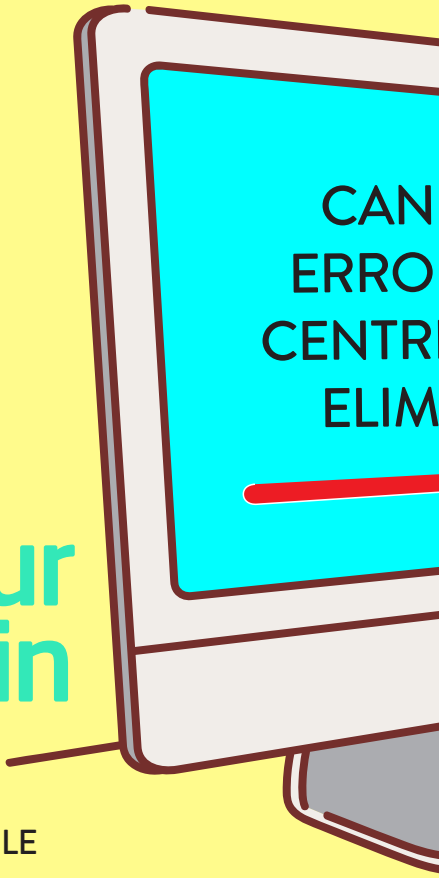
Inside_Networks

THE NETWORK INFRASTRUCTURE E-M

Acciden
emerg



Put your house in order

THE IMPACT OF CABLE MANAGEMENT ON CONTAINMENT SOLUTIONS

JUN
24

t and ency

Unlock the insights

ADDRESSING THE DATA CENTRE ENGINEERING CHALLENGES POSED BY AI

SIEMON EXCELLENCE

WITH SIEMON FIBER

YOU DON'T HAVE TO COMPROMISE.

At Siemon, we don't believe that our customers should have to settle when it comes to their optical performance. That is why we've developed our Plug and Play solutions in line with the most stringent industry standards, allowing our customers to have the peace of mind, that they will have the flexibility they need over a range of distances and configurations, all while remaining within their loss budget.

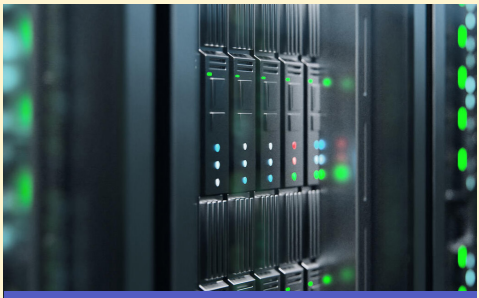
QUALITY. PERFORMANCE. INNOVATION.

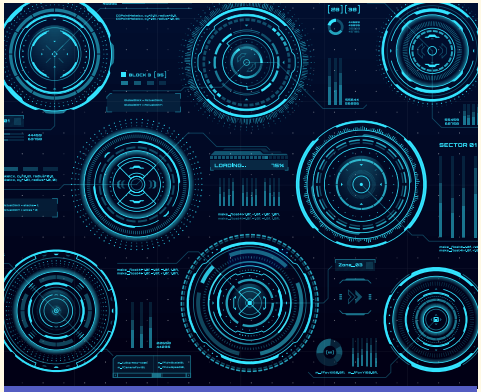
Explore what makes Siemon's fiber optic solutions different in our new Plug and Play Solutions Guide.

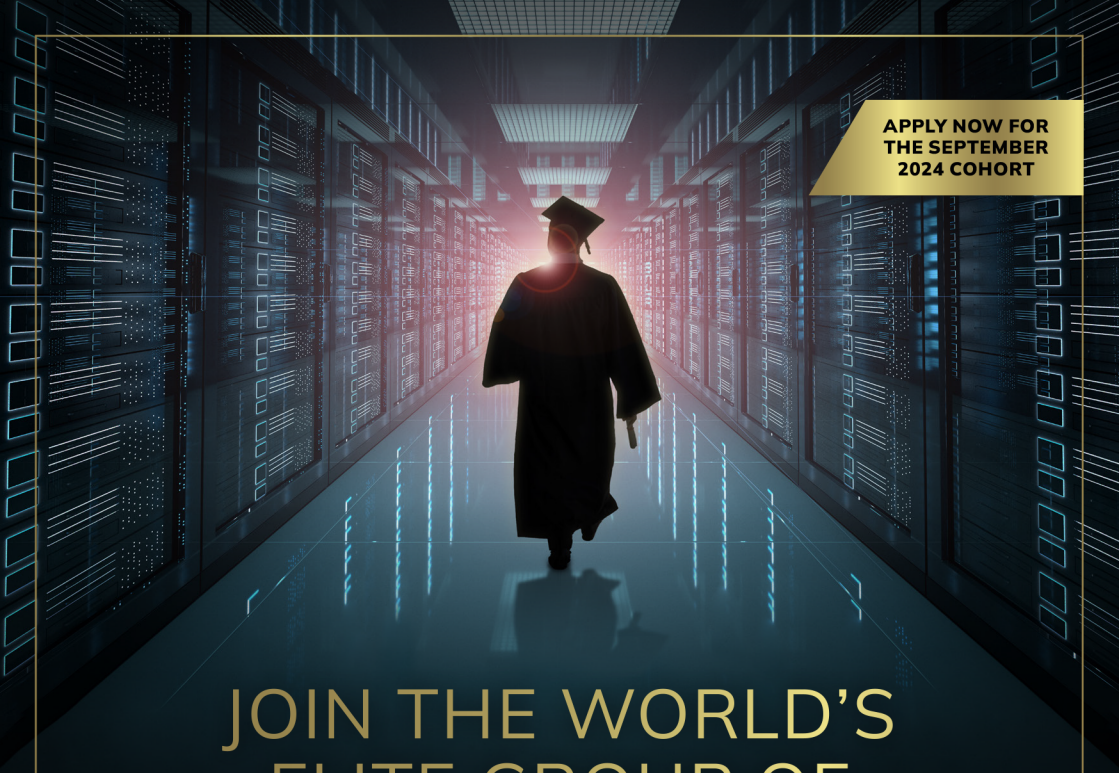
DOWNLOAD THE GUIDE

www.siemon.com/plug-and-play

SIEMON™







APPLY NOW FOR THE SEPTEMBER 2024 COHORT

JOIN THE WORLD'S ELITE GROUP OF DATA CENTRE LEADERS

by Gaining the Masters Degree in Data Centre Leadership and Management

3 Year | Distance Learning Program

Designed and Delivered by:

CNet Training
An Uptime Education Company

a.r.u.
Anglia Ruskin University
Associate College
Cambridge, UK

Contact CNet Training to Start Your Masters Degree Journey

+44 (0)1284 767100 | mastersdegree@cnet-training.com
cnet-training.com/masters-degree

Global Leading Technical Education for the Digital Infrastructure Industry

Human touch

EDITOR
Rob Shepherd
07708 972170

SUB-EDITOR
Chris Marsland

ADVERTISING MANAGER
Kate Paxton
01603 610265

CREATIVE DIRECTOR
Vishnu Joory

TECHNOLOGY CONSULTANT
James Abrahams

CIRCULATION MANAGER
Debbie King

ACCOUNTS
Billy Gallop

It was the English poet, Alexander Pope, who coined the phrase 'to err is human' way back in 1711. He was trying to convey that it is natural for people to make mistakes, and while this is undoubtedly true, there's also a good case to be made for minimising the likelihood of error in the first place.

None of us is infallible, yet there is an idea that the human beings who operate, manage and maintain data centres should be. It's probably why so many people are surprised when they find out that over 75 per cent of data centre outages can be attributed to human error. We've asked a panel of esteemed industry experts whether it could ever be eliminated and if artificial intelligence (AI) is the answer to minimising downtime.

Also in this issue we take a close look at the latest developments concerning network infrastructure management tools. Kevin Brown of Schneider Electric explains why data centre infrastructure management (DCIM) software is the critical connection for resilient, secure and sustainable IT. He's followed by Stu Redshaw of EkkoSense, who examines how visualisation and management software is helping to address the data centre engineering challenges posed by AI.

The vital roles played by containment and cable management should not be ignored, yet they are not always given the consideration they deserve. In an effort to put this right, we have two excellent articles on this subject. In the first Ian Arbuckle of Linian examines optical fibre premature collapse and explains why we should care, while in the second Tom Cabral of Chatsworth Products (CPI) takes a look at the impact of cable management on containment solutions.

I'm looking forward to welcoming industry colleagues to the Inside_Networks 2024 Charity Golf Day on 22nd 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, which also offers a chance to catch up with familiar faces.

Rob Shepherd
Editor

wesco | anixter

Liberty™

Connect

Easily Build, Control and Manage Your Network

Arranger is a powerful software and hardware platform designed to configure and manage AVoIP endpoints and AV systems with an intuitive interface. Wesco Anixter and Liberty are ready to collaborate on your next AVoIP installation with a range of simple, dependable solutions.

Scan to learn more about Liberty's Arranger AVoIP platform.

We build, connect, power and protect the world.

Wesco.com/networks

nLighten strengthens European presence with acquisition of seven edge data centres from EXA Infrastructure

nLighten has acquired seven edge data centres from EXA Infrastructure. This strategic move strengthens nLighten's position as a frontrunner in the European data centre market and expands its footprint and service offerings across the continent.

nLighten's European presence will expand to Belgium, Switzerland and Spain. It also adds sites in existing nLighten markets including Germany, France, the UK and the Netherlands. This expansion brings nLighten's total number of edge data centres to 34 in Europe, including the key business hubs of Amsterdam, London, Paris, Madrid, Geneva, Zurich and Ghent.


Harro Beusker

'By expanding our European operating base, nLighten customers will benefit from our diverse portfolio, including a wide range of colocation, connectivity and on-site services,' said Harro Beusker, co-founder and CEO of nLighten. 'This acquisition underscores our commitment to empowering businesses across Europe with world class data centre solutions and brings us closer to our goal of building and operating a leading European edge data centre platform.'

maincubes appoints Martin Murphy as COO

maincubes has appointed Martin Murphy as its new chief operating officer (COO). He joins the company's management team to lead internal operations, spearhead customer success and manage the smooth transition of new sites and capacity into live sites.

Murphy brings more than 20 years of experience across various leadership roles in the data centre industry. Most recently, he served as president EMEA at Salute Mission Critical, which he joined following the acquisition of AMS Helix. Previously, he served as COO of CBRE Data Centre Solutions, with responsibility for services provided to 800+ data centres globally.

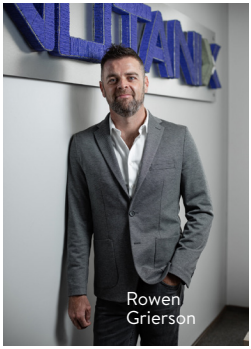

Martin Murphy

'I am excited about the opportunity to contribute to the success of the company,' said Murphy. 'There is a huge opportunity for maincubes to benefit from the unprecedented tailwinds in the data centre industry and I am looking forward to leveraging my experience in order to support its growth ambitions.'

Nutanix finds businesses in the UK are embracing the multicloud era

Research from Nutanix has found that 84 per cent of UK respondents are adopting a 'cloud smart' stance, placing applications and workloads in data centres, multiple clouds, the network edge and wherever they feel is the best match for them.

In the UK, hybrid multicloud models are set to increase from 19 per cent to 26 per cent over the next three years, with use of multiple public clouds set to increase from 11 per cent to 46 per cent in one to three years.



Rowen Grierson

The top five drivers of deployment platform choice are performance (55 per cent), cost management (53 per cent), data sovereignty/privacy (44 per cent), ransomware/malware protection (33 per cent) and flexibility (33 per cent). Other factors included support for sophisticated data services such as back-up and snapshots, and the ability to deploy artificial intelligence optimally and sustainability.

'The research shows IT is in a state of flux,' said Rowen Grierson, senior director and general manager UK&I at Nutanix. 'Leaders have a host of factors competing for attention – from the menace of ransomware to data, workload and application manageability, and the sustainability mandate. The solution many are pursuing is the ultimate flexibility of hybrid multicloud. This is a progressive and pragmatic position to hold but they also need the management consoles and controls to orchestrate and secure their estates.'

Kenkichi Honda joins Telehouse Europe as its new managing director

Telehouse Europe has appointed Kenkichi Honda as its new managing director.

Honda brings extensive experience across the telecommunications, data centre and connected car industries, having previously served as senior director at KDDI America and senior director at the Belgium branch of KDDI Europe.


Kenkichi Honda

In his new role Honda will focus on enhancing the operational excellence and customer experience at Telehouse Europe. His expertise and leadership will drive forward the company's strategic goals to support the growing customer need for resilient, scalable, secure and sustainable colocation services.

Honda commented, 'I am honoured to join Telehouse Europe at this exciting time. My commitment is to build on our strong foundations as a leading connectivity provider to advance strategic initiatives and deliver exceptional value to our customers and stakeholders. I look forward to leading our talented team and upholding our commitment to providing unrivalled data centre connectivity solutions.'

Leviton achieves PAS 510:2021 verification

Leviton's manufacturing facility in Glenrothes, Scotland, has achieved PAS 510:2021 verification. This means the facility successfully met the requirements for the handling and management of 'plastic pellets', preventing harmful leakage into the environment throughout the supply chain.


Ian Wilkie

Plastic pellets, flakes and powders pose a significant threat to the environment, with thousands of tonnes spilling into the natural world every year. Once there, the pellets wreak havoc on local wildlife, resulting in starvation, organ damage and even death if ingested. Plastic pellets are also attractors of harmful chemicals, carrying severe toxins across our oceans and into the food chain. These significant problems are only worsened by today's unsustainable levels of plastic production.

