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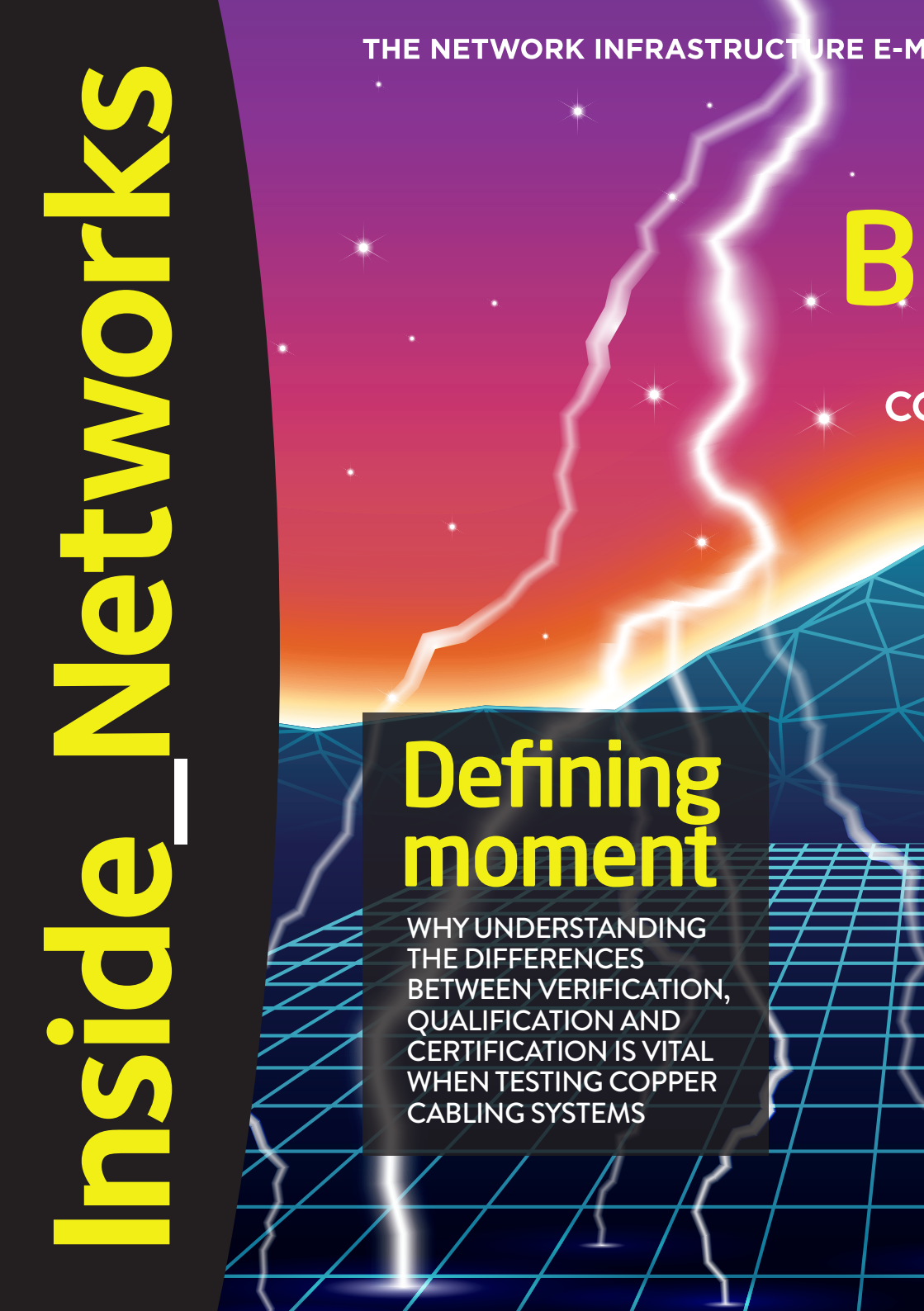

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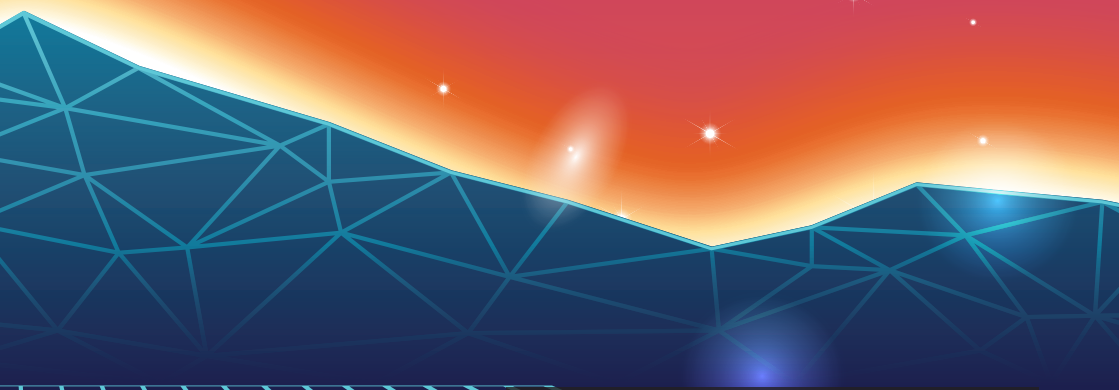
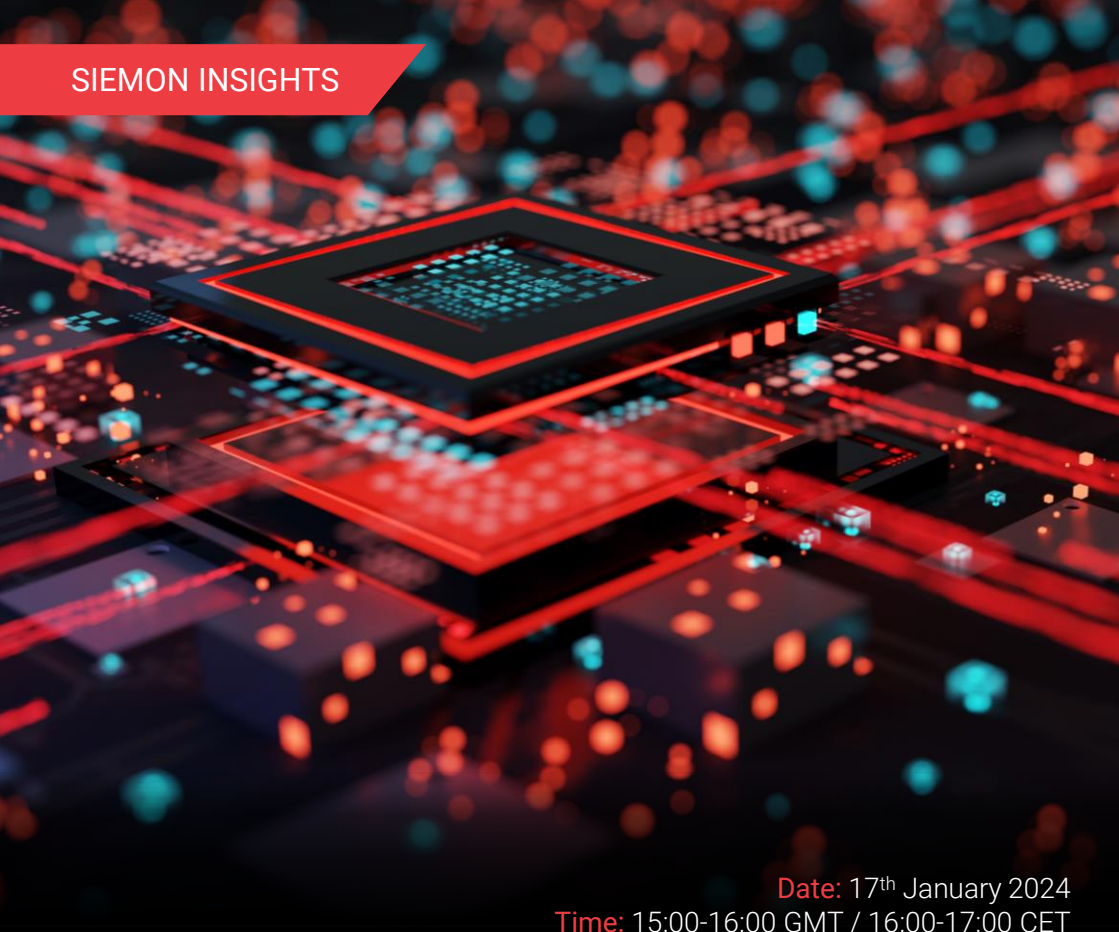
HOW THE SURGE IN GPU POWERED OMPUTING IS FORCING AN EVOLUTION IN COLOCATION DATA CENTRES



Facts and figures

ASSESSING THE IMPACT OF THE ENERGY EFFICIENCY DIRECTIVE ON THE DATA CENTRE SECTOR

SIEMON INSIGHTS



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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

2024 is set to be a pivotal year for the data centre sector and one that will see its energy use come under the microscope like never before. Central to this is the European Union's Energy Efficiency Directive (EED), which kicks in on the 15th May. As things stand we have very little hard evidence regarding how much energy is actually being used by data centres. The EED aims to change all that and ensure that the data centre sector is heading towards net zero emissions.

Central to the EED is mandatory annual reporting to a European database of energy usage and emissions for data centres with a capacity larger than 500kW. That's a lot of data centres and a lot of information that will have to be reported. As time is running out for owners and operators to put measures in place to comply with the EED, Inside_Networks has asked a panel of industry experts to offer their views on whether it is being taken seriously enough and what the long-term implications are for the data centre sector.

Along with the EED, colocation data centres are also having to react to the increasing demands being put on them by the growing use of artificial intelligence (AI). In this month's special feature dedicated to colocation data centres, Spencer Lamb of Kao Data explains why the surge in graphics processing unit (GPU) powered computing has forced an evolution in colocation facilities, while Arpen Tucker of Vantage Data Centers looks at why an optimised high performance computing (HPC) infrastructure is mission critical for transforming modern AI driven businesses.

