown is senior vice president EcoStruxure solutions at Schneider Electric's Secure Power Division. He is responsible for the DCIM and IT infrastructure management software business, which provides customers with insight into the resiliency and availability of their infrastructure. He also serves as head of Schneider Electric's Energy Management Technology Research Center, which researches market trends and creates content that helps customers make smart and pragmatic business and technology decisions.

Common
denominator

Jeff Safovich of RiT Tech explores the development of data centre infrastructure management (DCIM) through universal intelligent infrastructure management (UIIM)

▶ It cannot be emphasised enough just how transformative an impact artificial intelligence (AI) has had on infrastructure management. Though fully autonomous data centres likely remain a distant goal, the fact that AI-driven UIIM capabilities have created a rapid shift from reactive problem solving to predictive, autonomous optimisation is a clear step in the right direction. UIIM strengthens the case for broader adoption of intelligent automation, capable as it is of materially improving uptime, reducing operational risk and refining oversight of resource allocation.

MOVING ON UP

These innovations have given rise to invaluable capabilities such as automated provisioning, marking a significant advancement over traditional DCIM models, which primarily focus on system monitoring and responding to incidents after they have occurred. Through a UIIM framework, where data is both universal across the entire data centre and intelligent by integrating multiple management systems, AI-powered automation distinguishes itself through continuous aggregation and analysis of large volumes of real-time data about environmental conditions, power usage, spatial capacity, network topology and workload dynamics.

The more intelligent the system becomes, the more proactively it can identify anomalies and potential failures before they impact operations. At a baseline level, this significantly

increases the speed of response for failures and remediation efforts. This predictive approach both mitigates the risk of unplanned downtime and drives more effective resource management to keep infrastructure aligned with evolving business needs. Taken together, this highlights how the implications of operational intelligence are expanding, delivering measurable value across the data centre ecosystem.

CASE IN POINT

One example of this expansion is the growing adoption of AI-driven provisioning technology, which is transforming traditionally labour intensive and error prone processes such as installations, moves, adds and changes (IMAC) planning. By leveraging data from configuration management databases (CMDBs), building management systems (BMSs) and other infrastructure sources, these systems generate optimised provisioning plans and automatically create detailed work orders that align with specific business rules and compliance requirements.

Whilst this solution is still in the early stages of adoption, it is proving hugely beneficial to organisations deploying these types of intelligent provisioning models, some of whom have reported over 90 per cent reduction in manual IMAC planning efforts – significantly enhancing operational agility and reducing provisioning time from days to hours. Likewise, others have reported service level agreement (SLA) improvements and meaningful reductions in provisioning related errors. Collectively, these real world examples reinforce how intelligent automation, when embedded within UIIM, can radically enhance responsiveness, reduce risk and scale operations effectively.

FORM FACTOR

One of the main reasons for DCIM's failure in its traditional form was its inability to provide intuitive IT solutions that could connect the IT and facilities sectors, namely the grey space and the white space. Standard DCIM solutions cannot deliver a return on investment (ROI) without gathering data from across the entire data centre. Optimising capacity, space planning, asset management and predictive planning can only be accomplished by integrating the various data centre layers. To meet today's operational demands, organisations need to rethink how infrastructure layers are connected and managed.

Beyond predictive analytics, UIIM's orchestration of cross-domain infrastructure elements also marks another significant advancement. As

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'The more intelligent the system becomes, the more proactively it can identify anomalies and potential failures before they impact operations. At a baseline level, this significantly increases the speed of response for failures and remediation efforts.'

already inferred, unlike traditional siloed management tools, UIIM integrates seamlessly with systems such as CMDB, information technology service management (ITSM) platforms, environmental monitoring tools, power distribution systems and network management platforms. This creates a primary data source capable of better eliminating blind spots and enabling real-time decision making. It also reduces the need for human intervention and minimises error propagation, ensuring crucial governance metrics are consistently upheld.

COME TOGETHER

While AI within DCIM is in its infancy – something that naturally necessitates early adoption, particularly in environments still reliant on manual processes – its

foundational capabilities are already well defined. Among these, one of the most impactful is AI-powered UIIM's ability to comprehensively optimise resource allocation, namely power, space, cooling and connectivity.