'Sustainability practices are paramount to us at Leviton,' said the company's managing director, Ian Wilkie. 'Our customers can rest assured that their network solutions supplier is responsibly containing their plastic pellets and keeping them out of the natural environment.'

Keysource announces acquisition of 2bm to strengthen market position

Keysource has announced its acquisition of 2bm to strengthen its position in the continually growing data centre and critical environment market. 2bm's expertise in complex design and build projects complements Keysource's existing fully comprehensive range of services to design, build, operate and maintain data centres and mission critical infrastructure.


Stephen Whatling

2bm will continue to operate under its existing brand name with Mark King, its managing director, remaining in his current role and leading the company's continued growth. Stephen Whatling, group CEO at Keysource, said, '2bm's specialist skills and experience in data centres and critical environments are a perfect fit for our business, and we see significant opportunities for collaboration. With minimal customer overlap, the combined group will be well positioned to target larger and more complex projects.'

Professional services firms plan to invest in technology to reach profitability goals

Deltek has found that professional services businesses are optimistic about growth opportunities and plan to invest significantly in technology to realise their ambitions. However, increasing profitability is the top challenge identified for firms' financial leaders (38 per cent).


Neil Davidson

The main drivers for realising growth targets have been identified as investing more in IT infrastructure and investing more in technology innovation (35 per cent). This investment is seen as crucial, with 67 per cent of firms stating they will lose market share within two years if they fail to make significant progress in digital transformation. This tallies with an appetite to embrace new technology, as 79 per cent of firms expect to increase investment in emerging technologies compared to last year, with 29 per cent planning to invest significantly more.

Neil Davidson, vice president EMEA and APAC at Deltek, commented, 'We are in an extremely exciting time for technological development. As artificial intelligence (AI) becomes more integrated into our daily lives, we will start to see it become an enabler for our jobs, much in the same way as search engines revolutionised knowledge acquisition, or video conferencing has advanced connections between multinational teams. Not only is it a tool for productivity, it's essential for advancing business capabilities and is fast becoming a key attraction for top talent looking to do more with their skills, without being hampered by administration.'

NEWS IN BRIEF

Hundreds of UK chief executives believe that artificial intelligence (AI) could steal their jobs, underlining widespread fears over the technology's potential to shake-up traditional working models. 43 per cent of CEOs said they felt that their job could be at risk due to AI technology, according to a study from AND Digital.

Awasr AMS-IX and Alliance Networks have teamed up to launch the Oman Internet Exchange at Equinix's MC1 data centre in Muscat.

Mitel has appointed Bill Dunnion as chief information security officer (CISO). Dunnion will oversee Mitel's information security strategy, security architecture and security standards compliance. He will also assess, develop and implement industry best practices for security across Mitel.

The University of Edinburgh's AI Accelerator programme has announced it is now seeking innovative, technology driven scale-ups to be part of its eighth cohort. Aimed at Scottish as well as international companies, the programme supports emerging businesses whose proposition is built on artificial intelligence (AI) helping develop and fully maximise their commercial potential.

What's stopping companies harn

Hi Rob

The internet of things (IoT) has witnessed explosive growth in recent years, driven by the rise of connected devices and the increasing demand for smart solutions in every industry. The technology has incredible potential, with a wealth of benefits for businesses operating in highly competitive industries.

Whether it's using real-time insights for predictive maintenance or gathering data on customer behaviour and preferences for personalised products and services, the capabilities of IoT are impressive. By leveraging IoT technology, companies can stand out from their peers, as well as set new standards for efficiency, safety and customer satisfaction.

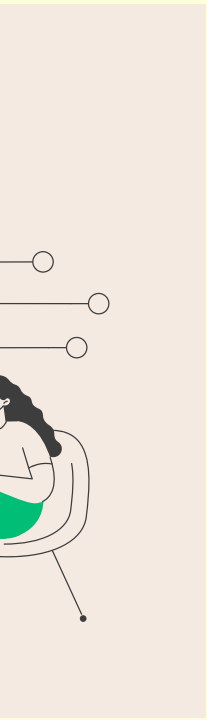
According to projections by IDC, investments in IoT-related services are expected to reach $1tn by 2026. More and more organisations are engaging in IoT projects, but that doesn't mean they're all getting it right – deploying and managing an IoT solution can present significant challenges, and many of these projects are not delivering the promised benefits. There are several common obstacles that prevent companies from harnessing the power of IoT, but by facing these head-on they can ensure a smooth transition and long-term success.

The first challenge to face is connectivity – connecting many devices across different regions and networks can be complex and costly. Companies need to ensure optimal and reliable connectivity for their IoT devices, regardless of their location, type or bandwidth requirements. They also need to manage the interoperability between various devices, protocols and standards, especially when dealing with legacy systems.

Deploying the technology itself is

nessing the potential of the IoT?

another hurdle. Installing and managing an IoT solution can be daunting and time-consuming, requiring specialised skills and resources. In our experience, companies need to integrate their IoT devices and platforms with their existing IT infrastructure and business processes, as well as scale up or down as needed.



They should also optimise the performance and efficiency of their IoT solution by leveraging additional technologies like analytics, automation and artificial intelligence. For organisations looking to reduce the complexity of their IoT connections, SD-WAN provides both flexibility and security. By combining multiple connectivity options into one hybrid network, SD-WAN enables an intelligent, automated approach – one that can continuously adapt to device requirements and application demands. And with the ability to isolate IoT devices from the rest of the network, SD-WAN enhances security and prevents attackers from accessing sensitive information from a compromised device.

This is particularly significant, as weak cybersecurity is one of the most common ways for IoT projects to fail. IoT devices generate and transmit massive amounts of data, making them particularly vulnerable to cyberattacks, breaches or theft – and attacks are on the rise. Companies need to ensure their IoT data and devices are well protected from unauthorised access, manipulation or disruption. It's also essential to have a robust cybersecurity system that can monitor and respond to any emerging threats or incidents in real time to minimise damage or loss.

To overcome these challenges and unlock the benefits of IoT, companies need a trusted partner that can provide a digital fabric of end-to-end IoT services and solutions covering connectivity, security and deployment. Using a partner with global experience and expertise can help businesses stay compliant across borders as well as protect them at all levels – endpoints, network, cloud, data, email and users.

Connecting and securing the growing world of smart devices can be tricky. But by having a reliable partner, all-in-one IoT services and strong cybersecurity solutions, companies can help tackle these challenges head-on and ensure a secure and successful ecosystem.

Amit Mehrotra
Tata Communications

Editor's comment

Some excellent advice from Amit, who highlights some of the bad practices that are unfortunately adopted across a range of vertical sectors when deploying IoT infrastructure. His point about cybersecurity is particularly relevant, as organisations are under increasing levels of attack and the IoT is often the route hackers take to infiltrate a system.

PANDUIT

RAPIDID™

*Rapid*ID™ Network Mapping System reduces the time and cost of patch cord documentation by up to 50%*.

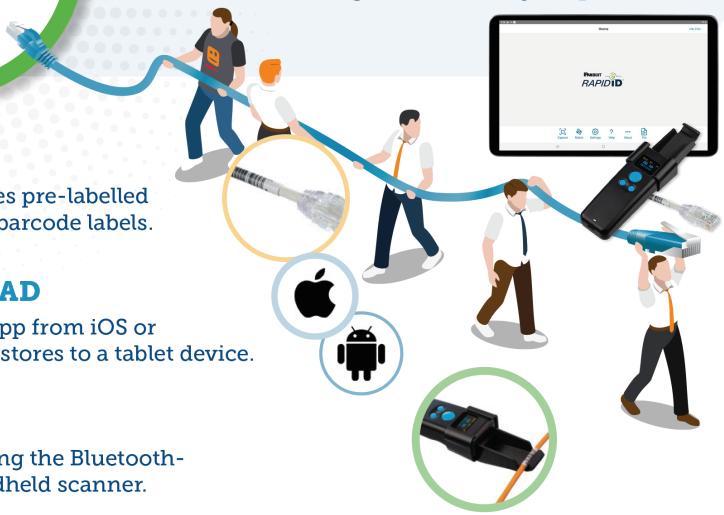
By using pre-labelled Panduit patch cords and the RapidID Bluetooth-enabled handheld scanner, network engineers can quickly, easily, and more accurately place and trace cables.

The Network Mapping System automates the labour intensive and error-prone cable documentation process to reduce the risk of a network outage. With *Rapid*ID, the painstaking labelling process is already done. Additionally, *Rapid*ID is a practical alternative to traditional manual approaches and is ideally suited for building a new telecom room, locating installed cabling, or replacing a network switch.

"RapidID is a game-changer for any network engineer," stated Stuart McKay, Sr Business Development Manager EMEA. ***"We offer our customers an innovative way to eliminate the pain points around patch cord labelling and documentation for network systems."***

Rapid ID: EASY AS 1, 2, 3...

Rapid ID uses patch cords pre-labelled with unique barcodes and a Bluetooth®-enabled handheld scanner to automate labelling, tracing, and troubleshooting in **three easy steps**



1 INSTALL

Panduit cables pre-labelled with unique barcode labels.

2 DOWNLOAD

The mobile app from iOS or Android app stores to a tablet device.

3 SCAN

Barcodes using the Bluetooth-enabled handheld scanner.

https://mkt.panduit.com/UK-RapidID.html

Panduit. London CBC, Oliver's Yard, City Road, London EC1Y WHQ. Telephone: +44 020 8601 7200

Personality crisis

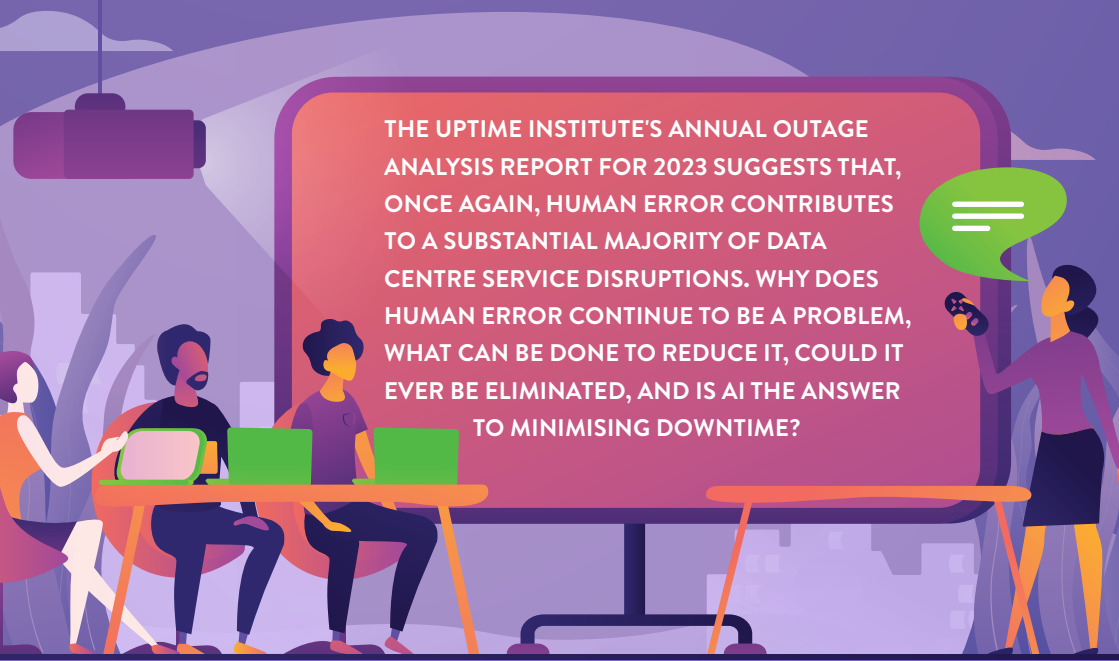
Data centre outages caused by people remain stubbornly high. As the potentially catastrophic consequences of downtime are well documented, Inside_Networks has assembled a panel of industry experts to discuss whether human error can ever be completely eliminated and if artificial intelligence (AI) is the answer

99.999 per cent service uptime is generally considered the benchmark for data centre reliability. This equates to 5.26 minutes downtime per year or 6.05 seconds per week and when it's put like this makes the challenge facing data centre owners and operators even more remarkable.

While it's tempting to think that the corporate behemoths of this world are immune to such events, think again. Microsoft, Amazon and Google have all experienced data centre downtime issues and the problems that caused their services to be interrupted can happen to anyone.

Yet according to the Uptime Institute the majority of data centre outages can be attributed to human error and a much lower percentage caused by technology. The issue is how to prevent it or, at the very least, reduce the risk. It's why it makes sense to concentrate on the people that interact with these facilities on a day-to-day basis.

In order to explain how to minimise the possibility of human error, Inside_Networks has assembled a panel of experts to explain why this problem persists and examine whether AI could lead to fewer issues.



THE UPTIME INSTITUTE'S ANNUAL OUTAGE ANALYSIS REPORT FOR 2023 SUGGESTS THAT, ONCE AGAIN, HUMAN ERROR CONTRIBUTES TO A SUBSTANTIAL MAJORITY OF DATA CENTRE SERVICE DISRUPTIONS. WHY DOES HUMAN ERROR CONTINUE TO BE A PROBLEM, WHAT CAN BE DONE TO REDUCE IT, COULD IT EVER BE ELIMINATED, AND IS AI THE ANSWER TO MINIMISING DOWNTIME?

JON HEALY
CHIEF OPERATING OFFICER AT KEYSOURCE

The Uptime Institute's report shines a light on a persistent challenge – human error remains the biggest culprit behind data centre outages. For any organisation relying on constant uptime, this statistic is a cause for concern.