Also in this issue we focus on copper cabling, with two excellent articles on the subject. In the first, Neil Staley of Mayflex explores the key considerations when installing copper cabling products in external applications. Neil's followed by Lisa Schwartz of AEM, who explains the meaning of verification, qualification and certification, and why understanding the differences between them is vital when testing copper cabling systems.

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

Rob Shepherd
Editor

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Nearly one in three IT decision makers identify a skills gap in AI adoption

The vision of the UK as a global innovation powerhouse leading the charge in artificial intelligence (AI) adoption faces significant challenges, as 29 per cent of IT decision makers believe their most substantial skills gap lies in AI. A wider skills and talent shortfall in the digital infrastructure industry is also hindering innovation, with 63 per cent citing a lack of diversity and inclusion within their IT teams.


Judy Gosnell

These insights are from research carried out by Telehouse Europe. 250 UK IT decision makers were surveyed to understand their perspectives on digital infrastructure challenges, opportunities and goals for the next 10 years. 33 per cent predict AI and data analytics to be their most substantial infrastructure challenge in the coming decade. Meanwhile, to improve diversity and inclusion, 45 per cent say they are launching educational initiatives and a further 43 per cent are rolling out inclusive workplace policies.

'The digital infrastructure industry and policymakers must form a united front to address the glaring diversity gaps in IT and entice young jobseekers into technology roles,' said Judy Gosnell, human resources director at Telehouse Europe. 'There needs to be a focus on developing transferable skills to remedy the shortage and encourage emerging technologies from the outset, otherwise innovation in areas such as AI will stall.'

RISE and Intel collaborate to develop sustainable data centre technologies

RISE Research Institutes of Sweden has formed a new partnership with Intel. The data centre research at RISE is based in Luleå, Sweden, and collaborates with universities, industry and the public sector. It performs industrial research and innovation, with the overall objective to support sustainable growth by strengthening industry competitiveness.


Viktor Tymchenko

Through its collaboration with RISE, Intel will specifically support the infrastructure and cloud research and test environment (ICE), which is a data centre testbed. RISE will provide access to study results and experts, as well as publications and demonstrations by RISE, and engagement in small research and development studies.

'We look forward to working with RISE to lead the industry into a new era of more efficient and sustainable thermal solutions,' said Viktor Tymchenko, Intel vice president, data center group, platform hardware engineering division. Thermal innovations for future cloud and server platforms and facilities will come to market sooner, with the goal of benefiting the entire industry and the planet.'

CIF claims success in AI means going back to the basics of good IT management

Research conducted by the Cloud Industry Forum (CIF) has found that 86 per cent of respondents consider AI either very important or critical to their business, while 14 per cent have completed the process of migrating applications to the cloud and are now using cloud to develop their AI strategy.


David Terrar

David Terrar, CIF CEO, said, 'We're very much at the start of a new wave of technological advancement, encompassing AI and other emerging tech, such as the metaverse, mixed reality, robotics and the internet of things (IoT).

It's vital for organisations to ride this wave rather than be swamped by it. Technologies like AI might promise to revolutionise businesses, but getting the best out of them takes time and effort, so businesses must think hard about the journey, as well as the destination. This means taking the time to put in the groundwork and ensure your AI strategy is built on solid foundations with accurate, trusted training data.'

Leviton supports European Commission's anti-dumping trade remedy for optical fibre cabling imports

Leviton Network Solutions has voiced its support for the recent move by the European Commission to protect the European Union's (EU) fibre optic cabling industries from further impact by Chinese exporters. The European Commission found that Chinese exporters of optical fibre cables 'deliberately decreased their prices to impede the remedial effects of measures originally imposed on imports from China in November 2021'.


Ian Wilkie

As a result, new anti-dumping duties will be imposed on optical fibre cables originating from China, ranging from 39.4 per cent to 88 per cent, doubling the original duties imposed.

According to the European Commission, 'the tightening of measures aims to ensure that the EU industry is not weakened by unfair trading practices of competitors and that it can continue to compete on an equal footing'.

Ian Wilkie, managing director at Leviton Network Solutions Europe, said, 'These new tightened duties are another important step towards maintaining fair trade and protecting employees across our industry. We believe it is critical to both our industry and our customers to have fair trade, while also ensuring high quality, cost effective and environmentally responsible sourcing and production of optical fibre cabling.'

94 per cent of CIOs identify cybersecurity as a major threat to their organisation

According to research by Opengear, 94 per cent of UK based chief information officers (CIOs) have serious concerns about at least one cybersecurity threat. Opengear's comprehensive survey encompassed responses from 502 CIOs and 510 network engineers in the US, UK, France, Germany and Australia. For UK CIOs the primary cybersecurity concerns highlighted in the research included malware (36 per cent), spam and phishing (36 per cent), ransomware (36 per cent) and insider threats (27 per cent).


Gary Marks

While only 15 per cent of UK CIOs reported social engineering attacks as a threat, 23 per cent of network engineers reported a higher level of concern for this specific type of attack. 'The skills shortage and insufficient investment in networks are two factors that have combined to encourage cybercriminals to breach businesses,' said Gary Marks, president at Opengear.

EUDCA elects new chair, board members and confirms managing director

Following its annual general meeting (AGM), the European Data Centre Association (EUDCA) has announced two new members to its board of directors. Gary Aitkenhead replaces Michael Winterson for Equinix and Adam Eaton replaces Matthew Winter for Global Switch.

Concurrently, the newly constituted board confirmed Lex Coors, chief data center technology and engineering officer at Digital Realty, as chair. Coors takes over from Michael Winterson, who steps into a newly created position as managing director to oversee day to day operations.


Lex Coors

Coors stated, 'As an industry, we are facing a plethora of new regulations and we must pool our expertise to shape the future of our sector together. I extend a warm welcome to our new board members and gratitude to Michael Winterson, who has aptly steered the organisation as chair, and whom I look forward to working with in his new role.'

Equinix to accelerate and simplify liquid cooling deployments to power enterprise AI workloads

Equinix has announced plans to expand support for advanced liquid cooling technologies to more than 100 of its International Business Exchange (IBX) data centres in more than 45 metros around the world. This expansion will enable more businesses to use the most performant cooling technologies for the powerful, high density hardware that supports compute intensive workloads like artificial intelligence (AI).


Tiffany Osias

With commercialised support of direct to chip liquid cooling in more than 45 metros including London, Silicon Valley, Singapore and Washington DC, customers can deploy advanced liquid cooling solutions against mission critical needs in the markets that matter most to them. By continuing this approach Equinix is committed to empowering digital leaders with the ability to evolve their next generation liquid cooled designs.

'Liquid cooling is revolutionising how data centres cool the powerful, high density hardware that supports emerging technologies,' said Tiffany Osias, vice president of global colocation at Equinix. 'We have been helping businesses with significant liquid cooled deployments across a range of deployment sizes and densities for years.'

NEWS IN BRIEF

Microsoft is making a $3.2bn investment into the UK over the next three years in a move to drive future growth within the artificial intelligence (AI) industry. The funding will more than double Microsoft's data centre footprint in Britain, providing the infrastructure crucial for new AI models to work.

Ruth Misener has been awarded the 2023 BCS Roger Needham Award for her exceptional contributions to computer science.

According to GlobalData, the global private wireless network market is set to grow at a compound annual growth rate (CAGR) of 23.3 per cent from $2.8bn in 2022 to $7.9bn in 2027.

Subzero Engineering is relocating its headquarters to a new 155,000ft² facility in Salt Lake City, Utah.

Arcus Infrastructure Partners has announced the launch of Portus Data Centers and its acquisition of IPHH Internet Port Hamburg.

As part of a new data centre referral agreement, Jisc has chosen to work with Kao Data – specifically its Harlow campus due to the high capacity connectivity that already exists between the facility and the Janet network.

Will your network let do

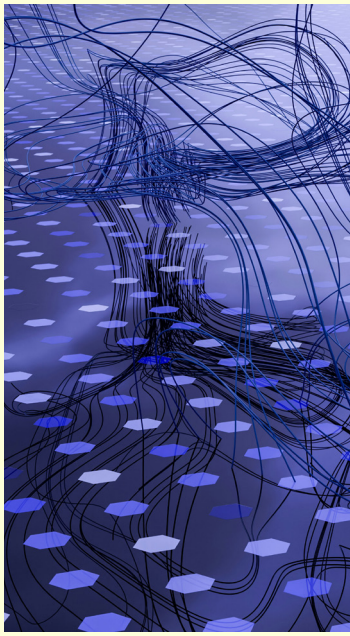
Hi Rob

As companies start to evaluate how they can use artificial intelligence (AI) effectively, I believe that first there is a clear need to ensure that a network is up to the challenges of AI. AI applications are going to require data to be easily accessible and the network will need to be able to handle the huge compute needs of these new applications. It will also need to be secure enough at all points of access for the different applications to end users' devices. If your network isn't reliable, readily available and secure it is likely going to fail.

In Cisco's 2023 Networking Report 41 per cent of networking professionals across 2,500 global companies said that providing secure access to applications distributed across multiple cloud platforms is their key challenge. This was followed by gaining end to end visibility into network performance and security (37 per cent).

There are some key areas organisations must address when looking to get their networks AI ready. First, you need to see AI as part of your digital transformation, then you need to look at where you need it and where you don't. Jumping on the bandwagon and implementing AI for the sake of it isn't the way forward. You need to have a clear strategy in place about where and how you are going to use AI. Setting up an AI taskforce to look at all aspects of your AI strategy is a good first step.

According to Gartner's predictions, by 2025 51 per cent of IT spending will shift to the cloud. This underscores the importance of having a robust and adaptable network infrastructure that can seamlessly integrate with cloud services. This is even more important with AI, as it needs to access data from different locations and sources across your business to be successful.