Where conventional tools typically address these resources in isolation, intelligent provisioning modules now employ multi-criteria optimisation to evaluate decisions through the lens of organisational policy, compliance standards and real-time system conditions. This approach allows enterprises to reclaim stranded capacity, curb power waste and improve energy efficiency – all vital concerns considering AI-induced global data centre energy consumption increases.

Analysis conducted by Cato Digital suggests that 30 per cent of data centre power capacity remains globally

unused. This inefficiency, coupled with Uptime Institute's finding that 60 per cent of outages in 2022 resulted in losses exceeding $100,000, makes a compelling case for automated, intelligent provisioning. AI-based systems that have demonstrated reductions of up to 95 per cent in IMAC planning resources directly address these concerns, having enabled rapid, accurate and policy compliant infrastructure changes without sacrificing operational control.

LOOKING AHEAD

The vision of autonomous data centre management is increasingly viable, even if fully autonomous operations remain a long-term goal. Certainly, the complex, multi-layered nature of data centre environments, not to mention business policies, geographic regulations, ethical constraints and the need for human accountability, necessitate continued human involvement – at least for the time being. Even as confidence in machine generated insights grows, human operators' contextual judgment and ethical oversight will likely always remain critical to handling edge cases, exceptions and competing priorities.

In this context, UIIM should be viewed not as a replacement for human decision making but as a robust augmentation layer, transforming infrastructure from a static cost centre into a responsive, innovation enabling asset. Certainly, where UIIM has been adopted, it has demonstrably relieved operational siloes and improved decision accuracy to yield more resilient and responsive outcomes, enabling infrastructure teams to focus less on transactional tasks and more on strategic initiatives that drive long-term value.

REDEFINING MOMENT

AI driven UIIM modules are enabling a more proactive and collaborative operational culture – one that is better equipped to handle the growing complexity of hybrid data centre models, multi-site deployments and rising service expectations. Data centres operating without an advanced DCIM solution built on the UIIM framework are at a significant disadvantage. By driving tangibly faster provisioning, lower operational costs, improved consistency and stronger SLA performance, this unique integration of AI and machine learning is transforming digital infrastructure management into a more adaptive, intelligent system. ∎

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JEFF SAFOVICH
Jeff Safovich is chief technology officer (CTO) at RiT Tech. With over 25 years of products experience, Safovich cofounded tech start-ups including SphereUp, Zoomd and Comverse. Since joining RiT Tech, he has been transformational in taking DCIM to new heights with the introduction of the UIIM concept.

Verne strikes 10MW deal with Nebius to further expand Europe's AI capacity

Nebius will be colocating a cluster of Nvidia's H200 Tensor Core graphics processing units (GPUs) at Verne's data centre campus in Iceland. This collaboration marks the largest single implementation in Verne Iceland's history, with Nebius deploying a 10MW cluster.

This installation is part of Nebius' ambitious build-out of artificial intelligence (AI) infrastructure across the US and Europe, supporting its mission to provide scalable, energy efficient solutions for intensive AI workloads. As one of Europe's leading providers of GPU capacity, Nebius selected Verne for its proven expertise, renewable energy driven operations, and ability to meet precise technical and geographical requirements.

Verne's Icelandic facility, uniquely located on a former NATO base and powered entirely by Iceland's 100 per cent renewable hydroelectric and geothermal energy resources, aligns perfectly with Nebius' approach to adopting sustainability principles in its infrastructure.

Kao Data announces construction of a 17.6MW liquid cooled AI data centre in Harlow

Kao Data has announced KLON-03 – a new, 17.6MW high performance data centre located at its Harlow campus. Powered by 100 per cent renewable energy and purpose built to accommodate hybrid cooling technology, KLON-03 will enable artificial intelligence (AI) users to deploy multi-megawatts (MWs) of direct to chip, liquid cooled infrastructure, alongside traditional air cooled servers within the same technology suite.