Data centres are intricate ecosystems, and they require constant vigilance and meticulous adherence to procedures. But fatigue, complacency or even a simple misunderstanding can trigger a domino effect leading to downtime. Additionally, the rapid adoption of new technologies can sometimes outpace staff training, creating knowledge gaps that leave systems vulnerable.

Companies that offer IT managed service solutions can offer valuable support. They employ a multi-layered approach to minimise human error:

- Standardised procedures. Clear, well-documented procedures for critical tasks ensure consistency and reduce the risk of mistakes.
- Continuous learning. Regular training on the latest technologies and best practice keeps staff sharp and adaptable.
- Multiple checks and balances. A layered approach with multiple oversight points helps catch potential errors before they escalate.
- Automation power. Leveraging automation for routine tasks frees staff for more critical activities and minimises room for human error.

While eliminating human error entirely might be a dream, these strategies dramatically reduce its impact. Artificial intelligence (AI) powered tools can further enhance data centre operations by analysing data to identify potential problems before they occur and even automate some corrective actions. However, AI shouldn't replace human expertise. Effective data centre management requires a combination of both.

By understanding the risks and partnering with a provider that prioritises best practices and continuous improvement, organisations can achieve the uptime reliability their data centres deserve.

'DATA CENTRES ARE INTRICATE ECOSYSTEMS, AND THEY REQUIRE CONSTANT VIGILANCE AND METICULOUS ADHERENCE TO PROCEDURES. BUT FATIGUE, COMPLACENCY OR EVEN A SIMPLE MISUNDERSTANDING CAN TRIGGER A DOMINO EFFECT LEADING TO DOWNTIME. ADDITIONALLY, THE RAPID ADOPTION OF NEW TECHNOLOGIES CAN SOMETIMES OUTPACE STAFF TRAINING, CREATING KNOWLEDGE GAPS THAT LEAVE SYSTEMS VULNERABLE.'

R&M Freenet –
a new Generation of Cabinets

Discover our innovative modular cabinet system for all data, network, and server applications.
Our Freenet Rack family now also offers the Superior, with 1500 kg load capacity. R&M offers you unsurpassed modularity and flexibility, while making installation a breeze.

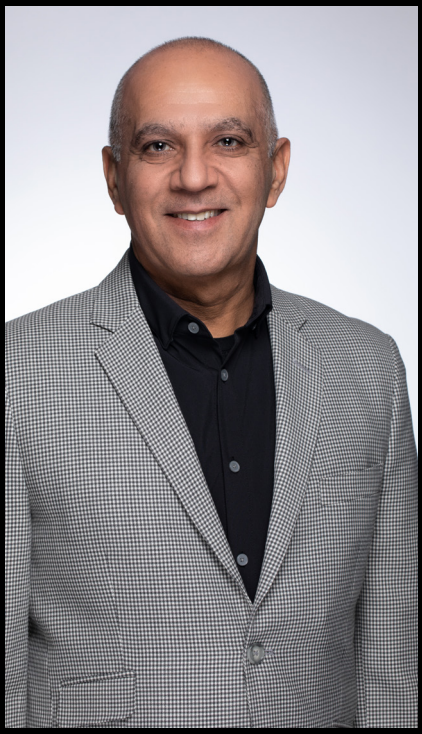
Get in touch - our experts are happy to have a chat.

Reichle & De-Massari UK Ltd.
450 Brook Drive RG2 6UU Reading United Kingdom
+44 (0)203 693 7595
gbr@rdm.com

R&M

SUDHIR KARLA

EVP OF GLOBAL OPERATIONS AT COMPASS DATACENTERS



As long as humans exist, we'll have errors. And given that humans train AI, it's hard to imagine that, in my career, AI will be responsible for zero outages – but let's hope! That said, the internet of things (IoT) and advancements in AI and machine learning are moving us in the right direction. I see AI as an extension of industrial automation that's been expanding for decades.

The chief consideration here is that AI is only as good as it's trained to be. AI models are based on learned behaviour, so the longer the learning time horizon, the better the models. And they continue to get refined with time. Time and additional data sources will be essential to going deeper with predictive maintenance and realising a future where data centre operations are free, or nearly free, of human error.

Today, condition-based maintenance schedules are based on predefined conditions, estimates of a machine's lifespan and projected time to failure or recommendations from the equipment manufacturer. The first step toward improving maintenance operations is replacing educated guesses with data and time-based AI models that know how an asset is performing and can predict when that performance is lagging or degrading with potential to fail.

We get conditioned-based alerts on server health, for example, but there isn't a lot of intelligence today that looks at continuous behaviour and tries to predict when something is getting sick and what the root cause is. A rudimentary level of automation exists today but isn't where it needs to be to prevent human error.

In time, AI can alert us that systems are 'under the weather' and provide steps to remediate, or possibly even manage the repair. Either way, the end game is staying ahead of equipment failure to prevent an outage.

'AI MODELS ARE BASED ON LEARNED BEHAVIOUR, SO THE LONGER THE LEARNING TIME HORIZON, THE BETTER THE MODELS. AND THEY CONTINUE TO GET REFINED WITH TIME. TIME AND ADDITIONAL DATA SOURCES WILL BE ESSENTIAL TO GOING DEEPER WITH PREDICTIVE MAINTENANCE AND REALISING A FUTURE WHERE DATA CENTRE OPERATIONS ARE FREE, OR NEARLY FREE, OF HUMAN ERROR.'

ANDY HIRST

MANAGING DIRECTOR CRITICAL INFRASTRUCTURES AT SUDLOWS

When looking at factors leading to data centre outages, it's often a shock when you see that not only is human error often a major contributor, but the statistics indicate that they account for 75-80 per cent of outages. However, it should not really be that much of a surprise, as it is a high percentage year after year.

Humans, unfortunately, can be a weak link in any situation – not just data centres. You just have to look at other disasters such as Piper Alpha, Chernobyl and the Titanic to name just a few, all of which had human failures which caused or contributed to the disasters.

So back to data centres. Risk mitigation should perhaps be focused not on how to stop human error, but how to reduce the yearly 80 per cent figure.

Reducing this high statistic should be achievable if the company employing the engineers is prepared to invest in continual professional development. If you look deeper into the human error statistic and subcategorise the failures, you will find multiple reasons – a few being lack of knowledge or training on a particular technology or manufacturer, a shortage of data centre on-site experience, fatigue and complacency.

Over the years you see and read about failures, and when they are investigated realise how much could have been avoided. I will give one example of this that has always stuck in my mind. I was visiting a facility that had decorators in stripping some walls in a corridor using water to dampen the paper as they were stripping. There was water ingress into the fire alarm panel, which somehow triggered the fire suppression in the hall. Now this was not an engineer working on the critical uninterruptible power supply (UPS), but a painter and decorator just going about their profession, oblivious to any implications of their actions. It still counts as human error though.

My view would be to work towards reducing human error, as it will always be there. Look at continual product training and ensure the engineers are not working too many hours and are upskilled to the right standards. Finally, carry out effective site management and understand any risks – even if it is just the decorators that need managing.

No matter what risk management is put in place, there will always be human error but at least you are reducing this risk. That is until engineers are replaced by AI!

'MY VIEW WOULD BE TO WORK TOWARDS REDUCING HUMAN ERROR, AS IT WILL ALWAYS BE THERE. LOOK AT CONTINUAL PRODUCT TRAINING AND ENSURE THE ENGINEERS ARE NOT WORKING TOO MANY HOURS AND ARE UPSKILLED TO THE RIGHT STANDARDS.'

STEPHEN BOWES-PHIPPS

VICE PRESIDENT EMEA DATA CENTRES AND CLOUD AT STATE STREET

There are two ways of looking at this. In one sense, the fact that human error accounts for the majority of data centre failures is a 'good thing'. It suggests that mechanical and electrical reliability is so high that, as a consequence, human error dominates low levels of incidents. The other way, of course, is to view any kind of incident as a problem and therefore look to how human error can be minimised.

The former is a trend that has continued for the last few decades, as data centre plant and equipment has moved to more reliable forms and standardised architectures. This has allowed engineers to better understand how data centres work. As the industry has grown and matured, these changes have worked to upend this trend:

- Many operators now employ third-party facilities management (FM) providers to operate and maintain their data centres, displacing directly employed teams of site-knowledgeable engineers.
- Data centres have progressed quickly, by necessity, to high efficiency designs with different technologies and architectures being constructed at a faster rate than ever before.

And there are some challenges that have always been there:

- Stress. Maintenance/repair windows are minimised to avoid upsetting customers and weekend work is avoided to keep out of hours costs low. This can lead to overruns and mistakes under pressure.
- Knowledge. It is rare for any engineer to know how a data centre will behave if certain parts of the facility are turned off or fail. Once it is turned on, it runs 24x7x365 and only the commissioning team will know exactly how it works in all situations.
- Customer demand. Build teams are usually under extreme pressure to deliver and 'handover' to operations, usually with inadequate and outdated 'as-built' documentation.

If we want to improve people performance and eliminate errors, there are no silver bullets. What is most important is standardised, well documented, well understood and used policies, processes and procedures, with a culture of continuous improvement and performance measurement.

Training should be on the job whenever possible, with mentors helping inexperienced staff improve performance. Governance processes are very important, including formalised service management processes such as incident, change and problem management – no longer the preserve of the IT department, as many FM departments also adopt the ITIL toolkit.

'IF WE WANT TO IMPROVE PEOPLE PERFORMANCE AND ELIMINATE ERRORS, THERE ARE NO SILVER BULLETS.'

JOE MCCAFFREY

CHIEF EXECUTIVE OFFICER AT DUKE MCCAFFREY

Utilising automation and artificial intelligence (AI) can significantly mitigate human error. There are reasons why human error persists and they should be addressed from the outset of a design.

The growing complexity of a data centre's infrastructure and the absence of standardisation in design presents real challenges. It makes it difficult for data centre operational teams to manage technology and hardware systems that have been developed in silos or pieced together over time.

As consultants and data centre constructors, we focus on absolute resilience throughout design and construction, however, experience shows us that the industry tends to neglect designing for downtime into the systems, or at least have more advanced approaches to scenario planning for downtime. This oversight places undue pressure on data centre personnel to maintain uninterrupted operations with limited resources and information, leading to high levels of stress and, consequently, failures.

To reduce incidences of human error, systems and protocols can either be designed to allow for maintenance downtime, or we can capitalise on automation and AI for early detection, fault simulation and contingency planning. One of the most exciting opportunities is AI's role in supporting human operators in the early stages of design.

Once considered expendable by data centre operators, technology tools like data centre infrastructure management (DCIM) and digital twin technologies have evolved with AI. These automate routine tasks, pre-empt failures, undertake predictive planning and support decision making in real-time.

By integrating AI's analytical and predictive capabilities with human scenario planning expertise, we can help to minimise failures and improve operational efficiency. Going forward, incorporating the use of AI into data centre operations will transition from optional to a necessity.

'THE GROWING COMPLEXITY OF A DATA CENTRE'S INFRASTRUCTURE AND THE ABSENCE OF STANDARDISATION IN DESIGN PRESENTS REAL CHALLENGES. IT MAKES IT DIFFICULT FOR DATA CENTRE OPERATIONAL TEAMS TO MANAGE TECHNOLOGY AND HARDWARE SYSTEMS THAT HAVE BEEN DEVELOPED IN SILOS OR PIECED TOGETHER OVER TIME.'

NICK EWING

MANAGING DIRECTOR AT EFFICIENCYIT

While advances in physical security, uninterruptible power supplies (UPS), cooling and software have been instrumental in mitigating the impact of failures and outages, human error remains one of the most significant risks to data centre downtime. In many cases this can be attributed to inadequate processes and controls, an urgent need to rectify an equipment fault, or a lack of technical expertise – all of which are compounded by in-house staff and industry skills shortages.

Legacy designs and overcomplication of inefficient systems, combined with a lack of visibility into the operating environment, are major issues, which for the untrained eye can be a minefield to navigate – especially where electrical and power components are concerned. If adequate training hasn't been provided, or shortcuts have been taken by an undermanned engineering team, it can lead to simple mistakes that will have major implications for the business – loss of service, data and, in some instances, revenue.

Here artificial intelligence (AI) and machine learning, digital twins, remote monitoring, and data centre infrastructure management (DCIM) software can all play a critical role – not only in preventing human error, but in helping to train or upskill mechanical and engineering (M&E) professionals. For example, digital twins allow organisations to digitise the design process and model scenarios, enabling M&E teams and service personnel to gain an expert understanding of all components used within a system. In situations such as this, it's easy to see what's been deployed, how a failure might impact other systems, and establish a plan for remedial work.

DCIM and remote monitoring enable an organisation to centralise all its physical infrastructure assets and gain real-time insights into their health and status before dispatching trained personnel. Here, condition-based maintenance can be a lifeline, allowing businesses to work consultatively with skilled external experts from any location. Finally, AI and machine learning can enable an organisation to track trends or performance data and benchmark this against other pieces of equipment to analyse their systems over time – and proactively anticipate any issues.

What's clear is that while we must use new technologies to the benefit of in-house and external services teams, businesses must always ensure that clear processes and controls are put in place to deal with any remedial work, before anyone visits the site.

'LEGACY DESIGNS AND OVERCOMPLICATION OF INEFFICIENT SYSTEMS, COMBINED WITH A LACK OF VISIBILITY INTO THE OPERATING ENVIRONMENT, ARE MAJOR ISSUES, WHICH FOR THE UNTRAINED EYE, CAN BE A MINEFIELD TO NAVIGATE.'

EcoStruxure™
Innovation At Every Level

Manage your critical IT infrastructure with

EFFICIENCY

with **EcoStruxure™** IT Advisor

EcoStruxure™ IT Advisor

Optimise, model and plan your data centre of the future with the next generation Data Centre Infrastructure Management solution.