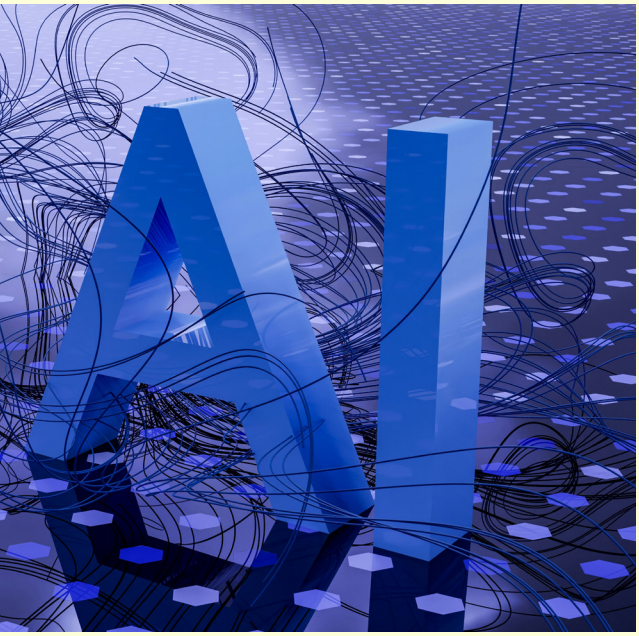


IT teams need to make sure that they are using hybrid cloud and multicloud to de-silo operations to bring together network and security controls and visibility, and allow for easy access to data. Where businesses use multiple cloud providers or have some data on premise, they need to be reviewing how that data will be used and so how to access it across departments.

It's clear that as we develop AI for good, there is also a darker side that is weaponising AI to create more sophisticated cyberattacks. Businesses also need end to end visibility into their network performance and security, and to be able to provide secure access to applications distributed across multiple

wn your AI strategy?

cloud platforms. This means having effective monitoring tools in place and the right layers of security – not only at the end user level but also across the network at all access points.



The best way to ensure your network security is as good as it can be is to simplify your tools and create consistency by using secure access service edge (SASE). SASE delivers wide area network (WAN) and security controls as a cloud computing service directly to the source of connection rather than at the data centre, which will protect your network and users more effectively.

If you haven't already, extending your SD-WAN connectivity consistently across multiple clouds to automate cloud agnostic connectivity and optimise the application experience is a must. It will enable your organisation to securely connect users, applications and data across multiple locations, while providing improved performance, reliability and scalability. SD-WAN also simplifies the management of WANs by providing centralised control and visibility over the entire network.

As we head towards the new era of AI, cloud is the new data centre, internet is the new network and cloud offerings will dominate applications. By making sure your network is AI ready by adopting a cloud-centric operating model and having a view of global internet health and the performance of top software as a service applications, you will be able to successfully implement any AI strategy.

Rob Quickenden
Cisilion

Editor's comment

Lots of great advice from Rob and as we navigate the brave new world of AI, diligence is key. My guess is that a great deal of money will be spent, and wasted, deploying AI. Therefore, taking time to fully assess where is can be used most effectively and working out the best implementation strategy will provide the best outcomes.

Why relationships ma

Hi Rob

Why don't relationships seem to matter anymore? Ours is a small industry, people move around and everyone knows each other. So to us, building trust and a strong working relationship set to last over the long-term is paramount.

It starts with our suppliers. We always do what we say we are going to do! We pay them on time and think of them as part of our own team. It works because close collaboration with long-term suppliers that are flexible and trustworthy offers us a stable supply of goods and has led to us being able to guarantee some of the fastest delivery times in the uninterruptible power supply (UPS) industry.

Our strong partnerships with worldwide suppliers also allow us to source the highest quality components efficiently and cost effectively, and ensures an uninterrupted flow of materials. This strategic approach means we can always deliver on our commitment to excellence for our valued customers.

And yet, other companies have lead times of 16-20 weeks? How come? Has that supplier-manufacturer relationship broken down? Will suppliers not go the extra mile for a company who has previously let them down on payment terms?

What about relationships with clients? We work closely with our clients over the long-term and encourage them to think of us as an extension to their own team. For many, we have literally become their power protection department, whose trusted advice can be relied upon when they are looking to solve a problem or are exploring a new project. We offer them unbiased analysis and guidance based on best practice and total cost of ownership (TCO) calculations to ensure that their power protection needs are met – whatever the challenge.

Yet, I see it again and again, where we are called to a new site and a previous supplier has sold an inappropriate solution, then cut and run. Where does that organisation think business will come from in the

atter

future without maintaining strong and trusted relationships? It is this selfish, short-term outlook that will ultimately see technology companies fail. Understandably, staff need to earn a living, so are under pressure to meet targets. Management encourages sales above all else, as they too are under pressure from those at the top. This cascade results in poor advice simply to get a 'quick sale'.

I'd argue that any business will do better with repeat custom, but this approach must come from the top and a clear view of the future. Centiel's engineers and UPS solutions experts are not required to 'sell' UPS. Instead, they are required to establish long-term relationships by offering their wealth of experience and expertise.

By taking time to understand the challenges faced, they always provide the best advice in relation to solutions based on best practice. In this way, we always aim to ensure our clients have the optimal UPS solution, while reducing their TCO and maximising their system availability. Our clients return to us time and time again. For us, strong relationships are the key to longevity and success as a company.

Frost & Sullivan recently presented Centiel with this year's Best Practices Technology Innovation Leadership Award in the global UPS industry. This award recognises the use of technology in new ways to improve existing products and services and elevate the customer experience. We could not develop the cutting edge UPS solutions we have over the years without the strong relationships with our clients enabling us to understand their detailed needs, and support from our suppliers to deliver the highest quality components. For us, all relationships matter.

David Bond
Centiel

Editor's comment

Business relationships should matter to every company because they form the foundation of success in the corporate world. These connections enable companies to foster trust, cooperation and reliability, often leading to mutually beneficial collaborations, partnerships and referrals, which can fuel growth and innovation. That said, like any successful relationship, it should work both ways. All too often customers are prepared to overlook the added valued provided by a trusted partner in favour of securing a lower price elsewhere. The grass isn't always greener!

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Reporting for duty

In just a few months the European Union (EU) Energy Efficiency Directive (EED) will make it mandatory for data centre owners and operators to report their energy performance for the previous year. Inside_Networks has assembled a panel of industry experts to discuss the implications of the EED on the data centre sector

The EU EED aims to reduce energy consumption across various sectors, including data centres, and requires member states to establish a national framework for promoting energy efficiency in these facilities. The first step in this process will be the mandatory annual reporting to a European database of energy usage and emissions for data centres with a capacity larger than 500kW – a process that begins on 15th May.

This report must cover a variety of information including floor area, installed power, data volumes, energy consumption, Power Usage Effectiveness (PUE), temperature settings, waste heat utilisation, water usage and the use of renewable energy. This information will, it is hoped, highlight opportunities to reduce energy consumption and greenhouse gas emissions, ultimately contributing to the EU's sustainability goals. Mandatory minimum performance requirements will be considered after examining the data collected in 2024.

Although many data centre operators have made significant efforts to improve energy efficiency and reduce their environmental footprint, the EED requires a high level of commitment and compliance. Inside_Networks has assembled a panel of experts to discuss the impact the EED will have on the data centre sector and whether it will achieve its aim of making these facilities more energy efficient and sustainable.

WHAT IMPLICATIONS WILL THE EED HAVE FOR THE DATA CENTRE SECTOR AND ARE OWNERS, OPERATORS AND USERS TAKING IT SERIOUSLY ENOUGH? HOW WILL REPORTING ENERGY PERFORMANCE HELP CUT DATA CENTRE CARBON EMISSIONS AND IS IT REALLY POSSIBLE TO REDUCE OVERALL ENERGY USE IN EUROPE BY 11.7 PER CENT BY 2030?

JOHN BOOTH
MANAGING DIRECTOR AT CARBON3IT

In short, the EED will have a massive impact, but not where you would expect. Most of the big players – those that are already members of the Climate Neutral Data Centre Pact (CNCDP) – have had advanced insight into the EED through their discussions with the European Commission since February 2021.

As such, they should be well prepared for reporting their total energy consumption, the percentage derived from renewable energy, and water, although perhaps not for the waste heat reuse element, by the due date of May 2024. They are taking this very seriously indeed.

Where the big impact will be is on the smaller colocation and enterprise data centres that are above the threshold of 500kW but below 5MW. A lot of these are smaller operators or enterprises that probably don't even know the EED is coming. They will have to become educated very quickly regarding the requirements and install energy/water monitoring systems that are capable of reporting to the EN 50600-4-X series of data centre key performance indicators that are cited as the only methodology to report the elements listed above. If they are not already in panic mode they soon will be.

We must remember that, at present, we have absolutely no real idea of how much energy is being used across the EU and further afield by data centres. Yes, we have estimates, but these estimates come with huge caveats. The latest estimates indicate a total energy consumption of around 92.6TWh/a by 2025.

The first phase of energy reporting will provide an as yet unobtainable insight into an accurate figure for data centre energy use. Then, in subsequent phases, there will be the threat of enforcement or 'sticks and carrots' mentioned in the Green Deal paper that said 'data centres can and should be carbon neutral by 2030'. This will help organisations to cut energy use and thus carbon emissions, under an as yet unspecified enforcement regime.

I think it is possible to reduce energy use by at least 11.7 per cent by 2030 on the existing estate. However, the pace and scale of some of the proposed data centre construction projects could result in it being a lot closer to zero per cent.

'WHERE THE BIG IMPACT WILL BE IS ON THE SMALLER COLOCATION AND ENTERPRISE DATA CENTRES THAT ARE ABOVE THE THRESHOLD OF 500KW BUT BELOW 5MW. A LOT OF THESE ARE SMALLER OPERATORS OR ENTERPRISES THAT PROBABLY DON'T EVEN KNOW THE EED IS COMING.'

JINÉL FOURIE

DIRECTOR OF PUBLIC POLICY EMEA AT VANTAGE DATA CENTERS

The EED will bolster innovation in the technologies used in data centres – from servers to cooling systems to power distribution – all of which play a critical role in the sector's energy efficiency. It will also drive the standardisation of waste heat capabilities in the design of data centres.