Adhering to next generation design principles, KLON-03 provides the perfect hosting environment for inference and training workloads in close proximity to London's low latency internet exchanges. Its rapid deployment also demonstrates continued signs of London's compute diversifying from the West London cluster, and demand for high density, AI cloud capacity moving towards the north and east of the capital.

Secure IT Environments installs infrastructure upgrades at University of Chichester

Secure IT Environments (SITE) has completed phased cooling and uninterruptible power supply (UPS) upgrades at the University of Chichester's Bishop Otter Campus data centre.

SITE originally designed and installed the Bishop Otter data centre. This new project included the decommissioning and upgrade of four existing air handling units (AHUs), replacing them with indoor Multi-DENCO close control air conditioning units to improve energy efficiency, through enhanced control over temperature and humidity.

In addition to the AHUs, SITE upgraded three existing UPS units in the Bishop Otter data centre with two 20kVA Riello Sentryum devices. These replacements were phased in the live data centre environment, so that the redundancy needed to withstand a power failure was maintained.
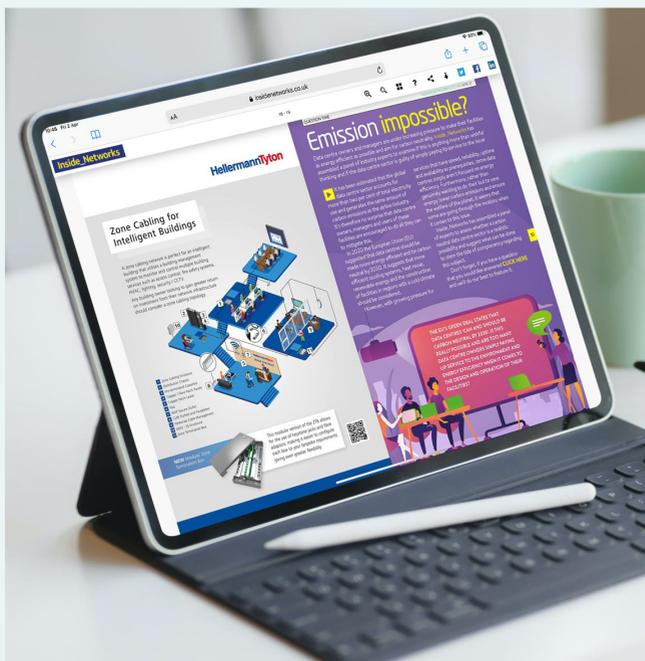
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Digital Realty and Schneider Electric establish new digital gateway for Southern Europe

Schneider Electric has partnered with Digital Realty to deliver its new HER1 data centre in Heraklion, Crete. The first carrier neutral facility on the island, HER1 plays a critical role in reducing Southern Europe's digital connectivity and infrastructure gap by enabling the interconnection of international, regional and local subsea cables.

Digital Realty leveraged a turnkey, Tier III solution from Schneider Electric's EcoStruxure Modular Data Center portfolio to overcome a host of challenges at HER1 due to its location. They included requirements to become operational within 12 months, increased levels of energy efficiency and off-site production, testing and delivery.

Schneider Electric provided two large scale data halls complete with power, cooling and IT. It also provided the compete spectrum of data centre design, build and consultancy services including all mechanical and electrical (M&E) and software equipment, production, assembly, commissioning and security services. This enabled Digital Realty to meet its demanding deployment timeframes, while minimising the risk of failures during its on-site installation.

Pulsant to acquire two data centres from SCC

Pulsant is to acquire two data centres from SCC. This strategic investment will strengthen Pulsant's platformEDGE infrastructure and marks the next phase in geographical expansion, enhancing its growing network of 12 data centres across the UK.

The deal will include SCC's Birmingham and Fareham data centres, as well as the transfer of a high quality roster of colocation only clients to Pulsant. In addition, the companies will form a new strategic partnership for critical colocation services across the UK, which includes access to Pulsant's national network of data centres for all SCC clients.