- Proactively manage and optimise your IT Environments and keep costs under control by managing your IT sites more efficiently.
- Gain visibility and actionable insights into the health of your IT sites to assure continuity of your operations.
- Get the high-level overview of your data centre – including lights out sites on the go!
- Manage and gain the flexibility you need to optimise uptime of your critical IT infrastructure on-premise, in the cloud and at the edge.

Watch how Wellcome Sanger Institute ensured more funding for Genomic research by reducing operating costs, and maximising energy efficiency by using EcoStruxure™ IT.

ecostruxureit.com

Life Is On | Schneider Electric

Tech Channel Ambassadors aims to tackle UK IT skills gap


Ian Kilpatrick

The UK IT channel contributes around £50bn to the UK economy yet growth is restricted by the need to recruit enough staff. Tech Channel Ambassadors is a new community interest company (CIC) created to promote the channel IT industry, and to bolster inclusivity in the sector.

The UK channel needs to recruit around 100,000 people to plug the current skills gap, with businesses spending around £1.5bn a year just to hold on to key staff and avoid losing them to the competition. Tech Channel Ambassadors aims to raise awareness of career opportunities across the IT channel to those in education, those returning to employment, and those looking to change career.

The leadership committee includes Ian Kilpatrick, former executive vice president at Nuvias, who said, 'We need more people in the IT industry, particularly women, and feedback is saying to get youngsters interested in the industry as early as possible. What we need is a co-operative approach across the channel to address the systemic failure to attract enough talent into the industry, both tactically but also strategically.'

Colman Deegan joins Zayo Europe as its new CEO


Colman Deegan

Zayo Group has appointed Colman Deegan as its new CEO of Zayo Europe to drive business growth, as cloud and artificial intelligence (AI) adoption continues across the continent.

Deegan spent more than two decades at Vodafone where he held senior leadership positions. Most recently, as Vodafone Spain's CEO, he led a successful operational turnaround in one of the most competitive markets.

Steve Smith, CEO at Zayo Group, said, 'Colman's experience and proven track record as a CEO leading large teams and businesses makes him perfectly equipped to take our European business to new heights, together with our outstanding local team. Colman will drive Zayo forward, strengthening our partnerships with data centres, hyperscalers and enterprises across Europe. Under his leadership, we are confident that we will achieve our bold ambitions and maximise our impact in the European market.'

Iceotope welcomes Christian Belady as senior advisor

Christian Belady has joined Iceotope as senior advisor. Belady is a well-established data centre executive known for his innovative approaches to infrastructure and quantitative benchmarking. The appointment coincides with increasing global demand for Iceotope's solutions and an ambitious global expansion strategy.


Christian Belady

Belady was most recently the vice president of data centre research at Microsoft, where he led global strategy for server and facility development, managing research, engineering, construction and operations. With prior roles at Hewlett Packard, Convex Computers, Texas Instruments and IBM, he has particular expertise with high-performance power, cooling and data centre design.

'At a time when we demand more from our data centres, ensuring their impact is sustainable and transparent to the environment is more important than ever,' said Belady. 'I believe we need to think bigger as an industry in order to solve our most pressing challenges and I'm excited to be a part of this effort.'

Mayflex appointed as a value-added distributor for Ruijie in the UK

Mayflex has signed a partnership agreement to become a value-added distributor for the Ruijie and Reyee by Ruijie brands in the UK. Founded in 2003, Ruijie has seen steady growth and was recognised in the Gartner 2020 Magic Quadrant for its wired and wireless LAN access infrastructure products. The Ruijie brand is focused on the enterprise market and the Reyee by Ruijie brand is targeted at the small to medium enterprise (SME) market.


Ross McLetchie

Ross McLetchie, Mayflex's sales director, commented, 'We are delighted to bring the Ruijie and Reyee by Ruijie brands into the Mayflex portfolio. It's a brand name that might not be that familiar to our customers in the UK, but we've been extremely impressed by the quality of the products and the scale of the organisation. They have an extensive product offering for both wired and wireless solutions, and from an entry level budget switch to an enterprise core data centre switch, they can provide a total solution.'

CHANNEL UPDATE IN BRIEF

AFL is investing over $50m to expand its fibre optic cable manufacturing operations in South Carolina. This investment aligns with the Biden-Harris administration's Infrastructure Investment and Jobs Act and Internet for All initiatives to increase broadband access in the US.

Emtelle has acquired Ridgemount Technologies. This acquisition not only celebrates a decade of collaboration and achievements but also marks a new era of innovation and growth in the telecommunications and defence markets.

Abacus Group has appointed Anthony D'Ambrosi as its new chief executive officer.

Infinigate Group has been named EMEA Distributor of the Year by Rapid7. The award recognises Infinigate's exceptional growth in the past year, which is the result of consistent collaboration to deliver market leading security solutions and support.

Evolve IP has bolstered its account management team with the appointment of Josh Dolman as partner account manager.

Centiel – solving tomorrow's challenges today

Centiel is a technology company that solves problems. We use our many years of technical experience and expertise to address challenges within the critical power protection industry.

The current problem the data centre sector has is that it needs to build, and build quickly, to meet the demand from a society increasingly reliant on online interaction and, therefore, data storage. However, due to rising costs and the environmental energy crisis, we know that the infrastructure put in now will need to move over to renewable sources of energy in the not-too-distant future to minimise carbon footprints.

Centiel has recognised this issue and spent the past four years developing a sustainable uninterruptible power supply (UPS) to support data centres on their path to net zero. The result is StratusPower – a three phase, true modular UPS that offers nine nines (99.9999999 per cent) availability to effectively eliminate system downtime, class leading 97.6 per cent online efficiency to minimise running costs, true hot swap modules to eliminate human error in operation – but also includes long-life components to improve sustainability.

StratusPower has been designed with the future of renewable energy, such as solar and wind, in mind. We see StratusPower as an 'energy hub', where energy can be taken from any source, such as the grid or renewables, and used or stored as part of the UPS to power critical components within the data centre site.

Currently, mains AC power is rectified to create a DC bus that is used to charge batteries and provide an input to an inverter. But what about a future where the DC bus can be supplied from mains power and/or renewable sources? There is little doubt that future grid instability and unreliability will need to be corrected by using renewables and StratusPower is ready to meet this future.

Uniquely, StratusPower has a 30-year design life and is fully scalable. Therefore, it will always be the 'right size' for the critical load over the entire lifetime of the data centre, making it a far more sustainable option than other UPS on the market.

We know renewable energy is coming and StratusPower is prepared for this. We are renewable ready – are you?

CLICK HERE for further information about Centiel or to send an email **CLICK HERE.**

www.centiel.co.uk

In a league of its own

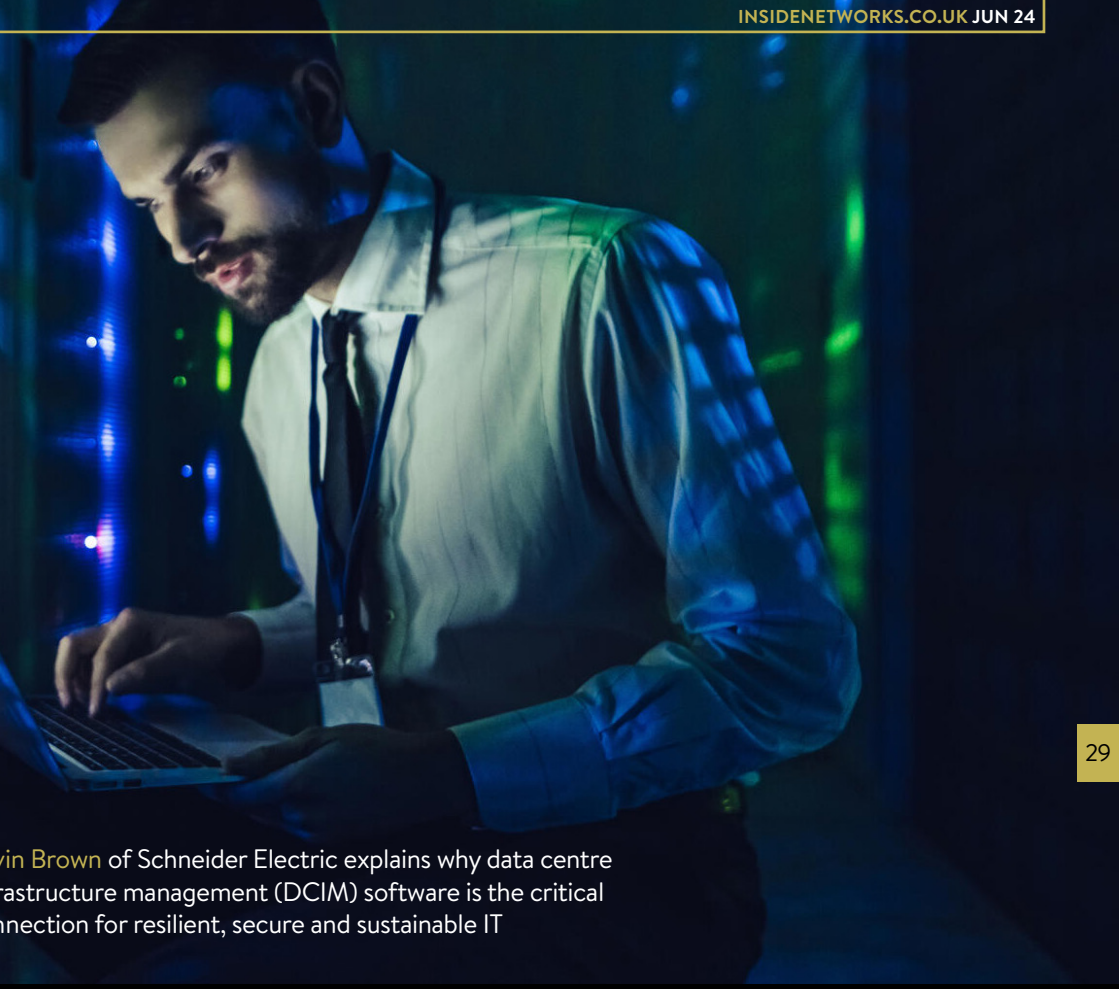
Kev
infr
cor

As a software category, DCIM is in an incredible market position when it comes to sustainability. DCIM is the essential connection point between the information technology (IT) infrastructure and the operational technology (OT) infrastructure supporting it. For chief information officers (CIOs) who are responsible for the overall IT infrastructure, whether on-premises, in colocation facilities or at the edge, this is where the magic happens. DCIM can help answer sustainability questions at a time when regulations are aimed at reducing the energy consumption of IT and promoting energy efficiency.

THEORY OF EVOLUTION

We had a vision of DCIM 3.0, which was introduced in June 2022, and it focused on the need for DCIM to evolve to address the sprawling hybrid IT infrastructure and the connection points between the user and applications. These all must be running 24/7 – there is no such thing as non-mission critical.

DCIM 3.0 represents the trends we were seeing – that the hybrid IT environment in all its complexity was here to stay, resiliency challenges would remain a top priority, cybersecurity concerns would drive the need for better management tools, and sustainability would emerge as a priority



vin Brown of Schneider Electric explains why data centre rastructure management (DCIM) software is the critical nnection for resilient, secure and sustainable IT

for CIOs. Since we introduced DCIM 3.0, these trends have only become more pronounced and urgent. Let's take a closer look.

NEW AND IMPROVED

Traditionally, DCIM has focused on resiliency, not energy consumption and sustainability. The best DCIM solutions are used to maximise the efficient use of power, cooling and space resources. In this way, DCIM improves the availability and resiliency of physical infrastructure systems and the IT workloads they support.

We are building in features like predictive failure algorithms and focusing on improved visibility and more robust reporting. Some DCIM systems enable customers to create a digital twin of their IT white space, which allows capacity management to minimise IT footprint, simulate layout for cooling optimisation, and obtain energy efficiency down to a subsystem level.

SETTING THE STANDARD

The need for security is clear and people must consider both cybersecurity and physical security when it comes to their IT footprint. On the cybersecurity front, CIOs want to make sure their vendor is meeting the best industry standards, which takes

‘As the essential connection point between the IT infrastructure and the OT infrastructure supporting it, DCIM is in a unique position to help answer sustainability questions.’

time and money and shows commitment. For example, we have invested heavily in this area and recently introduced the Secure Network Management Card System, which includes independent cybersecurity certification for the NMC3 version 3.0 firmware (IEC 62443-4-2).

We are also working on ISO 27001 certification for EcoStruxure IT Expert. We have significantly increased the research and development (R&D) resources dedicated to ensuring we are maintaining our code with regular and frequent updates. DCIM helps our customers adhere to their security policies through a reporting engine and makes firmware updates for the OT infrastructure extremely simple.

From a physical standpoint, we focus on three areas – what’s happening in the ambient environment, securing the ability to access racks, and implementing surveillance of the physical space surrounding IT equipment. For example, capabilities to monitor environmental threats like water leaks, temperature and humidity are essential. We provide remote cameras that capture video when an event is detected, saving those clips for later forensics and enabling the customer to easily match the event to the actual video.

RULES AND REGULATIONS

Regulations aimed at reducing the energy consumption of IT and promoting energy efficiency are here and Europe

is leading the charge with the European Union's (EU) Energy Efficiency Directive and Fit for 55, with its goal of reducing EU emissions by 55 per cent by 2030. Organisations will have to comply and regulations, I believe, will be coming for smaller environments. In the United States, the recently passed Securities and Exchange Commission (SEC) rule will lead to a focus on IT energy consumption.