Further implications will depend heavily on how European countries interpret and legislate their obligations to meet the targets that the EED sets out. If European countries take a harmonised approach to regulating energy efficiency, it will allow scalability and standardisation in energy efficient data centre design and operations.

However, if countries take a fragmented approach, it will disincentivise the sector from investing in countries with unfavourable legislative frameworks. It may also create the need to customise data centre design, engineering and operations solutions per country. This would likely have severe and adverse cost, innovation and scalability implications for the sector.

National approaches to legislating energy efficiency may also trigger outcomes that contradict the intention of the EED. For example, the German Energy Efficiency Act (EEA) may incentivise the use of adiabatic cooling solutions to lower Power Usage Effectiveness (PUE), which contradicts one of the EED's stated intentions of reducing water consumption in data centres.

In principle, reporting is a valuable tool to hold the industry accountable and will support innovation in areas like sustainable and energy efficient data centre design and operational excellence, resulting in reduced carbon emissions. However, reporting is only as effective as the legislative context it sits within. For example, the EEA's PUE reporting requirements could incentivise data centres to artificially increase IT load – and thereby power consumption – when they have a low base IT load. This could be done to meet PUE targets and avoid penalties when reporting these levels.

While data centres will also be required to use green energy sources – which limits the impact on carbon emissions – there would nonetheless be a net negative impact on environmental targets. It is therefore important for countries and the EU to carefully consider what energy performance indicators they monitor to maximise the positive impact and limit unintended adverse consequences.

'THE GERMAN ENERGY EFFICIENCY ACT (EEA) MAY INCENTIVISE THE USE OF ADIABATIC COOLING SOLUTIONS TO LOWER PUE, WHICH CONTRADICTS ONE OF THE EED'S STATED INTENTIONS OF REDUCING WATER CONSUMPTION IN DATA CENTRES.'

STEVEN CARLINI

VICE PRESIDENT OF INNOVATION AND DATA CENTRE AT SCHNEIDER ELECTRIC

Data centres are critical infrastructure and fundamental to delivering sustainable operations in an electrified and digitalised economy. Decarbonisation efforts in the most polluting sectors, like power generation or transport, are largely happening thanks to smart artificial intelligence (AI) algorithms housed in data centres.

Recent scrutiny towards data centres has come from increased awareness of the market's energy demands, which has led to the need for mandatory reporting in different locations. The EU's EED is one of the first such mechanisms, guiding companies on a tough road to sustainability, with the updated EU target aiming for a 11.7 per cent reduction in energy consumption by 2030.

The revised EED, in force since October 2023, proposes metrics and audited reporting with business specific timeframes. Data centres, separately addressed in the regulation, are obliged to share key information like traffic, Power Usage Effectiveness (PUE), Water Usage Effectiveness (WUE) and Carbon Usage Effectiveness (CUE).

Without detailed regional information containing the minimum performance requirements, member states are expected to respond to the EED with their own internal regulations. An example is the Energy Efficiency Act in Germany – an ambitious and impactful set of regulations for data centre operators and developers.

Is the EED achievable? Will it support greater energy efficiencies? Yes, but its regulatory requirements must also evolve in line with technological demands placed on the sector.

Today, colocation providers, one of four data centre categories specified in the EED, need reliable procedures to start collecting and unifying data from their tenants. The most urgent actions, other than developing data collection methods, is increasing the rate of IT utilisation and developing standardised, simple and meaningful metrics to ensure that reporting is consistent across the industry.

On the one hand, some concern is raised against parameters that are not readily available to operators, or are costly to measure – for example, input/output operations per second. On the other, proposed metrics, such as ratio of idle to maximum power, seem irrelevant as reporting duties are directed towards operators, which have limited responsibilities over their tenants.

Efficiency reporting may incite greater competition with publicised confidential information causing disruption in the sector. However, the EED is clearly a good starting point to help lead the data centre sector towards net zero emissions.

'IS THE EED ACHIEVABLE? WILL IT SUPPORT GREATER ENERGY EFFICIENCIES? YES, BUT ITS REGULATORY REQUIREMENTS MUST ALSO EVOLVE IN LINE WITH TECHNOLOGICAL DEMANDS PLACED ON THE SECTOR.'

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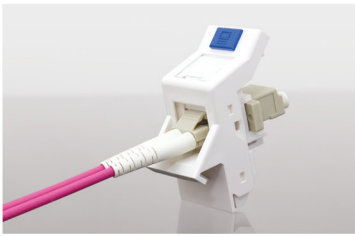

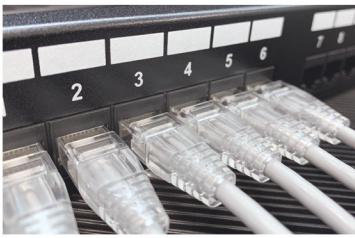

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MADE TO CONNECT

IN-AD-HTC-R13

STEPHEN LORIMER
GROUP TECHNICAL DIRECTOR AT KEYSOURCE

The EED will require data centres in the EU with an annual energy use of over 2780MWh to publicly report their energy performance. These new thresholds for reporting mean that it will likely cover nearly all operators based in the EU.

Operators will need to report on annual incoming/outgoing data traffic, the amount of data stored and processed, temperature setpoints, power, Water Usage Effectiveness (WUE) and Carbon Usage Effectiveness (CUE), energy reuse factor, renewable energy use and their cooling effectiveness ratio. However, the data centre industry is underprepared for these forthcoming regulatory changes and new reporting thresholds, despite monitoring requirements starting in May 2024.

I welcome greater transparency and believe there will be a number of benefits associated with these new regulatory changes. These include cost savings and a potential for increased investment, as investors will be able to make better return on investment predictions using historic data.

Reporting energy performance in data centres will provide more transparency, giving stakeholders a clear view of energy usage and carbon emissions and helping to highlight short- and long-term efficiency improvements by more easily showing areas for optimisation. It will facilitate data driven decision making, enabling data centres to make confident, informed choices about investments in energy efficient technologies and practices.

In addition, through the EED the European Commission will establish a database of information gathered for use in informing future decisions and legislation. It will also encourage member states to drive data centre owners and operators of facilities over 1MW of installed IT to follow a code of conduct for best practice.

While undeniably challenging, achieving this goal is feasible but it is imperative organisations act swiftly to significantly enhance their energy efficiency and reporting practices. This means urgent action on multiple fronts including more robust policy support, rapid technological advancements, immediate behavioural change and substantial infrastructure investments.

> ‘THE DATA CENTRE INDUSTRY IS UNDERPREPARED FOR THESE FORTHCOMING REGULATORY CHANGES AND NEW REPORTING THRESHOLDS, DESPITE MONITORING REQUIREMENTS STARTING IN MAY 2024.’

MATTHEW FARNELL
GLOBAL SALES AND MARKETING DIRECTOR

The EED brings in a new obligation for data centre operators whose installed IT has a power demand of at least 500kW to report on their data centres' energy performance. This information will be aggregated into a European database that will be publicly available. This data will need to be reported from 15th May 2024 – and every year afterwards.

This is no small undertaking, as the energy performance of data centres will need to include installed power, annual incoming and outgoing data traffic, and the amount of data stored and processed within the data centre. Performance will need to cover the last full calendar year and reference key performance indicators (KPIs) on energy consumption, power utilisation, temperature setpoints, waste heat utilisation, water usage and renewable energy usage.

For the initial May 2024 EED reporting requirement, this will require the above KPIs to have been collected from May 2023. Owners, operators and users who haven't been collecting this data are probably not taking EED seriously enough.

Reporting energy performance alone won't cut data centre carbon emissions, but it's important to see EED as part of a major global move to establish clear accountability around climate reporting. In the US, the Securities and Exchange Commission is proposing a climate change disclosure rule that would require companies to comply with their stated environmental claims such as net zero target commitments.

The California Climate Accountability act will also require reporting on Scope 1 and Scope 2 greenhouse gas emissions for the prior fiscal year – starting from 2026. The EU's Corporate Sustainability Reporting Directive (CSRD) is focused on evidence based reporting and precise measurement of greenhouse gas data and Scope emissions. Additionally, the German Energy Efficient Act is setting obligatory Power Usage Effectiveness (PUE) targets.

The need to report publicly on data centre carbon emissions will serve as a powerful driver towards improved energy performance. Corporate sustainability and environmental, social, and governance (ESG) pressures will also increasingly drive customers to data centre operators seen to be meeting net zero targets.

It's not going to be easy, but the European Commission is serious about achieving this objective. It's incumbent on the data centre industry to do everything it can to meet its own sustainability goals – fulfilling ESG reporting obligations is a great way to ensure that energy efficiency stays on track.

'REPORTING ENERGY PERFORMANCE ALONE WON'T CUT DATA CENTRE CARBON EMISSIONS, BUT IT'S IMPORTANT TO SEE EED AS PART OF A MAJOR GLOBAL MOVE TO ESTABLISH CLEAR ACCOUNTABILITY AROUND CLIMATE REPORTING.'

ED ANSETT

FOUNDER AND CHAIRMAN AT I3 SOLUTIONS

Data centre operators – be they cloud, commercial or on-premises – are becoming familiar with the latest update to the EU Energy Efficiency Directive (EED). The EED covers any firm whose annual total power use exceeds 23,700MWh and requires that individual data centre facilities of 500kW or larger must start reporting on a range of energy measurements.

The EED is, in part, an EU maintained database on energy use. By now, data centre operators should not be panicked by having to report metrics covered by the directive such as Power Usage Effectiveness (PUE), Water Usage Effectiveness (WUE) and Carbon Usage Effectiveness (CUE). It should also be relatively straightforward to report floor area, installed power, power consumption, temperature setpoints, waste heat utilisation and renewable energy use.

Operators may be less comfortable being asked to report on incoming and outgoing data traffic (annual), the amount of data stored and processed (annual), a facility's energy reuse factor, cooling effectiveness ratio and data centre carbon emissions. They will also have to report on the carbon emissions associated with energy consumption to reach emission reduction targets.