Based in Birmingham, the Cole Valley data centre benefits from a central UK location and proximity to a city of economic importance, making it a significant addition to Pulsant's existing data centre ne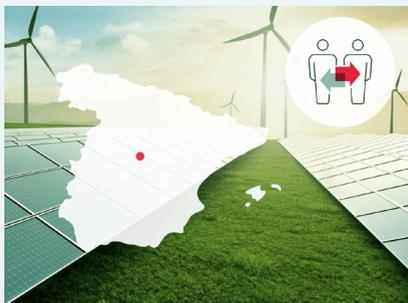twork. Meanwhile, the Fareham data centre is a modern carrier neutral facility, with a mix of exceptional corporate and service provider colocation customers.

nLighten and Shell Spain partner to advance renewable power integration in data centres

nLighten has entered into a power purchase agreement (PPA) and supply deal with Shell Spain. It will allow nLighten's edge data centre in Madrid to be powered by Shell's solar and wind portfolio. The agreement goes beyond traditional renewable energy contracts by providing nLighten with transparency into the actual renewable energy supply received, rather than relying solely on financial credits such as Guarantees of Origin (GoOs).

Through this agreement, Shell will supply renewable capacity to nLighten, supporting the data centre's efforts to optimise its Carbon-Free Energy (CFE) score, while maintaining the flexibility to scale based on real-time supply and demand. During periods of lower renewable generation, Shell will manage the remaining energy supply to ensure uninterrupted operations. This approach guarantees energy reliability, while reinforcing nLighten's commitment to a more sustainable digital infrastructure.

PROJECTS & CONTRACTS IN BRIEF

Saudi Telecom Company and Juniper Networks have worked together to further enhance the service provider's 5G-ready network security gateway infrastructure with new automation features.

Telehouse Europe has signed a 10-year power purchase agreement (PPA) with RWE. RWE will supply a substantial amount of the renewable energy used at Telehouse's London Docklands campus until the end of 2035. The electricity will be supplied by the London Array offshore wind farm located in the outer Thames Estuary.

MLL Telecom has delivered managed Microsoft Teams telephony services at the Royal Borough of Greenwich (RBG) Council and Portsmouth City Council (PCC), two of its key local authority customers.

Raxio Group has secured $100m in financing from the International Finance Corporation (IFC). This investment will accelerate Raxio's expansion of Tier III-certified, carrier neutral colocation data centres across underserved markets in Africa, doubling its footprint within three years.

Pulsant has upgraded its Reading SE3 data centre network with refreshed hardware, increased bandwidth, enhanced connectivity and an improved platform to support high capacity requirements including artificial intelligence (AI) workloads. The investment extends Pulsant's and Zayo Europe's optical backbone into Reading SE3, with one route heading west and two diverse low latency routes east into London.

THE NETWORK INFRASTRUCTURE E-MAGAZINE WWW.INSIDENETWORKS.CO.UK

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CPR AND THE ROLE OF CABLES IN ENSURING FIRE SAFETY

Stumbling block
IS AI PROGRESS AT RISK FROM THE ONGOING DATA CENTRE SKILLS SHORTAGE?