DCIM is in a unique position to help answer sustainability questions. We recently unveiled automated sustainability reporting features in our DCIM software that offer customers a fast, intuitive and simple-to-use reporting engine to help meet regulatory requirements. And it can scale from largest data centre to the smallest server room, providing unprecedented visibility.

THE FUTURE

Long-term, we believe cloud-based solutions will provide an advantage with the use of artificial intelligence (AI) and machine learning. AI is obviously powerful and fast moving. We are investing to ensure that this tool will help our customers reach 'nirvana' – less data, and more information about what they need to prioritise. We also have many other ideas to meet our DCIM 3.0 vision for a resilient, secure and sustainable IT infrastructure. ■

KEVIN BROWN

Kevin Brown is senior vice president EcoStruxure IT at Schneider Electric. He and his team are building DCIM 3.0, which embraces a transformational vision of providing customers with infrastructure that is not only resilient but secure and sustainable. Brown has held senior management roles in product development, marketing and software development in the power electronics and heating, ventilation and air conditioning (HVAC) industries.

Panduit

Panduit's RapidID Network Mapping System creates a network map using patch cord scanning techniques to support smart, scalable and efficient connectivity solutions.

RapidID is designed to reduce the time and cost of patch cord documentation by up to 50 per cent. Using prelabelled Panduit patch cords and the RapidID Bluetooth enabled handheld scanner, network engineers can place, trace and replace cables to create a comprehensive network map far more effectively.

The network mapping capability automates the labour intensive and often error prone cable documentation process to reduce the risk of a network outage and costly downtime. RapidID is a practical alternative to traditional manual approaches and is suited to building a new telecom room, locating installed cables or replacing a network switch.

Each prelabelled patch cord has a unique barcode and by using the handheld scanner an engineer can automate labelling, tracing and troubleshooting in three easy steps:

- Install Panduit cables that feature the barcode labels
- Download the mobile app from iOS or Android app stores to a tablet device
- Scan barcodes using the Bluetooth enabled handheld scanner.

To find out more **CLICK HERE.**

www.panduit.com

Siemon

As network infrastructure environments become ever more complex and diverse, the ability to effectively monitor, manage and protect connections, no matter where they are, is more critical than ever.

Siemon's MapIT G2 delivers next generation infrastructure management for the physical layer. It has been developed to provide the ideal solution for your distributed and evolving network infrastructure assets and integrates a powerful combination of innovative Siemon hardware and high-performance connectivity with next generation EagleEye Red automated infrastructure management (AIM) software.

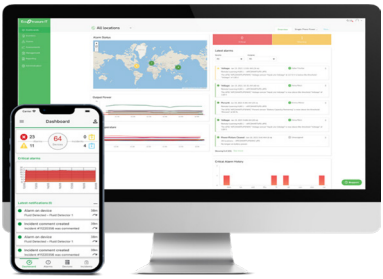
This intuitive combination provides users with exceptional real time tracking and reporting for their network wide physical layer activity, and provides an intelligent foundation that will scale with their ever-changing needs.

Explore the potential by **CLICKING HERE.**

www.siemon.com

Schneider Electric

Schneider Electric has introduced new model based, automated sustainability reporting features within its award-winning EcoStruxure IT data centre infrastructure management (DCIM) software. The release follows three years of strategic investment and rigorous testing and development as part of Schneider Electric's Green IT Program.



Available to all EcoStruxure IT users, the new and enhanced reporting features combine 20 years of sustainability, regulatory, data centre and software development expertise with advanced machine learning. Customers have access to a new set of reporting capabilities, which traditionally required a deep understanding of manual data calculation methods.

The new model offers customers a fast, intuitive and simple to use reporting engine to help meet imminent regulatory requirements including the European Energy Efficiency Directive (EED). In fact, the new capabilities go far beyond the EED required metrics. With the new download function, organisations can quickly quantify and report at the click of a button – making it faster and easier to harness the power of data to reduce the environmental impact of their data centres.

CLICK HERE to find out more.

www.se.com

Seeing is believing

Stu Redshaw of EkkoSense examines how visualisation and management software is helping to address the data centre engineering challenges posed by artificial intelligence (AI)

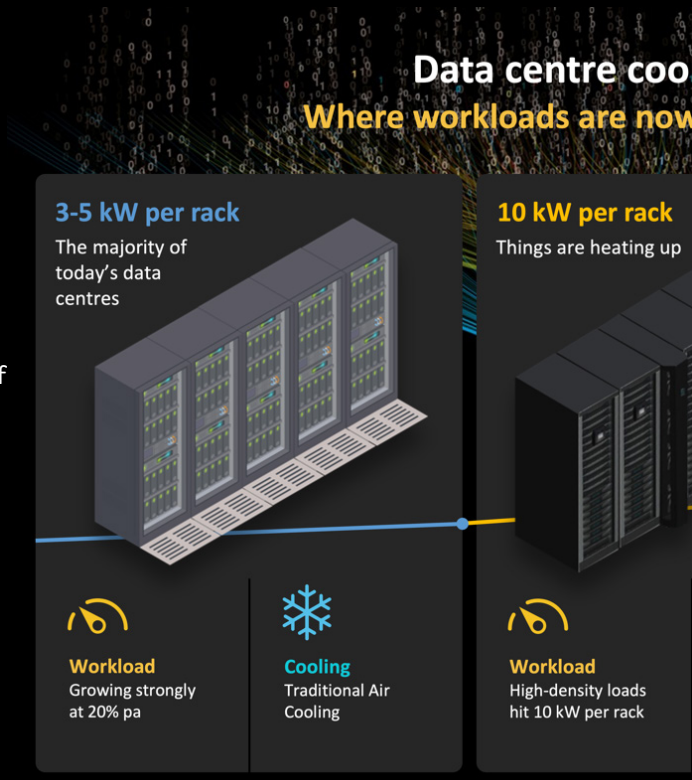
It's just over 17 months since generative AI (GenAI) applications first became available, and since then there's been a huge drive for organisations to develop and deploy their own GenAI powered propositions. We're all involved in some form or other, and everyone's looking over their shoulders and trying to work out just how far they've progressed compared to everyone else.

SIZE AND SCALE

Sometimes it's easy to underestimate the sheer scale of the shift towards AI. McKinsey, for example, suggests that GenAI has the potential to change the whole 'anatomy of work', and reports that it could potentially unlock productivity benefits of up to $4.4tn annually. We're also seeing a broad industry platform transition towards the building of AI clouds, as well as AI support for enterprise platforms and the creation of energy hungry large language models for GenAI-based applications.

Consequently, there's huge demand for AI compute platforms from vendors such as NVIDIA – described by Yahoo Finance as the 'poster child of the AI frenzy'. This perhaps explains the huge investments that are being made in data centres. Meta alone increased its capital expenditure (CapEx) budget to $37bn during its last financial year – leading directly to investments such as the 24,000 graphics processing unit (GPU) data centre scale clusters that it is now using to train its large language AI models.

According to Dutch researcher, Alex de Vries, NVIDIA's projected growth and the AI applications it will support could see data



centre global power requirements jump by 50 per cent over the next three years. And, with everyone looking to build bigger and more power-hungry AI models, this looks quite possible.

CENTRAL PERSPECTIVE

At the same time there's huge pressure on getting the right AI coding skills on board. Deloitte reports that 55 per cent of organisations know they need more AI skills but are unable to source them. AI coders are both rare and expensive – and most are already busy working flat out, coding as fast as they can and building models, applications and tools at an incredible rate. There's clearly a fierce fight for available resources – but how is this major AI reset impacting the data centre sector?

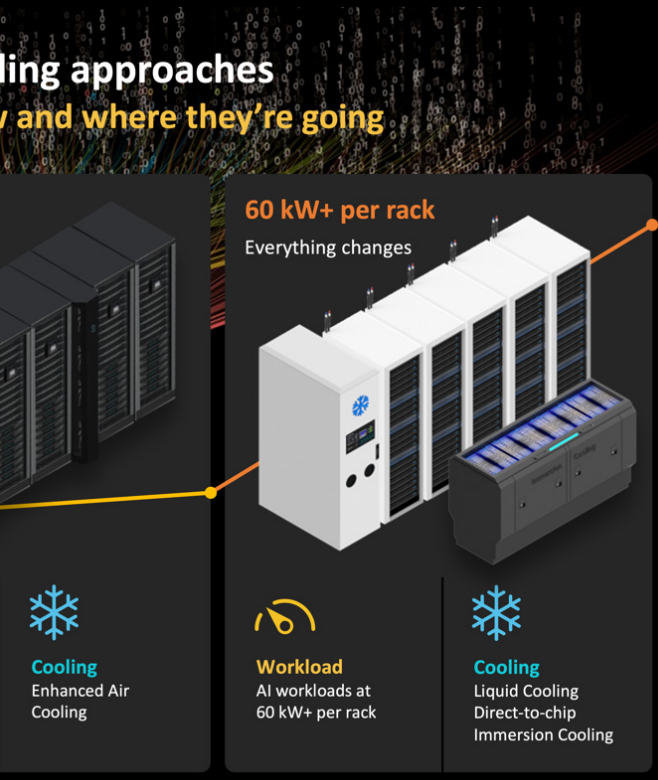
For those busy with AI coding development, the infrastructure to support those activities already exists. There may be some concern about where to place and how to cool AI compute racks that have a much higher density than standard racks, but it's all achievable. However, the issue comes when these AI applications go live and need to be rolled out on a much broader consumer scale. We're all talking about GenAI deployments, but how ready are we really?

ENGINEERING CHALLENGES

With the processing of GPU intensive workloads such as AI clearly set to generate more heat within data centres, operations teams need to look hard at their current infrastructure and how it will need to evolve.

Most standard data centre racks have been running at between 3-5kW per rack, supported by traditional air cooling, and they are already dealing with the challenge of increasing workloads at around 20 per cent per year. We're all familiar with this sort of environment.

But now, with high density workloads starting to hit 10kW per rack, existing infrastructure starts to get stretched and there's a requirement for increased cooling. This is likely to be a hybrid cooling approach with liquid and air-cooling systems running in parallel. Next, as AI compute loads grow dramatically with wider deployment, we'll move quickly to ultra-high-density AI racks – worth up to $10m plus per rack

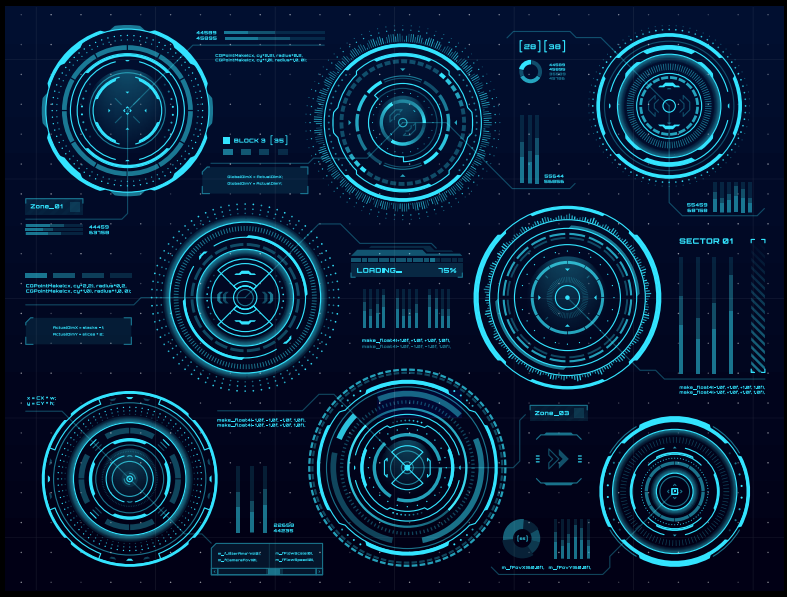


'AI's remodelling of the data centre is clearly well under way. What's clear is that investment at this scale can quickly lead to new engineering realities – and sometimes the sheer maths involved can be frightening.'

WHITE SPACE VISIBILITY

AI's remodelling of the data centre is clearly well under way. What's clear is that investment at this scale can quickly lead to new engineering realities – and sometimes the sheer maths involved can be frightening. And the infrastructure decisions you take now have the potential to constrain you by locking you into a particular approach.

Anything that we can do to help dial down the stress levels for data centre teams is becoming even more important. Top of the list is knowing exactly what's likely to happen from an infrastructure and engineering perspective when they launch their AI services. Key questions to consider here include the exact blend of air and liquid cooling technologies needed, what plans are in place to accommodate higher density AI racks with their greater power and infrastructure requirements, as well as decisions about future equipment investments, and the projected lifecycle of existing data centre facilities.



– that can potentially require up to 100kW for equipment with direct to chip cooling.

Data centre operations teams might think – like every time up until now – that they have a massive site that can easily absorb new loads. But this time they can't be so sure. We're already seeing heat loads showing significant dynamic variability – it's all very different from the reassuring certainty of traditional workloads such as running the payroll!

What's needed now is absolute real-time white space visibility. It's the ability to look across your whole data centre estate and be able to check that the assumptions

that you're making on cooling, power and capacity are standing up. And, if they're not, getting insights as early as possible so they can sort things in readiness for scaling up GenAI applications.

SIMPLY THE BEST

Applying best practice AI-powered optimisation will help you to get your existing infrastructure operating as efficiently as it can – and let you know exactly where you stand in terms of your current cooling, power and capacity needs. However, given the shift towards AI computing, there are now some more profound engineering questions that need to be answered including:

- How can I predict and maintain optimal performance across my full infrastructure?
- What equipment do I need to replace – and when?
- What spaces can I use for high-density loads such as AI?
- Where are my capacity bottlenecks for increasing IT loads?
- What would be my best cooling strategy?