Even further from the operators' comfort zone of traditional engineering metrics, the EED talks about data centre economic efficiency, covering technology, operations and continuous optimisation. This is in addition to data centre social impact and compliance with energy efficiency standards and regulations. Most significantly, and probably most challenging of all, it says firms must create a 'feasible' action plan for progress to greater efficiency.

In the latest EED update, the 2030 EU energy efficiency target is increased to 11.7 per cent for both primary and final energy consumption. The final energy consumption target is now binding. Data centre operators may question how much the EED will help the bloc with its objective of a 55 per cent cut in greenhouse gases by 2030 compared with 1990 levels. But they should expect stringent compliance oversight and must accept data centres are firmly in the sights of EED regulators. For operators, the first internal question raised by the EED update is 'Who owns this?'

'DATA CENTRE OPERATORS MAY QUESTION HOW MUCH THE EED WILL HELP THE BLOC WITH ITS OBJECTIVE OF A 55 PER CENT CUT IN GREENHOUSE GASES BY 2030 COMPARED WITH 1990 LEVELS. BUT THEY SHOULD EXPECT STRINGENT COMPLIANCE OVERSIGHT AND MUST ACCEPT DATA CENTRES ARE FIRMLY IN THE SIGHTS OF EED REGULATORS.'

Centiel leads industry with sustainable UPS to help data centres achieve net zero targets

Centiel's new StratusPower uninterruptible power supply (UPS) provides complete peace of mind in relation to power availability, while helping data centres to achieve their net zero targets.

Centiel's latest innovation leads the industry, as StratusPower shares all the benefits of the company's award winning CumulusPower three phase, true modular UPS including nine nines (99.9999999 per cent) availability. It effectively eliminates system downtime and has class leading 97.1 per cent online efficiency to minimise running costs, true hot swap modules to eliminate human error in operation – but now also includes long life components to improve sustainability.

David Bond, chairman at Centiel UK, confirms, 'Historically, Centiel's innovation led to the creation of one of the most efficient and available UPS solutions on the market in CumulusPower. For the past four years we have been working to ensure our latest UPS is as sustainable as possible too.

'Like all our UPS, StratusPower is manufactured at our factory in Switzerland. However, uniquely, it includes even higher quality components, so instead of replacing filter capacitors and cooling fans every four years, they now need replacing every 15 years – or just once during their entire 30 year design life. As a data centre has a design life of typically 25-30 years, StratusPower will last as long as the data centre. Furthermore, at end of life, StratusPower can also be almost 100 per cent recycled.'

The three phase modular UPS StratusPower covers a power range from 50kW-1,500kW in one cabinet and can be paralleled for 3,750kW of uninterrupted clean power, which is perfect for data centres. UPS cabinets are designed with scalability and flexibility in mind, and future load changes are easily accommodated by adding or removing UPS modules as required. A data centre will never outgrow a well specified StratusPower UPS and it can be constantly rightsized to ensure it always operates at the optimal point in its efficiency curve.

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

www.centiel.co.uk

Take your pick

Arpen Tucker of Vantage Data Centers looks at why an optimised high performance computing (HPC) infrastructure is mission critical for transforming modern artificial intelligence (AI) driven businesses

The kind of super powerful data processing, computer simulations and modelling that used to be the exclusive preserve of major scientific research firms, academe and meteorologists is rapidly becoming accessible to organisations large and small. With recent advances in AI and machine learning, many more businesses in sectors such as fintech, manufacturing, retailing, engineering and construction can take maximum advantage.

PERFORMANCE ART

The potential benefits on offer are huge in terms of increased productivity, agility and competitive edge through harnessing the processing performance and unprecedented perceptivity of AI for turning vast amounts of data into actionable information in the blink of an eye. However, taking the decision to transform your organisation into a data driven, AI enabled business requires a major step-change, not least in readying your company's IT infrastructure. AI and machine learning demand HPC capabilities involving superfast highly scalable computer servers with tens of thousands of processors working in parallel – not to mention massive storage capacity and low latency networks.

Most small to medium sized enterprises (SMEs) simply won't have an existing data centre and IT infrastructure that is already fit for purpose. For it to cope with the rigours of HPC, a significant additional technology investment is therefore likely. Assessing whether the in-house IT department has the prerequisite skills to support it is another major consideration regarding the training, recruitment and costs involved. There's also the potential environmental, social and governance (ESG) impact from running energy intensive AI applications day in day out.

With so much at stake, it is vital to keep desired business outcomes in mind from the outset, as deploying HPC and AI is about doing things better and more quickly – not about the IT itself. Therefore, putting

an initial small scale proof of technology concept in place can help measure the outcomes in terms of actual business improvements and performance. It may show, for example, that ripping out and replacing existing cooling systems for liquid immersion won't be a necessity, at least in the short- to medium-term.

MAKING THE RIGHT CHOICE

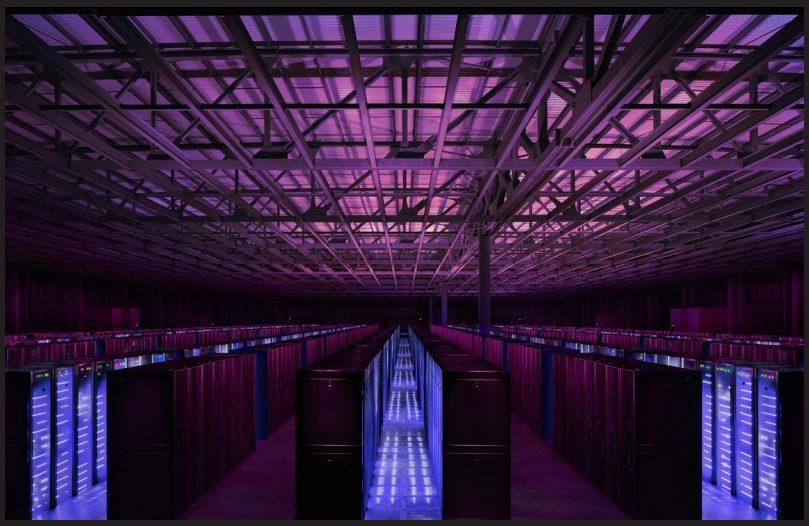
The complexities involved will no doubt make the on demand AI services of public cloud providers appear the quickest and most straightforward choice. And in many cases, it could well be. The major public cloud providers are making HPC increasingly user friendly and accessible to SMEs, as well as larger enterprises.

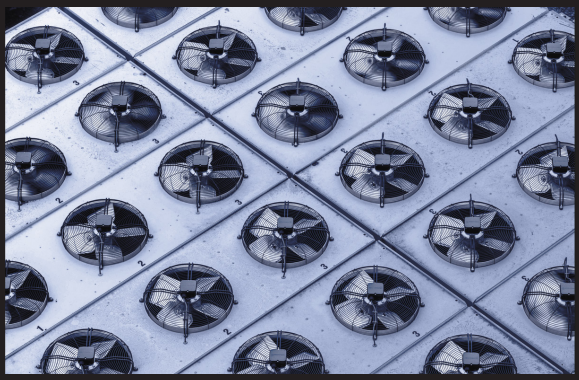
This could be particularly useful for easing in house IT infrastructure overloads from time to time, or perhaps hosting certain HPC workloads on a more permanent basis. However, moving data back on premises can be tricky and there will be data egress charges, which can be costly depending on the volume of data concerned. It's also worth noting that a third of organisations moved applications back from the cloud to an on premise data centre or colocation facility in 2022, according to a recent article published by Uptime Institute. 42 per cent said their cloud spend was greater than expected.

CAUSE FOR CONCERN

Such concerns over escalating costs begs the question whether all AI workloads need to be in a cloud provider. As with other workloads, having rushed into the cloud a few years ago, many chief information officers (CIOs) are now fathoming the workloads that do, and don't, fit in the cloud from a cost and complexity perspective.

Could HPC therefore be better served on-premises, in a colocation data centre or perhaps a hybrid cloud solution through a combination of the two? Furthermore, while cloud is often seen as the more sustainable option for organisations looking to hit their net zero targets, modern colocation data centre providers also have optimised renewable energy efficient credentials and will be equally experienced in helping organisations achieve improvements around ESG and control their energy usage.





dependence on the availability of HPC platforms to run workloads at short notice. This could become too operationally intensive and cost prohibitive for in house teams to maintain and upgrade.

On premise solutions will also face cooling constraints, as HPC rack densities continue to go up. HPC requires highly targeted cooling. Simple computer room air conditioning (CRAC) or free air cooling systems typically do not have the capabilities required.

CUTTING EDGE

For large research and development establishments at the leading edge of technology, on premises may be the most efficient and cost effective approach. However, this assumes you already have a world class data centre at your disposal along with world class HPC engineering support people, and a very competitively priced energy provider with guarantees in place for supplying scalable power.

HPC's thirst for compute power, often sizeable space requirements and relatively short refresh cycles may be an increasing challenge for most on premise installations in terms of financial returns and logistics (parallel build), as well as upgrading of plant and utilities to site (power). Moreover, with organisations' growing focus on AI and machine learning there will be increasing

'As AI demand grows, so does the environmental implication of running energy intensive and complex HPC infrastructure. To achieve sustainability, data centre industry leaders and HPC equipment vendors are prioritising ways to reduce CO2 impact.'

COLOCATION VERSUS ON-PREMISE

If deploying HPC AI workloads in the public cloud is not seen as the most viable option, deciding whether to invest in on premise data centres or outsourcing to colocation providers needs careful consideration. The growing availability of colocation facilities for renting space along with power, cooling and networking infrastructure appears the more compelling solution.

However, comparatively few colocation facilities are equipped for meeting HPC and AI based business requirements and only some of these have sufficient experience of deploying HPC and meeting custom build requirements. Power to space ratio is increasingly critical for achieving highly concentrated power to rack. HPC deployments are already driving up rack densities to unprecedented levels. While 15-20kW racks have been the norm, we are now seeing densities rise to 40kW, 50kW or even 100kW. This calls into consideration a facility's immediate, and forwards, power availability. Here are

the key considerations:

- The cooling required demands bespoke build and engineering skills. With specialised cooling requirements, it will also be necessary to have on-site engineering personnel on hand with knowledge in designing and building bespoke solutions.