Tales of the unexpected

Jamie Moore of Systal Technology Solutions explains how to prepare for the next service disruption with out-of-band management
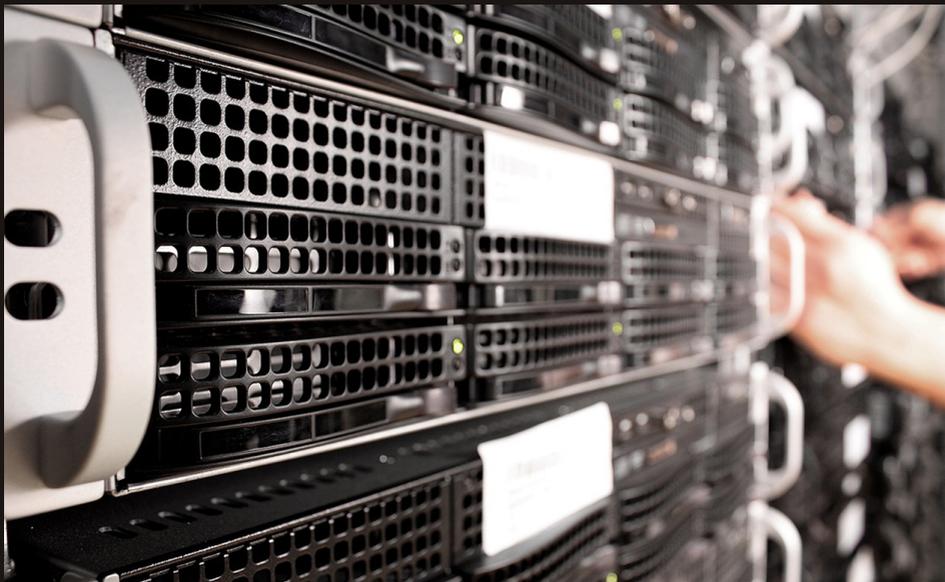
▶ It's midnight when the on-call phone rings. The network operations centre (NOC) team reports a high severity incident in a customer environment – everything is down. To resolve the issue, on-site support is required, but the nearest engineer is four hours away. The customer is panicking and the outage is significantly affecting their business. The situation is tense for both the customer and the managed service provider – penalties are a possibility, business will be disrupted and reputational damage seems inevitable.

MINIMISING IMPACT

While it may sound dramatic, this scenario is all too familiar for the many engineers in service integrator fields. So, how do you avoid this situation?

It's crucial to address the often overlooked area of out-of-band management in data centre designs. While redundancy and back-ups should be enough for fast recovery during outages or security incidents, the implication of specific failure conditions has a high penalty. This becomes even more critical in remote managed environments, where support teams need to be able to react swiftly to resolve network or server issues with a guaranteed access mechanism.

IN AND OUT

Let's start by examining the two different options available for managing a customer's environment. This isn't limited to network devices, but also the various appliances and servers that might be part

of a data centre, campus or remote office.

In-band management uses the same data path as production traffic for managing the customer environment, with management traffic logically separated from the production data. While this method is often more cost effective, it carries inherent risks. Should an issue arise with the production network, management access to the infrastructure could be lost as well – a scenario known as 'fate sharing'. In such cases, the only option may be to dispatch an engineer on-site to troubleshoot and restore service. This process can be both costly and time-consuming, potentially disrupting the customer's business operations.

Out-of-band management, by contrast, uses a separate network to provide independent access for managing the infrastructure, ensuring that management traffic is completely isolated from the production network. This approach proves invaluable during significant disruptions to the primary production network – such as provider outages and security breaches – by maintaining uninterrupted access to network devices and servers, even when

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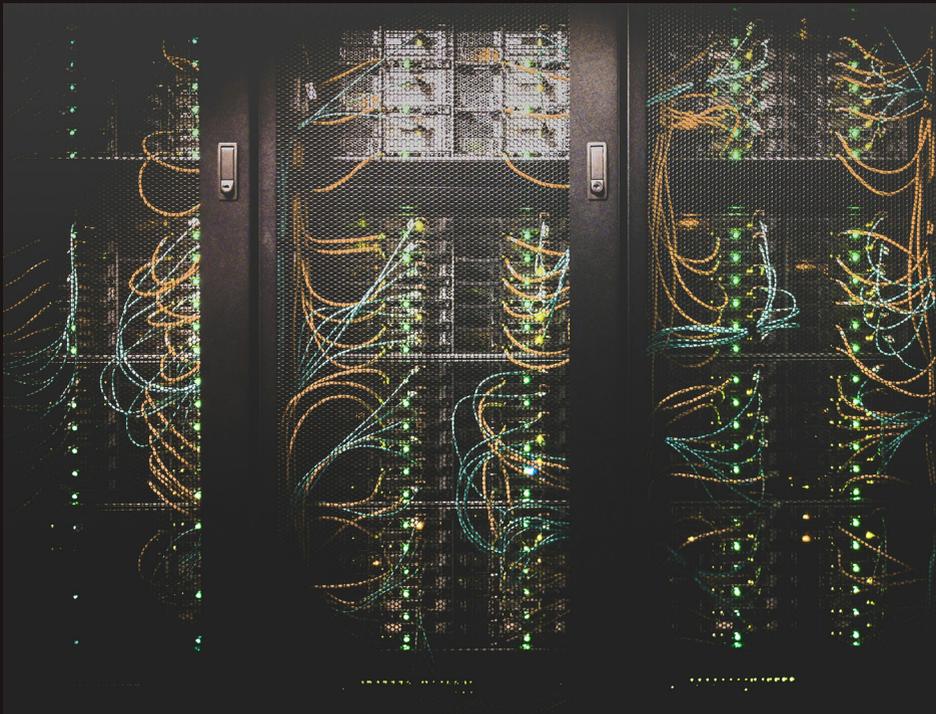
the production network is compromised. Additionally, by providing separate access to the management of devices, out-of-band management provides a faster way to access devices for troubleshooting and upgrades.