These are questions that need very precise answers. What can help here is the latest generation digital twin technology that enables comprehensive grey space modelling and simulation across an organisation's end-to-end data centre infrastructure. Drawing on first principles maths and physics models, this kind of approach lets you carry out 'what-if' analysis, simulate extensions to your existing capacity, or plan entire new builds.

KNOWLEDGE IS POWER

If you're a chief financial officer validating investments, a chief information officer seeking additional performance to support AI innovations, or data centre management wanting to optimise facilities to meet AI's high-density processing needs, you can start to unlock the insights needed to answer these next level AI engineering questions. ■

STU REDSHAW

Stu Redshaw is chief technology and innovation officer at EkkoSense. He holds a doctorate in heat transfer and thermodynamics from Nottingham University and specialises in revolutionary clean tech and energy efficient systems. He shaped the technology direction of EkkoSense's EkkoSoft Critical 3D solution for the visualisation, management and analytics of assets in critical environments.

Quick clicks

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

Telecom Rooms: The Geometry Behind Quadrupling Coverage is a blog by **Paige Datacom Solutions.** **CLICK HERE** to read it.

STL Partners has released an **Iceotope** spon report. Sustainability Insights: Navigating Sustainable Edge Strategies finds that adva edge sustainability strategies can reduce te providers' energy usage by 3-5 per cent. **CLICK HERE** to download a copy.

Rack PDU Management Trends For 2024 is a blog by **Sunbird Software.** **CLICK HERE** to read it.

Nutanix has announced the findings of its sixth global Enterprise Cloud Index (ECI) survey and research report. **CLICK HERE** to download a copy.

sored

nced
lco

What You Need To Know About Managing The Return Plenum is a blog by **Upsite Technologies.** **CLICK HERE** to read it.

The EU Energy Efficiency Directive And Its Impact On CIOs, Data Centre Owners And Operators is a blog by Alison Matte of **Schneider Electric.** **CLICK HERE** to read it.

More And More Data – What About The Power? is the question posed in a blog by Carsten Ludwig of **R&M.** **CLICK HERE** to read it.

Leading from the fron

With a working life dedicated to creating exceptional customer experiences, Mark Pestridge is shaping the future direction of the data centre sector. Rob Shepherd spoke to him about his life and career, and the challenges faced by data centre operators

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

MP: I am executive vice president and general manager at Telehouse Europe. I embarked on my journey with Telehouse in 2019 as the director of sales, entrusted with leading the UK sales organisation. Over time, my experience in sales and business development, combined with a strong focus on customer experience, led me to transition into my current role in April 2023.

My journey in the tech industry began at Verizon, where I honed my skills working closely with service providers. Since 2011, I've been exclusively immersed in the data centre sector, holding senior sales leadership positions at Equinix and Digital Realty and now Telehouse.

Throughout my career, I've remained committed to delivering exceptional customer experiences. From the initial point of contact to every subsequent interaction, my goal is to ensure that Telehouse customers receive unparalleled and proactive support that brings them closer to realising their business goals. I firmly believe that by prioritising the needs of our customers and continuously refining our approach, we can cultivate long-lasting relationships, and drive innovation and mutual success.

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

MP: I was initially drawn to the data centre sector due to my background in the telecommunications industry. Having spent 11 years at Verizon, I gained insight into various aspects of the industry and observed the incredible and fast growth of the data centre industry in both the US and the UK.

What captivated me most were the solutions that data centres offered and the innovative applications emerging within them. I saw first-hand the pivotal role data centres play in enabling advanced technologies and facilitating interconnected ecosystems. It was evident

nt

to me that this was a field ripe with opportunities and poised for significant expansion.

When I joined Telehouse, it had already been around for two decades, yet I felt like I was catching the industry at the most exciting moment of growth. I saw the data centre sector as a place where big changes were happening – and I wanted to be part of that journey.

RS: What excites you about the sector at present?

MP: The sector is undergoing a significant transformation, which is both exciting and challenging. We're witnessing a new wave of growth driven by artificial intelligence (AI), 5G, edge computing and the internet of things (IoT). These advancements are not just tech buzzwords – they're about real-world applications that can help businesses increase profitability, launch innovative products and streamline operations.

As demand for data centres continues to surge, we're faced with the challenge of adapting to higher densities and accommodating the intense power requirements of technologies like AI and machine learning, which can require up to 80-100kW per rack. This necessitates rethinking how we design and build facilities, while ensuring that we maintain our core services such as connectivity and collaboration.

Moreover, amidst this growth there's a pressing need to help organisations reduce their environmental impact. We're focused on driving efficiencies, reducing carbon emissions and embracing sustainable practices. Everyone in the industry has a unique chance to not only shape the future of technology but also to positively impact society by enabling better connections, richer experiences and more sustainable solutions.

> 'We're presented with a great opportunity to advance our collaboration and bring competitors together to ensure diversity within our industry, improve the sector's image by highlighting the benefits of purpose-built facilities, and address pressing challenges such as environmental sustainability.'

RS: What differentiates a good data centre from a not so good one?

MP: This boils down to the people. While technology plays a crucial role, it's the individuals who run these facilities and their interactions with customers that truly matter. A good data centre team goes above and beyond to ensure customer satisfaction, understanding their needs and addressing any issues promptly.

Customers appreciate the human touch and value being able to speak to a real person when problems arise. So, in essence, it's the responsiveness and empathy of the people behind the scenes that make the difference in the quality of service provided.

RS: How is investment in edge computing changing the profile of the data centre?

MP: Traditionally, major data centre

‘Everyone in the industry has a unique chance to not only shape the future of technology but also to positively impact society by enabling better connections, richer experiences and more sustainable solutions.’

markets like Frankfurt, London, Amsterdam, Paris and Dublin dominated the scene. However, with the rise of edge IoT and the demand to be closer to end users, there’s a notable shift towards regional or local data centres. This surge in edge computing investment is fuelling the development of data centres that are much closer to local communities and users. Regional facilities offer advantages such as potentially lower land and electricity costs, with the possibility of sourcing renewable energy directly from providers.

The emergence of edge computing, the IoT and 5G is driving this change in location preferences. It’s no longer necessary to be located solely in major metropolitan hubs. Instead, data centres can be strategically positioned closer to where the data is generated and consumed, improving the end user experience.

While regional and local data centres are on the rise, there’s still a crucial role for connectivity hubs and interconnection points. These remain essential for facilitating connections with leading cloud providers, content delivery networks (CDNs) and other connectivity partners. Therefore, there’s space for both types of data centres to coexist harmoniously, ultimately benefiting end users by enhancing their digital experiences.

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

MP: The growth in AI is significantly impacting the data centre sector, presenting both opportunities and challenges. Firstly, AI is enhancing operational efficiency within data centres by enabling smarter management of resources. AI algorithms can better optimise energy consumption by controlling lighting, cooling systems and other infrastructure components more efficiently.

Additionally, AI can automate repetitive activities, freeing-up human resources to focus on more complex and strategic tasks. This not only enhances productivity but also creates opportunities for employees to develop and grow within the organisation.

AI’s impact extends beyond internal operations to the services data centres provide to their customers. As businesses increasingly rely on AI and machine learning applications, data centres must accommodate higher densities of compute and storage equipment. This poses challenges in terms of designing data centres to efficiently cool and power high-density racks. New cooling technologies such as immersion cooling and liquid cooling are emerging to address these challenges. However, integrating them alongside traditional air-cooling systems requires careful planning and design.

In addition, designing data centres to meet the future demands of AI applications requires foresight and strategic thinking. Data centre operators must anticipate

the evolving needs of their customers and ensure that the facilities they construct today are equipped to handle future requirements. This involves striking a balance between accommodating high-density AI workloads and supporting traditional lower density applications.

RS: Do you think trade associations have an important role to play and are they doing enough to promote the sector?

MP: Trade associations play a vital role in the data centre industry. They provide valuable services to the community by sharing best practices and advocating for the sector's interests.

I'm a firm believer that there's always room for improvement. We're presented with a great opportunity to advance our collaboration and bring competitors together to ensure diversity within our industry, improve the sector's image by highlighting the benefits of purpose-built facilities, and address pressing challenges such as environmental sustainability. Ultimately, trade associations can help us embrace a collaborative spirit and recognise that by working together the industry can overcome future obstacles and achieve greater success, while serving the community better.

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

MP: It would be to foster greater diversity. Currently, we have a mature demographic, especially on the engineering side, and I believe we need to make the industry more attractive to younger, dynamic individuals. To achieve this, we need to make the industry more appealing and accessible to young talent, including science, technology, engineering and mathematics (STEM) graduates.

We can do this by actively promoting the exciting opportunities and career paths available within our sector. This includes collaborating with trade associations, higher educational institutions and sixth forms to showcase the potential of careers and the diverse range of roles – from highly technical positions to areas like legal, marketing and product development. By demonstrating the breadth of opportunities and the dynamic nature of the sector, we can attract a wider pool of talent and ensure a vibrant and innovative workforce for the future.

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

MP: Accept what you cannot change and change what you cannot accept.

In times of adversity, such as the onset of the Covid-19 pandemic, accepting circumstances beyond my control has been crucial. When faced with the sudden shift to remote work and uncertainty, I recognised that dwelling on what I couldn't change would only hinder progress. Instead, I focused on adapting to the new reality and making the best of the situation. This included implementing strategies to support my team's wellbeing and productivity.

Moreover, this piece of advice has empowered me to enact positive change where I see opportunities for improvement. For instance, when I joined Telehouse, I took the initiative to establish our customer success team to enhance our client relationships and operational efficiency. Now, with organisations prioritising sustainability in their decision-making processes, we've set up at team of environmental, social and governance (ESG) champions. By embracing this motto, I've learned to navigate challenges with resilience and proactivity. ■

Something in the a

In the intricate ecosystem of data centres, the effective management of airflow is paramount to ensure optimal performance, energy efficiency and reliability. With the increasing demand for higher densities and capacities within cabinets, it becomes imperative to explore containment options that can efficiently channel airflows while mitigating hotspots and improving overall cooling effectiveness.

GO WITH THE FLOW

Data centre infrastructure is designed to support specific power and airflow requirements. While the average cabinet density hovers around 8-10kW, the cooling capacity of typical airflow supplied to the cabinet remains adequate. However, to enhance airflow management, various solutions are employed to block and redirect airflow, thus optimising cooling efficiency.

Solutions such as cabinet blanking panels, air dams, sealing and grommets play a crucial role in blocking airflow around equipment, and through open rack units and cable openings. By preventing exhaust air from recirculating around the equipment, these measures contribute significantly to maintaining optimal operating conditions within the data centre environment. Moreover, proper cable management within cabinets is essential to prevent

ir

Tom Cabral of Chatsworth Products (CPI) takes a look at the impact of cable management on containment solutions

space, cold aisle containment solutions direct cold air into the contained intake space between two cabinet rows. By designating the area outside the contained space as the hot aisle, cold aisle containment effectively elevates the room temperature, thereby improving overall cooling efficiency.

In contrast, hot aisle containment solutions channel hot exhaust air out of the contained hot aisle to overhead return air systems. By transforming the area outside the contained space into the cold aisle, hot aisle containment facilitates a cooler and more comfortable room temperature, enhancing the operational environment of the data centre.

Functioning akin to hot aisle containment, vertical exhaust duct solutions, or chimneys, are employed at the individual cabinet level to direct hot exhaust air to the overhead return air system. By effectively isolating hot air from the aisles and working space, vertical exhaust duct solutions contribute to maintaining a cooler and more comfortable room temperature without necessitating a complete hot aisle containment system.

cables from obstructing airflow pathways.

CLIMATE CONTROL

Ideal for raised floor environments or data centres without overhead hot air return

LIQUID ASSET

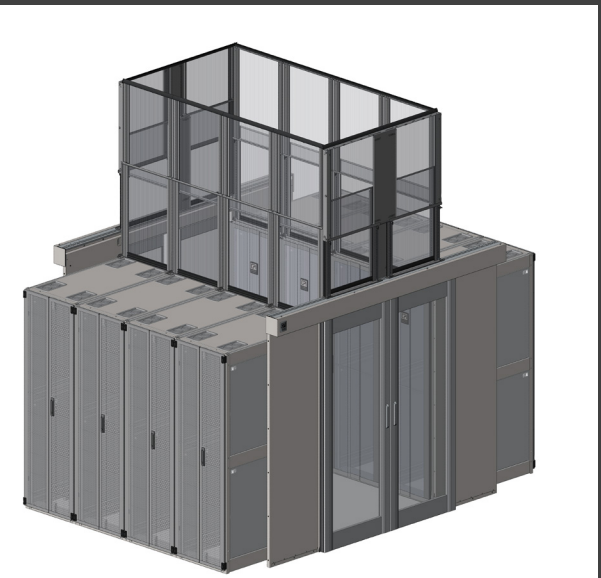
Passive cooling solutions play a pivotal

'By organising cables neatly and out of the main airflow paths, data centres can minimise airflow obstruction and hotspots, ensuring that cooling systems work more efficiently.'

role in supporting increased rack power density and improving cooling efficiency by isolating cold intake air from hot exhaust air. This allows for higher air supply temperatures and prevents costly computer room air conditioning (CRAC) overprovisioning.

However, as average power densities surge beyond 25-30kW per rack passive cooling may no longer suffice in preventing hotspots without additional cooling capacity and lowered supply temperatures. Additionally, not every data centre space can adequately accommodate containment solutions and vertical exhaust ducts that require a raised floor or overhead return air systems.