- For critical services, uninterruptible power supply (UPS) and auxiliary power systems must be capable of supporting all workloads running in the facility at the same time, along with enough redundancy to deal with any failure within the emergency power supply system itself.

- Connectivity through multiple diverse connections from the facility is also crucial, along with specialised connections to public clouds, especially in the case of hybrid HPC public/private cloud solutions. These bypass the public internet to enable more consistent and secure interactions between the HPC platform and other workloads the organisation may be operating.

- The physical location of the colocation data centre will impact the rack space costs and power availability. In the case of colocation, there are often considerable differences in rack space rents between regional facilities and those based in or around large metro areas such as London.

- Sustainability is key. As AI demand grows, so does the environmental implication of running energy intensive and complex HPC infrastructure. To achieve sustainability, data centre industry leaders and HPC equipment vendors are prioritising ways to reduce CO2 impact.

DON'T BELIEVE THE HYPE

There is a lot of hype around AI applications, which can lead to organisations feeling overwhelmed by the infrastructure choices at stake, whether on premises, public cloud, hybrid cloud or colocation. But ultimately, it is down to the individual organisation to decide what's strategically, operationally and financially important. They should then opt for a model that best suits them, as one size doesn't fit all. ■

ARPEN TUCKER

Arpen Tucker is senior business development manager UK at Vantage Data Centers. He has more than 20 years of industry experience, having worked in senior sales/commercial roles for a number of leading technology companies across telecoms, data centres, hosting and cloud services. In 2011, Tucker cofounded the Data Centre Alliance (DCA).

nLighten

nLighten's pan European network of high capacity, scalable and extremely resilient regional edge colocation data centres enable enterprise businesses, content delivery networks (CDNs), cloud and immersive technology providers to maximise competitive advantage through reduced latency, lower data transit costs, enhanced operational efficiency and more responsive applications and services.

Meeting individual customer requirements, from specific regional data centre services to multi-site rollouts, nLighten's highly connected Tier 3 data centres serve strategic cities and conurbation areas across the UK, Germany, France and the Netherlands. Further sites will be added to the portfolio during 2024 in line with nLighten's ongoing commitment to increasing its presence and proximity to key European economic hubs.

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Full on-site support, transition and onboarding are provided, along with server migration services and a straightforward contract with a single set of service level agreements covering one or multiple sites. ISO 9001, ISO 14001 and ISO 27001 compliant, all of nLighten's data centre grid electricity is sourced from 100 per cent renewable providers.

For more information call 03300 250138 or to visit the website **CLICK HERE.**
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At Siemon, we've taken our passion and engineering pedigree and focused it into a truly world class portfolio of advanced fibre and copper solutions that blend industry leading quality, performance and usability. This allows our users to reduce risk, maximise uptime and successfully deliver new applications and services at speed.

No matter where you are on your network infrastructure journey, Siemon has the solutions and services to help you design and deliver what you need to achieve your strategic goals.

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BSO

BSO boasts an extensive network comprising over 240+ points of presence (PoPs) across 33 markets, with over 50+ cloud on-ramps. Our network is seamlessly integrated with major cloud providers, ensuring robust connectivity. Additionally, we connect to over 75 on-net internet and 30 stock exchanges, offering complete access to global markets.

We have invested substantially in optimising our Tokyo to London route. As a result, we are thrilled to offer unparalleled latencies between these two critical financial hubs. This achievement establishes a groundbreaking pathway connecting London, Tokyo and New York, providing seamless connectivity for foreign exchange markets with the lowest possible latency.

To explore our high speed routes, including Frankfurt to Istanbul, Bergamo to London and Frankfurt, New York to Sao Paolo, London to Riyadh, Ashburn to Tokyo, and Tokyo to Singapore, contact us today.

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CLOUD REPATRIATION IN 2024

All back to ours?

The cloud was supposed to solve everything.

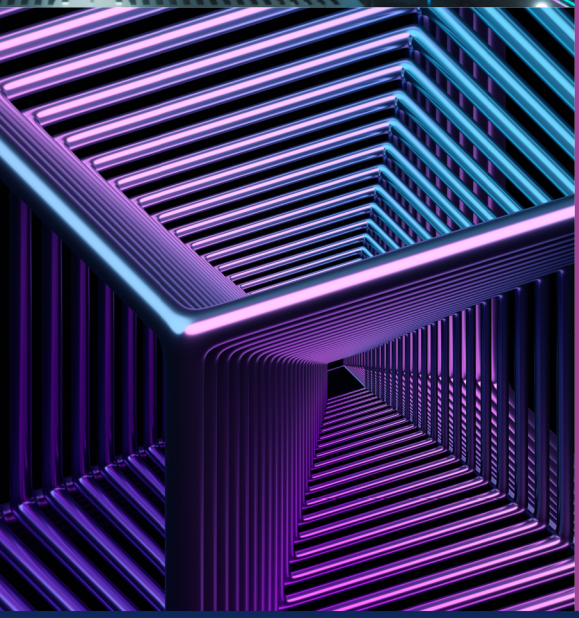
No upfront costs. Compute power on demand. Universal access. Infinite recovery and continuity. Faster application development. Centralised, robust security. The pitch was the perfect alignment of technology resource to business objectives. Digital transformation for everyone. But reality bites. Whilst the cloud can address various operational challenges, it is no panacea. In fact, those early promises are being broken.

Take cost for example: IBM cloud bills are set to increase **by 26% from Jan 2024**. **Salesforce recently made its first price hike in seven years**. And simultaneously, businesses think differently, about why they thought about cloud, in the first place. A cloud investment is not just about lower cost based on usage anymore. There is a sophisticated, granular focus on function.

Modern digital business creates keen incentives to refine the 'right technology for the right workload.' Hence cloud repatriation: the shift away from the cloud and back to on-premise infrastructure. A shift that will continue apace in 2024, as businesses like Linkpool are showing. The cloud will still be a genuine gamechanger for the right applications, in the right company. But, the future of technology infrastructure will be a hybrid of regional, on-premise, national connection and global cloud(s).

And in 2024, as the digital transformation party continues, the repatriation trend shows that for many businesses, it is all back to ours.

Mark Turner
CCO, Pulsant



The LinkPool Story

A colocation success story

Blockchain smart contracts business LinkPool is just one example. LinkPool previously operated on hyperscale cloud infrastructure. But as the business grew, it faced increasing bills and decreasing performance. This led CEO, Jonathan Huxtable to hunt out an alternative solution that would offer lower latency and reduced cost, without sacrificing scalability. Pulsant platformEDGE was chosen to provide the infrastructure LinkPool needed to support the growth of its business-critical, global workload.

By colocating in our **Sheffield** and **Milton Keynes** data centres, it was able to compose the exact infrastructure required: a powerful, cost-effective, and highly scalable suite of technologies designed to meet the business's needs today and into the future. LinkPool has launched a second live production environment in our Milton Keynes site, benefiting further from our high-speed, intra-data centre network, to bolster network resiliency and guarantee uptime.

85% Cost Savings

The net result is signifcantly improved performance of critical infrastructure — memory, CPU and disk — than that of the previous cloud infrastructure, while costs have fallen by up to 85%.

Pulsant's platformEDGE infrastructure platform is used by businesses across the UK to build, connect and deploy the hybrid workloads they need to reach their digital goals and drive competitive advantage.

Find out more at pulsant.com

Pulsant

The times they are a

Spencer Lamb of Kao Data explains why the surge in graphics processing unit (GPU) powered computing has forced an evolution in colocation data centres

The last year has seen an unprecedented surge in demand for high performance data centre capacity, beyond that of what has been experienced over the last eight years with the growth of the public cloud. At the beginning of 2023, for example, hyperscale data centre builds began to slow amid rumours of an impending market recession. Yet just weeks later, the launch of generative artificial intelligence (GenAI) platforms such as ChatGPT, DALL-E and Bard prompted a complete shift in the market's trajectory – and the way in which the colocation data centres of the future will be designed, built and engineered for AI.

MARKET DEMAND

A recent report from Synergy Research predicts that hyperscale data centre requirements will nearly triple in the next six years, driven primarily by AI. At the same time, the IT capacity within data centres is growing at a far faster rate due to the densely populated nature of GPU powered computing. The number of data centres and the volume of capacity within them will, therefore, increase to unprecedented levels.

The need for high performance colocation capacity is a point further echoed by CBRE, where driven by natural language processing, GenAI and large language models (LLMs), the use of the technology has become so widespread that it will soon impact every area of business and enterprise. The increased interest in AI has not gone unnoticed by governments and throughout the course of 2023 the UK prime minister announced a series of commitments to further establish the country as a world leader, with aims to become a superpower by 2030.

a changin'

GOVERNMENT INVESTMENT

The UK government will make a £500m investment in AI compute over the next two years. This is hailed as a much needed step to help researchers harness the power of AI to improve lives, and one which includes a raft of cutting edge computing measures to drive new breakthroughs in drug discovery and science. Microsoft has also diversified its UK investments, pledging £2.5bn to build new critical infrastructure locally, bringing with it promises of next generation AI data centres and access to a plethora of GPUs.

What's clear is that AI means big business – not only for the data centre industry but for government, enterprise and research industries alike. But a gap remains between intent and action. One might ask if, in its current format, the UK digital infrastructure industry can truly deliver the cabinet's technological and economic ambitions?

GEOGRAPHICAL RESILIENCY

The UK colocation sector has long been one of the world's largest markets, second only to the USA. Yet from a geographical standpoint, the UK's digital infrastructure landscape lacks much of the resilience seen by neighbouring European countries.

France and Germany, for example, have both developed well provisioned Tier 2 data centre hubs, and Berlin and Marseille have quickly established themselves as key destinations for the industry. The UK, however, is underserved and yet to see the emergence of a secondary market, which is an issue further compounded by the challenges surrounding the West-London hub, including a shortage of available power and land constraints.