DIFFERENT ELEMENTS
Today, most appliances and servers come equipped with dedicated, purpose built interfaces to provide out-of-band management. These interfaces are typically independent of the data plane, only providing access to the management plane of the device. Furthermore, most servers available on the market are also integrated with out-of-band management tools or baseboard management controllers. These features allow for system provisioning, server management and monitoring tools. Here's how out-of-band should be built from a network point of view:

• Independent network. Out-of-band management should be on an independent network and should comprise a separate set of switches, to which all infrastructure management ports are connected.

• Independent access. Out-of-band should have independent access to external networks. Security for this out-of-band network is crucial and should be governed by a security policy that is at least as stringent as, if not more rigorous

than, the policy applied to the production environment.

• Dedicated terminal server. Many network devices and servers used in production environments are equipped with legacy console ports (RS-232), which are primarily used for the initial set-up of those devices. However, these interfaces also offer an alternative means to access and manage devices within the customer infrastructure. To streamline this management and enable access to multiple devices through their console ports, a dedicated terminal server can be integrated into the out-of-band infrastructure.

• Remote power switches. These are essential network management devices that can be integrated with terminal servers to remotely power equipment within a customer's data centre. This can be especially critical in the case of security threats to the organisation where engineers can quickly restart a troublesome device, or even power it down to isolate it from the rest of the environment.

DESIGNING FOR RESILIENCE
In most cases, the customer's IT infrastructure is located far away from support personnel, making remote management essential. Consider the following scenario:
The command centre infrastructure, consisting of virtual desktop infrastructure (VDI), management and monitoring servers is in one of the cloud providers, from where support engineers are using VDI or other kinds of jump servers to reach the customer environment. A secure connection links this cloud environment to the customer's IT infrastructure, typically

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through a dedicated private network connection to the on-premises location, SD-WAN or an internet protocol security virtual private network (IPSEC VPN). These connections terminate on an on-premises router or firewall, ensuring secure access to the out-of-band management network. As this connectivity is considered primary, it should be designed with the appropriate level of resilience.

On the customer premise, a dedicated management LAN infrastructure should be established to facilitate the management connectivity of IT infrastructure. The infrastructure should include a terminal server, which provides access to devices with console access. To enhance resilience, the terminal server should be able to support a secondary connection to the network management infrastructure in case the primary link becomes unavailable. This back-up connection can be established via dial-up, an LTE cellular

modem or a secondary internet link with VPN connectivity. Implementing secondary console connectivity ensures a failsafe mechanism, allowing continued management of the infrastructure, even in the event of multiple network failures.

THINK AGAIN

At first glance, out-of-band networks may seem unnecessary and expensive, but they play a crucial role in ensuring business continuity and safeguarding a company's reputation during network failures. No one wants to receive a call at midnight about a critical outage, or see an incident making headlines in the press. When every second counts, out-of-band management should be seen as a necessary investment rather than a cost. ∎

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Jamie Moore is enterprise architecture manager at Systal Technology Solutions, leading a team that designs and supports network solutions for all the major customers in the company's portfolio. He has over 30 years of experience in the networking and IT field, managing and designing fast and agile solutions to meet business needs across many technologies.

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