Liquid cooling emerges as a promising alternative, with superior heat conduction capabilities compared to air. It enables higher rack power densities, particularly as the demand for processing power continues to escalate. Standard 1U and 2U servers face increasing challenges in cooling via air, especially as central processing unit (CPU) power surpasses 400W. Liquid cooling stands as the optimal solution for cooling equipment with higher CPU power requirements, ensuring optimal performance and reliability within data centre environments.



DEEP IMPACT

Effectively managing cables that are inside a cabinet is a crucial aspect of containment strategies in data centres, impacting overall efficiency, safety and system performance. By optimising airflow, preventing air recirculation, enhancing cooling capacity, facilitating maintenance and ensuring compliance with safety standards, well managed cables inside of cabinets contribute significantly to the overall efficiency and reliability of data centre containment systems.

Proper cable management facilitates improved airflow and cooling efficiency, which is central to both hot aisle and cold aisle containment strategies. It also ensures that cables are neatly organised and routed away from airflow pathways. If left unmanaged, cables can obstruct the flow of cool air to IT equipment or impede the exhaust of hot air from the servers. By keeping cables organised and secured, airflow remains unobstructed, optimising the

efficiency of containment solutions.

Cables can create gaps or openings within cabinets or rack units, allowing cold air to mix with hot exhaust air, leading to air recirculation. This phenomenon reduces the effectiveness of solutions such as cold aisle containment or hot aisle containment. Proper cable management including the use of grommets and cable trays seals these gaps, preventing air recirculation and maintaining the desired temperature differentials between the cold and hot aisles.

EFFICIENCY DRIVE

By organising cables neatly and out of the main airflow paths, data centres can minimise airflow obstruction and hotspots, ensuring that cooling systems work more efficiently. This not only helps maintain optimal temperatures for hardware but also reduces the energy consumption of cooling systems, leading to significant cost savings and a lower environmental impact.

Moreover, well implemented cable management enhances overall safety and accessibility within a data centre. It reduces the risk of accidental disconnections, tripping hazards and potential fire risks due to overheated cables or equipment.

For maintenance and scalability, a well organised cable infrastructure allows for easier access to cables and equipment, streamlining the process of upgrading, troubleshooting and expanding the data centre infrastructure. This level of organisation supports effective containment strategies by ensuring that physical infrastructure changes do not compromise the integrity of cooling zones or airflow patterns, thus maintaining the data centre's operational efficiency and reliability.

CHALLENGE ACCEPTED

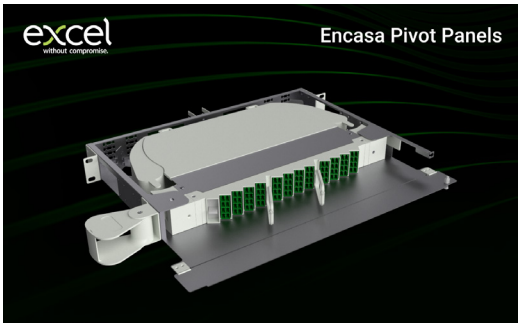
In the ever-evolving landscape of data centre management, containment options play a pivotal role in optimising airflow management and enhancing cooling efficiency. By embracing innovative solutions such as hot and cold aisle containment, vertical exhaust ducts and liquid cooling, data centre operators can effectively address the challenges associated with rising power densities and cooling requirements. As data centre infrastructures continue to evolve, the adoption of containment strategies remains instrumental in ensuring resilience and efficiency. ■

TOM CABRAL

Tom Cabral has worked in the telecoms industry for 27 years and has been employed with CPI for 22 years, serving as a regional sales manager, field applications engineer and now product application specialist. He provides technical advice and design specifications on complex product applications and acts as a technical liaison, with a high level of knowledge on product operation and performance.

Excel Networking Solutions

Excel Networking Solutions offers an extensive range of products designed and manufactured specifically for the FTTx market. The latest products in the range are the new Encasa Pivot Panels, which are designed to provide easy access and a quality solution.



This range of feature rich panels is available in 1U, 2U, 3U and 4U configurations, and can be easily mounted into a 19-inch, 21-inch or 23-inch profile within a cabinet or street furniture, with the option of either left or right pivot points. The panels come as standard with 48 adaptor positions, allowing 96 fibres when using LC and 48 fibres with SC Simplex per 1U. Each panel has the option to have a front hinged door, providing extra protection for exiting patch cords – this, in turn, increases the available area for labelling.

Not only do they look great, the Encasa Pivot Panels provide a quality patching solution with numerous features and benefits – check out the animation for a close-up 'deep dive' into the panel. Alternatively, **CLICK HERE** to visit the website, contact the Mayflex FTTx team on 0121 326 2321 or **CLICK HERE** to send an email.

www.mayflex.com

R&M

R&M's 19-inch modular Freenet cabinet system now includes the heavy-duty Freenet Superior, suitable for installing a larger number of heavy devices. A basic frame can be upgraded to the Freenet Superior version with a load capacity of 1,500kg.

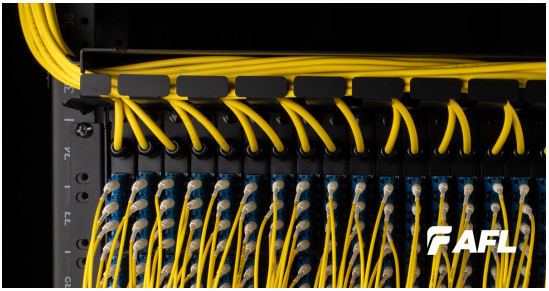
Areas of application are enterprise, edge, modular and colocation data centres. The cabinet system makes it possible to flexibly plan infrastructures in computer rooms and adapt them to new requirements.

Freenet Superior cabinets can be screwed together to form seamless rack rows. R&M has developed electronically controlled and mechanically operated door systems. Air guide plates for individual cabinets can be used to strictly separate cooling air and waste heat. Closed cold aisle corridors and cubes can be set-up in combination with sliding doors, roof elements, cable runs, screens and bulkheads.

For further information **CLICK HERE.**

www.rdm.com

AFL



Over the next two years, AFL predicts the industry will witness a tenfold increase in artificial intelligence (AI) large cluster size.

To cope with increasing demand, hyperscale network expansion efforts – from 16,000 graphics processing unit (GPU) accelerators to 160,000 GPU accelerators – will come with considerable efficiency challenges. For example, power increases per rack from 20kW to 100kW will require far more optical fibre connectivity. As a result, digital leaders must give thought to advances in cable management.

From labelling, colour-coding and precision length management, to density, reduced diameter cable assemblies, products such as the Ultra-high Fiber Count MPO Trunk Assembly with our ASCEND 4RU, AFL can help.

AFL designs, manufactures and distributes high-performance cabling and connectivity solutions. Explore our innovative cable management solutions to take your forthcoming optical fibre projects to the next level.

CLICK HERE to get in touch today and book a demo.

www.aflglobal.com

Cable Management Warehouse (CMW)

When you are looking for a suitable 18th Edition compliant method of fixing 2mm and 3mm fibre optic cables, look no further than the new LINIAN NanoClip. The NanoClip is a patent pending fixing that is also suitable for other small diameter cable applications, as well as optical fibre cables.

It is an incredibly strong, small clip which does not intrude on your installation, and is very quick and easy to use. One side of the NanoClip has an opening where the cable is inserted. Once installed, the lip of the clip will click into place to secure the cable. The tail of the NanoClip is closed while the barbed design grips the substrate for a secure fixing.

They are easy to install and can save time, money and lives. All LINIAN clips are manufactured in the UK.

Speak to the CMW team about the full range of LINIAN clips by calling 01284 848030 or **CLICK HERE** to visit the CMW website.

www.cmwltd.co.uk

Alarm bells start ringing

Ian Arbuckle of Linian looks at optical fibre premature collapse and explains why we should care

Premature collapse is a term that's been thrown about a lot within the optical fibre industry in the last few years. Since the introduction of BS 7671 17th Edition Amendment 3 2015, installers have seen multiple interpretations and, more recently, contradictions in the regulations surrounding this. This article aims to provide the reader with some context and background to help ensure greater understanding and, therefore, compliance with these regulations.

HISTORY LESSON

Fire alarm systems have pretty much always required the use of metallic fixings for cables. Fire alarm regulation BS 5839 states that 'Methods of cable support should be such that circuit integrity will not be reduced below that afforded by the cable used and should withstand a similar temperature and duration of that of the cable, while maintaining adequate support'.

The intention of this was not to address the issue of premature collapse of cables in the event of a fire but rather to ensure circuit integrity is maintained on the fire alarm system itself. This prevents failure of the alarm system in the event of a fire.

Emergency lighting code of practice BS 5266 also contained similar clauses for the same purpose, ensuring the continued operation of the emergency lighting circuits in the event of a fire.

MAKING CHANGES

Following tragedies such as Shirley Towers in 2010, Harrow Court in 2005 and Atherstone-on-Stour in 2007, whereby firefighters and members of the public were killed after becoming entangled in collapsed electrical cabling, the coroners' recommendations included changes to

the regulations. After an inquest into the Harrow Court tragedy, HM coroner Edward Thomas issued several recommendations including a recommendation to social housing providers regarding the support of fire alarm cables which should conform (as a minimum) to BS 5839 Part 1:2002 clause 26.2.

At the inquest into the Shirley Towers tragedy in February 2013, HM coroner Keith Wiseman issued recommendations including reiterating those made by Edward Thomas after the Harrow Court inquest. Wiseman made a further recommendation to have '...Building Regulations amended to ensure ALL [sic] cables, not just fire alarm cables, are supported by fire resistant cable supports'. Wiseman recommended an amendment to BS 7671 to achieve this.

PREVENTATIVE MEASURES

Such changes would invite a proactive approach by installers, including those working in fibre, data and telecoms applications, to prevent such tragedies occurring again. Sounds like common sense when you know the history, right?

This ultimately led to the changes within Amendment 3 to BS 7671 17th Edition, which included, for the first time, a possible solution to this issue. But it also brought confusion through a lack of clarity. The amendment stated that 'Wiring systems in escape routes shall be supported such that they will not be liable to premature collapse in the event of fire'. Not before time I'm sure we all agree. However, what is the criteria for an 'escape route'?

We have seen some weird and wonderful interpretations of this including only using metallic fixings over doorways or in common areas. The fact of the matter is that any area between a building occupant or member of the emergency services and the exit is an escape route. It became evident that further clarity on the matter was required urgently.

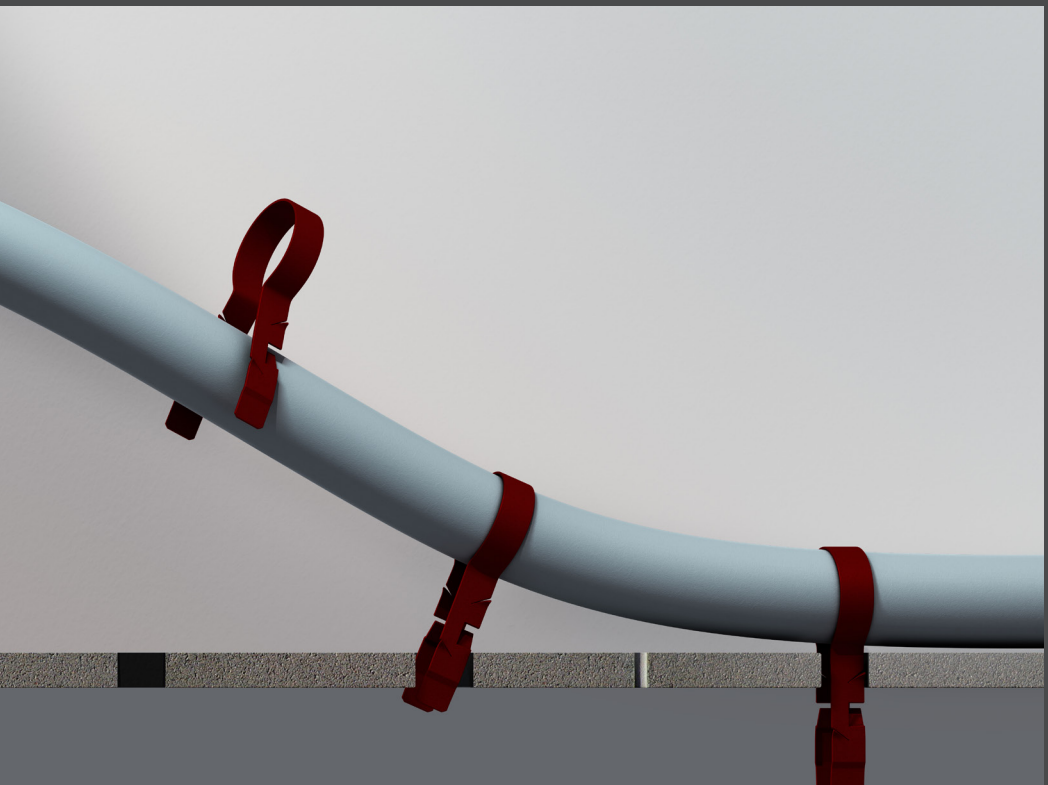
'The IET Wiring Regulations apply to all cables installed regardless of their function. Fibre, data, telecoms, low voltage and signal cables are not exempt.'

NONE THE WISER

In response to this the guidance was further updated to remove the reference to escape routes within the release of BS 7671 18th Edition. Arguably this took things too far the other way. Installers were now faced with having to support cabling 'in all areas not just escape routes'. Again, installers were left to interpret this without much further guidance.

Then comes Amendment 2 to BS 7671 18th Edition in 2022. This is where it all went a bit 'Pete Tong'. In short, the amendment effectively prohibited installers from installing anything other than life safety systems and cleaners' outlets within the main circulation areas of buildings. Not ideal, considering these tend to be the areas where main containment and cabling for data systems run. This leads us to present day and the release of the fabled 'corrigendum', which clarified that the regulations would apply only to protected escape routes such as firefighting lobbies, shafts or stairwells.