HIT THE NORTH

Now, therefore, is clearly the time to develop a new high performance infrastructure hub, and one which is truly ready to underpin the demands of AI. With a host of technology, research and financial services organisations already based in the North West – and hyperscalers deploying nodes across the region – all trends point towards Greater Manchester as the next key location for the sector.

Indeed, Greater Manchester boasts many benefits including a strong technology, scientific and engineering skills base, access to ex-industrial land ripe for investment and redevelopment, robust network termination points and access to renewable energy. Another crucial factor is its appetite for technological innovation – a reputation the region has long held since the industrial era – and something which clearly positions it as a vital location that will increase both the country's technological resilience and its readiness for AI.

ENGINEERED FOR AI

At the same time as identifying new infrastructure hubs and driving the development of new availability zones, data centres must also be rearchitected to become ready for AI. With today's

‘A recent report from Synergy Research predicts that hyperscale data centre requirements will nearly triple in the next six years, driven primarily by AI. At the same time, the IT capacity within said data centres is growing at a far faster rate due to the densely populated nature of GPU powered computing.’

workloads requiring power densities of anywhere between 10kW-40kW per rack, and some heading towards 100kW, the way in which we design, power and cool data centres requires a step-change.

The unique requirements of high density computing, and the accompanying increase in both processing power and the level of heat generated by GPUs, places great pressure on the physical demands of data centres. For many of today’s operators this brings with it several key considerations. The first is that they meet strict design criteria, in essence, becoming NVIDIA DGX-Ready data centre certified, which demonstrates a clear capability to support and host the latest breakthroughs in GPU technology.

The second is the use of next generation cooling methodologies such as direct to chip liquid cooling. However, with so many questions still to be answered around cooling architectures, it's clear that today's data centres must be designed in such a way as to accommodate hybrid, air or liquid cooled solutions – at least in the interim.

SPECIALISED NETWORKS

There is also a need for specialised, high capacity network access, combined with superfast on-ramps to the cloud. Where high performance computing (HPC) is concerned, the ability to deploy high density, GPU accelerated servers, interconnected with networking such as InfiniBand, is paramount to ensure that high capacity networks can transmit large volumes of data at pace.

Such systems aren't typically found in legacy data centre environments. This points towards the need for both an evolution in physical infrastructure design requirements, and in the networking capabilities that accompany them.

AI requires a new approach to data centre design, and the success of the government's technological ambitions will depend on high performance colocation capacity that is capable of hosting advanced workloads. This also requires a significant level of new investment in developing advanced digital infrastructure, alongside greater collaboration between government and industry. Both are important steps to match ambition with action and thereby sustain technological progress.

DEEP IMPACT

The growth of AI is already having a profound impact on data centre infrastructure and is changing the nature of high density computing on an industrial scale. As we look to the future, the need for technically advanced data centres, designed and engineered for AI, is paramount. ■

SPENCER LAMB

Spencer Lamb is chief commercial officer (CCO) at Kao Data. Having held previous positions at Infinity SDC and Verne Global, Lamb brings over 25 years of experience in data centre colocation, AI, high performance computing (HPC), hyperscale cloud and telecommunications to the business.

EkkoSense promotes Matthew Farnell to global sales and marketing director

EkkoSense has promoted Matthew Farnell to global sales and marketing director. In his new role Farnell will be responsible for driving EkkoSense's next phase of growth, as the company continues its expansion into new global regions and strengthens its EkkoNet Global Partner network.


Matthew Farnell

Farnell initially joined EkkoSense as EMEA sales director in 2022. Since then the company has expanded its artificial intelligence (AI) powered software as a service (SaaS) data centre optimisation proposition by introducing key environmental, social and governance (ESG) reporting capabilities.

Commenting on Farnell's appointment, EkkoSense's CEO, Dean Boyle, said, 'Matthew has delivered exceptional results across the EMEA region since he joined the team 15 months ago. His promotion to a global leadership role is thoroughly deserved. Matthew's sales and leadership expertise will be a key factor as we continue our aggressive growth plans to drive increased market share in key global markets.'

Jamie Plumridge joins nLighten Group as channel director to lead strategy for Proximity Data Centres

Jamie Plumridge has joined the nLighten Group as channel director to spearhead the company's focus on building a 'channel first' go to market strategy that will support ambitious growth plans for the UK business. A seasoned channel professional, Plumridge was previously group alliance director at Computacenter.

'I am delighted to join the nLighten Group and excited by the opportunity to develop a really strong channel business that enhances our unique position in the edge data centre market,' said Plumridge. 'Data centre services are more relevant than ever to the UK channel as we enter a mixed infrastructure model including hyperscale and edge data centres. With an impressive footprint of distributed edge data centres throughout the UK and Europe, we are strongly positioned to help the channel realise the opportunity presented by the new era of data centre strategy.'


Jamie Plumridge

Emtelle forms partnership with Sales Outsource Solutions to expand its market presence in Canada

Emtelle has formed a new partnership with Sales Outsource Solutions to strengthen its market presence in Canada. Emtelle has been at the forefront of blown fibre development in the UK and Europe for over 30 years and has been a pioneer in moving the market in Canada to blown fibre in the last 10 years.

The new collaboration comes after Emtelle opened a multimillion dollar North American state-of-the-art manufacturing facility in the USA in 2023. The partnership aims to further make available Emtelle's products and customised solutions for customers through Sales Outsource Solutions.


Brian Didone

Brian Didone, national director conduit solutions at Sales Outsource Solutions, said, 'We at Sales Outsource Solutions are exceptionally well positioned to dramatically increase Emtelle's Canadian market share by leveraging our extensive industry relationships and strong technical acumen. Collectively, we are poised to deliver exceptional value, innovation and best in class customer support to our Canadian customers.'

CHANNEL UPDATE IN BRIEF

Mayflex has received an award to celebrate its achievements in its partnership with Suprema. Mayflex's sales director, Ross McLetchie, collected the award from Hanchul Kim, chief executive officer at Suprema.

Fujikura Europe has appointed Webro Cables & Connectors as a UK distribution partner The partnership will see Webro act as the sole cable distributor for Fujikura cable, serving the telecoms market with a supply of air blown 144-fibre, 288-fibre and 432-fibre cables.

Critical Power Supplies (CPS) has expanded its northern sales team with the addition of Paul Thomas as its new account manager. Thomas is a seasoned sales professional who brings more than 35 years' experience and expertise in the power and IT industry. He has a strong engineering background and has represented leading brands including Rittal, APC, Emerson, Riello and Panduit.

Spirent Communications has created a strategic partnership with Anritsu. It will enable the automotive industry to more efficiently meet the unique testing requirements presented by cellular vehicle to everything (C-V2X) and autonomous driving technologies.

Netskope has formed a partnership with BT to bring Netskope's market security service edge (SSE) capabilities to BT's global customers. The partnership follows a number of large customer implementations where the two companies have already collaborated to successfully meet the security and access needs of large enterprises.

The shape of things to come

In the second of two articles examining apprenticeships, Rob Shepherd talks to George Bradfield and Asean Williams of Onnec about their experiences as apprentices and why they have decided to join the digital infrastructure sector

RS: Why did you decide to become an apprentice and start a career in the network infrastructure sector?

GB: I never went down the university route because it wasn't really my cup of tea. During the Covid-19 pandemic, when lockdown meant working from home, I spent time with a family member who works in the network infrastructure industry, talking about it and getting a general understanding of it. When it came to seeing this apprenticeship opportunity advertised I just thought, why not? I knew working for Onnec would present a lot of opportunities, so it would have been silly not to apply.

AW: I think an apprenticeship is a great opportunity to learn and earn at the same time. I jumped into this because I was eager to learn and I was particularly interested in the electrical field.

RS: What did you know about network infrastructures before you applied?

GB: I had very little knowledge other than what my family member had told me. I wouldn't say I had a proper understanding of it as I wasn't doing it day in, day out, as I am now.

AW: I had some knowledge. I'd previously passed my Level 2 in Electrical Insulation through the London Construction Academy and I was looking for a way to get into site work, or do something hands-on while developing more skills in this area.

RS: What do you hope to gain from this apprenticeship experience?

GB: The knowledge, skills and pure understanding to be the best engineer that I can possibly be. I want to learn as much as I can and progress as far as I can, because this is the career I've chosen, and I have a very strong interest in it.

AW: I haven't got a fixed end point in mind. I'm just hoping that I can continue to make progress and keep developing as I learn.

RS: Describe the application process? How were you introduced to your employer?

GB: Once I'd applied, I got a call from someone in Onnec's human resources department inviting me to an interview. Dave Buchanan, Onnec's operations manager, was there overseeing some practical tasks that were part of the interview, such as stripping a cable. The interview itself was interesting – out of all the interviews I've had, I'd never previously had to do any practical tasks. It provided a good insight.

AW: I immediately thought the apprenticeship sounded great and applied. There were multiple stages to the process – questions, an initial assessment, an interview – but I just kept going and pursuing it through the different stages.


Asean Williams


George Bradfield

The interview was different to what I'd experienced before. It was more of a 'think on your feet' kind of exercise.

RS: How is your time structured and do you think the balance between practical and theory based activity is adequate?

GB: I'm finding it to be a great balance. We spend Monday to Thursday on-site with people that have been in the industry for many years, and we get the chance to really pick their brains and see what we can improve on, learn how to do new things and expand our knowledge. We spend Fridays in the Onnec office completing our CNet Training tasks and internal Onnec department coursework, or attending workshops or regular progress review meetings.

AW: It's a really good balance. In some working environments I've experienced, for example, working as a rail track engineer, you're entirely focused on the practical and you don't do any of the 'behind the scenes' paperwork and development. Having both really helps because it reminds me that, as much as we do the hands-on tasks, we also need to know that background work because it's what makes the organisation tick. The balance means it's not excluded, it doesn't devalue the practical tasks and it teaches us how one helps the other.

RS: What has surprised you most about being an apprentice?

GB: Genuinely, it's the amount of support we get from Onnec because everyone across the whole company is very helpful and great towards us. Dave takes his time to phone us to see how things are going, talk about what's coming up and ask how we're finding it all. Whether it's related to an installation or our coursework, if we're struggling he sits down with us to make sure we understand. We have a lot of great support.