Installers have many things to consider when selecting appropriate cable supports to use – the architectural and structural design, proximity of other services, interior design features and the risk and consequence of failure to name a few. To



comply with the most recent regulations, installers require to navigate the sea of solutions with a varying degree of technical suitability and select suitable fixings to be installed in the correct manner.

Until now there has been little guidance on this. However, the 2022 release of Guide to Premature Collapse by BEAMA is a great place to start. Free to download from the BEAMA website, this document offers clarification on things such as stairwells, temperature zones and acceptable hanging loops.

IMPLICATIONS FOR FIBRE

The introduction of these regulations/standards for electrical wiring regulations left the fibre industry in no man's land. I cannot count the number of enquiries I have received from this industry about their obligations for their own installations. I feel that there needs to be a similar standards document introduced to provide clarity but, in the meantime, here are some facts that may assist:

- The IET Wiring Regulations apply to all cables installed regardless of their function.
- Fibre, data, telecoms, low voltage and signal cables are not exempt. The risk we are trying to mitigate has nothing to do with the risk of shock or system integrity, as I have hopefully explained. It's the risk of entanglement of emergency services that's the issue here.
- The permanence of an installation has no bearing. Building sites, temporary accommodation etc must all comply.
- The regulations are evolving. Understanding the history behind them, as I have explained, and the ability to carry out risk assessments are the two sharpest tools in your box. ■

IAN ARBUCKLE

A former senior electrical design engineer with more than 10 years' experience at various building services consultancies throughout Scotland, Ian Arbuckle joined Linian in January 2016. He began his career as an electrician before gaining further qualifications, leading to a role at a prominent building services consultancy. Alongside the CEO role, Arbuckle is still directly responsible for the management of all technical elements at Linian, including specification, product development and compliance.

nLighten completes major data centre rooftop solar installation

nLighten UK has completed a major solar power installation on the 4,500m² rooftop of its Milton Keynes edge data centre. With over 1,000 solar panels, the CO2e emissions saved annually are predicted to be over 90 tonnes, equivalent to flying from London to New York over 80 times each year.

The vast solar array will provide a capacity of up to 478kW, making a meaningful impact in reducing the facility's carbon footprint and promoting renewable energy usage. Based on current load requirements, it is estimated that the solar produced energy will be sufficient to meet the power requirements of the entire building during certain periods of the day in the summer months.

The addition of solar panels is the latest example of nLighten's commitment to continuous improvement in sustainability and implementing innovative solutions across its portfolio of pan-European edge data centres. In a move last year, the company launched a program to repurpose waste heat from its data centre in Eschborn, Germany. The recovered heat will warm several city buildings, contributing positively to the local energy infrastructure.

Kao Data's plans are approved for new £350m Greater Manchester data centre

Kao Data has been granted planning permission to proceed with its 40MW data centre in Kenwood Point, Greater Manchester. Described as a significant investment for Stockport and granted unanimous approval by members of Stockport Council following a rigorous planning and consultation process, it marks another step forward in the continued expansion of Kao Data's industrial scale data centre platform, and the further emergence of the UK's 'next tier' data centre hub outside of London.

Kao Data's new Greater Manchester facility represents an inward investment of £350m into the region and has the potential to boost Stockport's local economy by £155m during its construction period, according to a recent report from Nicol Economics. Central to the approval was Kao Data's detailed public consultation process, in which it worked with JLL and Cavendish Consulting to engage key members of the local business, residential and public sector communities to ensure the data centre will play a vital role within the region's digital economy.

Vantage Data Centers expands EMEA portfolio with second Zurich campus

Vantage Data Centers will open a second Zurich campus – ZRH2 – this summer. The highly secure and carrier neutral facility will provide 24MW of critical IT capacity and when combined with Vantage's flagship Zurich campus (ZRH1) will offer customers 64MW of capacity for their computing requirements.

This campus is located 30km north of Zurich's city centre in Glattfelden. ZRH2 will have a total of 21,000m² of space for Vantage's customers consisting of hyperscalers, cloud providers and large enterprises. It comes online as the company is seeing increased demand globally to support artificial intelligence and other high-performance computing applications.

Vantage has installed air source and water source heat pumps within ZRH2. The heat pumps will convert waste heat for use to condition administrative spaces and reduce external energy use. ZRH2 will also provide waste heat to a nearby hotel and seminar centre. Additionally, it will leverage rainwater infiltration and a green roof to minimise environmental impact.

PROJECTS & CONTRACTS IN BRIEF

200,000 homes across the Balearic Islands will soon have access to ultra-fast optical fibre connectivity thanks to a new project between Slovenia's Kontron and Fibwi worth €5m. 100,000 homes across Mallorca will be among the first to be connected.

MLL Telecom has renewed its managed network services contract with Royal Borough of Greenwich Council (RBG). Valued at over £4m over four years, the new contract ensures the continuation of MLL's work, which commenced in 2017, to enhance the connectivity, security and resilience of RBG's wide area and local area networks, and Wi-Fi solutions. These are being managed and deployed across 50 sites on a mixed network infrastructure including legacy xDSL copper and optical fibre technologies, with approximately half of RBG's estate now receiving upgraded connectivity as part of the new contract.

Vertiv has been selected by the University of Pisa to extend its existing data centre infrastructure and provide the new power and liquid cooling equipment needed to meet the demands of high-performance computing systems and maintain high operational flexibility.

Spirent Communications is working with one of the world's leading online payment platforms to help ensure the integrity of its cyber defences. The company has adopted Spirent's CyberFlood solution to test performance, scalability and security effectiveness.

All you need to know

CLICK ON THE COVER TO VIEW THE 2024 MEDIA KIT

Bigger, better, faster, more!

Julius Francis of Juniper Networks explains how 800 Gigabit Ethernet is setting new standards in networking capability, automation and sustainability

As digital platforms experience unparalleled expansion into video, cloud services and artificial intelligence (AI) applications, networks face tremendous pressure to accommodate larger data volumes at accelerated rates. This increasing demand for video traffic, AI workloads and other expanding data needs is driving interest towards moving into 800 Gigabit Ethernet solutions, which offer unmatched performance, power efficiencies and automation features – guaranteeing an exceptional user experience.

COMPARE AND CONTRAST

800 Gigabit Ethernet routing solutions offer performance that extends beyond managing existing workloads to anticipating future needs, as demands evolve. This is important for organisations striving to efficiently address the requirements of contemporary network infrastructures. Yet, what precisely does this technology entail, and how can organisations harness its complete capabilities?

As the next evolution in high-speed data transmission, 800 Gigabit Ethernet offers double the bandwidth of 400 Gigabit Ethernet solutions. These higher speeds allow for data to flow, supporting increasing demands of AI workloads, metro aggregation, data centres, peering and core backbone networks. The inflection point of the technology includes significantly increased capacity, enabling network operators to control more data with fewer nodes, therefore, optimising space and power usage.

In comparison to 400 Gigabit Ethernet technology, 800 Gigabit Ethernet

presents a considerable step in network throughput and efficiency, delivering the bandwidth explosion in wide area network (WAN) routing and cloud data centres. Indeed, while 400 Gigabit Ethernet has laid the groundwork for high-speed networking, versatile solutions that can handle both 400Gb/s and 800Gb/s take it a step further, focusing on sustainability by reducing the power and space per bit. However, 800 Gigabit Ethernet networking is sure to revolutionise the industry.

'In being more efficient and flexible, customers can extend 400 Gigabit Ethernet and 800 Gigabit Ethernet capacity anywhere, not only in core and peering locations, but throughout the WAN and data centre.'

WHAT IT OFFERS

800 Gigabit Ethernet solutions support model driven automation, as well as ease of planning for network changes to increase uptime and decrease maintenance costs. Additionally, the technology offers automated security features, such as hardware and software attestation validation, and data security through line-rate encryption. For an added layer of defence, operators can also incorporate advanced security services.

Combined with cutting edge silicon technology, these platforms set the industry standard for port density and efficiencies, meeting increasing capacity and growing demands. Whether supporting new or traditional use cases, in scale-up or scale-out architectures, 800 Gigabit Ethernet solutions can meet operator needs.

In being more efficient and flexible, customers can extend 400 Gigabit Ethernet and 800 Gigabit Ethernet capacity anywhere, not only in core and peering locations, but throughout the WAN and data centre. This can be used to address high capacity networking needs, providing maximum scale and performance to the network locations where throughput efficiency matters most of all.

GREEN THINKING

800 Gigabit Ethernet solutions need to be designed for sustainability, aligning with the growing demand for environmentally conscious networking. However, emerging 800 Gigabit Ethernet solutions must also deliver sustainability efficiencies without sacrificing performance, ensuring unequalled efficiency at scale.

To make sure this technology has a minimal environmental impact, it should leverage silicon, as well as system and software innovations to offer improved power efficiency for energy efficient networking. To support sustainability throughout the whole system, the platform must leverage fewer, yet more effective, silicon chips. Another necessity is energy efficient chassis design and power management, ensuring engines are turned off when not being used.

Emphasising sustainability in 800 Gigabit Ethernet systems is automation, used for sustainable operations to enhance system efficiencies and lower total cost of ownership. Through 800 Gigabit Ethernet

networks, operators are not only adapting to the demands of capacity, but also redefining the future of networking. Therefore, 800 Gigabit Ethernet solutions are indeed at the forefront of automation, sustainability and performance.

PUTTING IT INTO PRACTICE

800 Gigabit Ethernet supports a wide variety of use cases including service provider network operations, hyperscale cloud network operations and large enterprise data centre network operations. For service providers, it enhances metro aggregation, peering and core backbone networks. This supports increasing demand for mobile data services, enterprise, video streaming and broadband. When used by service providers, 800 Gigabit Ethernet can improve the end user experience and even offer new services like 5G, while assuring service quality and optimising network efficiencies.

When implemented by cloud network operators, 800 Gigabit Ethernet can be used in data centres to interconnect server farms and storage systems and for data centre interconnect (DCI). This set-up supports cloud computing, storage services and large-scale online cloud services. Moreover, these operators require ultra-high-speed networking to meet the surge of growth in cloud computing and storage demands.

With large enterprises, 800 Gigabit Ethernet can be used to support cloud computing services, internal IT demands and data intensive workloads. These applications involve robust, high-speed connections to efficiently transfer large amounts of data within and across data centres, including campus and branch locations.

MAXIMUM EFFICIENCY

The relationship between AI and 800 Gigabit Ethernet is based on connecting the networking requirements of AI training environments. These environments necessitate the interconnection of high-performance graphics processing unit (GPU) clusters for processing large volumes of data for training workloads.

A distinctive challenge in these environments is managing 'elephant flows', which are substantial, sustained data transfers and shrinking completion times. Efficiently handling these flows requires networking solutions that provide high throughput to move vast amounts of data effectively and securely.

With AI training environments, emerging networking platforms are not just equipped with ports that can handle a large amount of data but also feature high radix and deep buffers to efficiently manage traffic across GPU clusters. High radix describes the number of pathways in the network that data can take, allowing for more connections and helping to mitigate traffic jams when data is sent across the network.

Deep buffers are like having a large reception room in a train station, offering space for data when the network is busy, preventing data from being dropped or suspended. These features ensure that GPU clusters, which require quick, dependable networking to share and transfer huge volumes of data and complex instructions, operate smoothly. The aim of these solutions is to reach high throughput efficiencies, which means minimising delays (latency) and maximising the rate at which data is transferred, thereby reducing the time needed to train AI models.

GROWING NEEDS

The increasing demands for video, AI workloads and other data intensive tasks are key drivers behind the widespread adoption of 400 Gigabit Ethernet and the burgeoning interest in transitioning towards 800 Gigabit Ethernet technologies. With the digital realm witnessing unprecedented growth, networks face immense pressure to handle larger data volumes at accelerated speeds. These requirements extend beyond managing current workloads to preparing for future needs as workload demands grow and change. ■

JULIUS FRANCIS

Julius Francis is senior director product strategy at Juniper Networks. With over 20 years of experience in product marketing, product management and engineering, he has held several senior level engineering, marketing and product management positions.

WE HOPE YOU HAVE ENJOYED

Inside_Networks

COMING UP IN JULY 24'S ISSUE:

SPECIAL FEATURES:

> COPPER CABLING

> DATA CENTRE ENERGY MANAGEMENT

TO FIND OUT MORE ABOUT PROMOTION WITHIN THESE FEATURES **CLICK HERE**

> ALL THE LATEST NEWS, VIEWS, COMMENT AND ANALYSIS

> WHAT EFFECT WILL WI-FI 7 HAVE ON THE DESIGN AND CONFIGURATION OF INTELLIGENT BUILDINGS?

> THE PROCESS BEHIND THE DEVELOPMENT OF COPPER CABLING STANDARDS

> AN A-Z OF DATA CENTRE SUSTAINABILITY

> WHETHER CLOSURES FOR FUTURE READY FTTH NETWORKS SHOULD BE BURIED OR CABINET MOUNTED

> THE NEED FOR RELIABLE, ENERGY EFFICIENT CONNECTIVITY SOLUTIONS IN DATA CENTRES

> THE SMART ROUTE TO OPTIMISING DATA CENTRE PUE

> COMPARING THE VARIOUS COPPER CABLE CERTIFICATION STANDARDS

> MOVES, ADDS AND CHANGES IN THE CHANNEL

> NETWORK INFRASTRUCTURE CASE STUDIES FROM AROUND THE WORLD

> THE LATEST PRODUCT, SYSTEM AND SERVICE DEVELOPMENTS

FOR A FREE SUBSCRIPTION CLICK HERE