AW: I think the biggest surprise was just how much there is to learn. It's not a case of pull the cable from that point and then test it – it's so much more in-depth and

'The apprenticeship provides everything you need, from the basics up to the advanced skills, so you can learn to be the best professional you can be.'

'I think the biggest surprise was just how much there is to learn. It's not a case of pull the cable from that point and then test it – it's so much more in-depth and there's already a lot more I'd like to learn about and understand.'

there's already a lot more I'd like to learn about and understand.

RS: What would you say to anyone considering becoming an apprentice?

GB: It's a great way to get your foot in the door. You can't just rock up to a site, say 'I want to do that' and go do it. The apprenticeship provides everything you need, from the basics up to the advanced skills, so you can learn to be the best professional you can be. You do need dedication – it requires time and effort to succeed. It's not just a case of turning up and in a year or so you'll get a qualification out of it. You can't jump from job to job like a regular 9-5 – you've got to commit to learning the skills and passing the qualifications, so you do need to have an interest in it. It's completely worth it, so take the opportunity.

AW: I'm always encouraging friends to jump on apprenticeships. The ability to learn at a fundamental level and to progress in that role so you become very confident in it, is what makes an apprenticeship a very important opportunity. I would encourage anyone to pursue one. You're not going to get a job in electrical or plastering or whatever if you have no knowledge of it. That's just not how it works, unless maybe you know someone in that field. The experience I've gained through doing this apprenticeship has helped my understanding and shaped my development.

RS: What are your career ambitions and are there any areas that you would like to specialise in?

GB: I'd like to pursue a fairly traditional route, becoming an engineer then lead engineer, working up to site supervisor, project manager and eventually operations manager. That's my plan but other opportunities may arise, or extra training might take me down a different route. For now, I'd say becoming a site manager or project manager is something I've got my eyes set on.

AW: I'm always keeping my options open because I don't know where I might end up. I've got interests at this point but I'm conscious I need to be diverse in what I can do and what I'd like to gain to give myself the best chance to succeed. ■


Common Fault Rectification Solutions continued...
Operating environment
The wide range of operating environments will be a key factor in smart device functionality. This includes issues with IoT uptime caused by environmental conditions, including extreme temperatures, rough device handling, WI-FI availability/signal blockage, etc.
Device load and bandwidth limitations
There will be a required bandwidth for the device to connect and communicate efficiently, e.g. a Network Video Recorder (NVR) might require a 10Gb connection, this will cause issues across a CAT6 network that may only provide 1Gb

Quick clicks

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

Nine Benefits Of Cloud Computing For Business is a blog from **Telehouse.** **CLICK HERE** to read it.

A white paper from the **European Data Cen Association (EUDCA)** talks through Scope 1 requirements and provides examples of rep tech sector.
CLICK HERE to download a copy of the EU Emissions White Paper.

AI Unleashed: Navigating Cyber Risks is a report from **RiverSafe.** **CLICK HERE** to read it.

How To Make Your Server Room More Sustainable is a blog by **Server Room Environments.**
CLICK HERE to read it.

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l, 2 and 3
orts from the

DCA Scope

A Sustainable Future With Optical Fiber is a white paper from **Corning.**
CLICK HERE to download a copy.

The Essential Test And Inspection Kit For Data Center Interconnects is a blog by David Tanis of **AFL Hyperscale.**
CLICK HERE to read it.

Experts from **Harting, Delta Energy Systems** and **ZVK** will come together on 17th January for a webinar looking at how standardisation for data centres can reduce costs and speed up time to market.
CLICK HERE to find out more.

The great outdoors

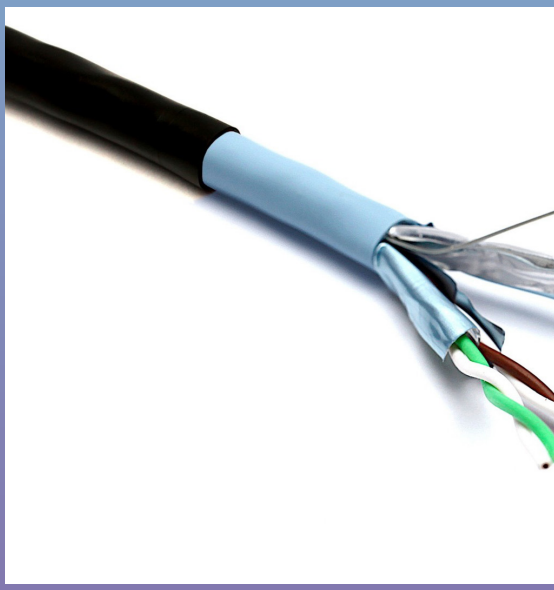
Neil Staley of Mayflex explores the key considerations when installing copper cabling products in external applications

Copper cabling systems, and the Ethernet networks they support, form the invisible base upon which our modern world is built. From offices and homes to hospitals and fast food restaurants, copper cabling delivers the essential services that power our lives. We place a huge reliance on having internet access everywhere and instant information and data – sometimes it's a real pinch yourself moment to grasp the number of things that depend on the technology now, and will do in the future. We'll see smart cities deploying sensors to control everything from traffic flow to air quality and, ultimately, it will be the copper cabling system used in the infrastructure that will deliver this technology. This creates challenges, change, opportunity and creativity.

SITE WORK

Getting copper cabling to its location is a challenge. We also need to be able to react to, change and update systems so they can cope with additional data demands. However, while it's a great opportunity as more industries choose Ethernet as the de-facto method of data transfer, it also requires everyone's creativity. As manufacturers and installers we continue to adapt to keep up with the pace of change!

One of the new areas we are seeing development in is where copper cabling is deployed, particularly in external environments. Technologies like CCTV systems and Wi-Fi access points are leveraging the benefits of copper cabling with power over Ethernet (PoE) to streamline installations and eliminate the need to deploy two services to create a single solution. By using copper cabling and Ethernet networking, only one cable is needed to connect and power these devices, saving on labour and material costs if power cables were used instead.

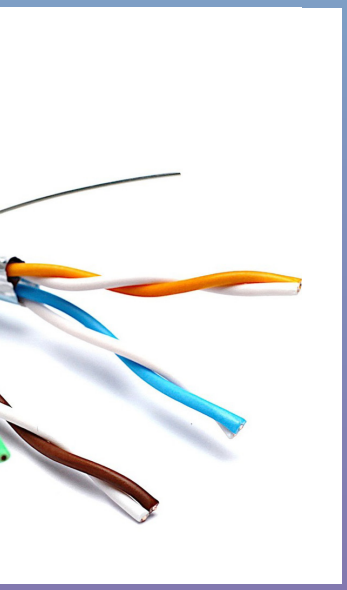


ON THE RUN

To meet demand, we are seeing brands introducing new products to market, including externally rated patch leads, cables and IP68 rated couplers. These products help installers get cables out to poles or devices to the exterior of

a building. However, it's important installers and end users are mindful of the Construction Product Regulation (CPR) and the classifications of the cables used within the cable run that travels through a building.

It's an inevitable scenario – most cable runs will go from a comms room or location out to a remote device. It's one manufacturers have anticipated and they have brought dual jacketed cables to the market. These copper cables can have a polyethylene ultraviolet and moisture protected outer sheath to cope with the harsh external environment, as well as a B2ca internal jacket. This allows a cable to be installed in one continuous run without the need for joints or extra connectors within the channel, while still complying to any standards or contractual constraints.



Now, with new technology and products, you can seamlessly connect patch field cords to outdoor equipment using a Category 6A IP68 coupler. With Category 6A screened (U/FTP) cable, you can elevate the performance potential of your copper infrastructure to new heights. This delivers Class EA or Category 6A link performance over distances of up 90m, which supports applications including 10GBASE-T, 10 Gigabit Ethernet and PoE++, which many of the new Wi-Fi access points require.

SETTING THE STANDARD

Copper cabling systems and the standards they adhere to have undergone continuous change over time, sometimes as a result of new and emerging technologies. In light of the advancements in PoE++ and Wi-Fi access points, particularly Wi-Fi 6, cabling standards bodies have swiftly responded to address the challenges posed by these developments.

Both Cenelec and ISO have already incorporated updates into BS EN 50173-6 and ISO/IEC 11801-6 for distributed building services to accommodate Wi-Fi 5 and Wi-Fi 6. Both standards bodies share a common approach and consistent wording. An example of the commonality within the two standards is how they state that the minimum category of cabling is Category 6A or Class EA as a requirement (not recommendation!). This recognises the need to effectively handle the higher data rates and power delivery requirements.

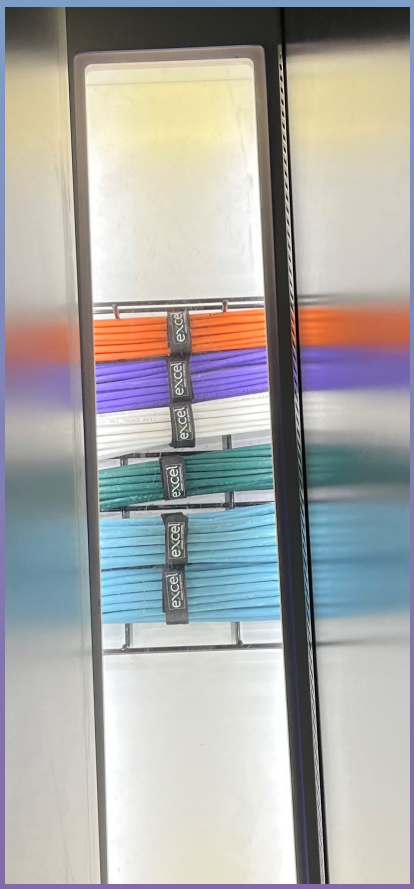
SELECTION PROCEDURE

When selecting a copper cabling system, consider the diverse services being deployed and the critical need to differentiate between them. While labels can be added to cable runs and bundles, opting for a brand that offers cables at the appropriate standard with distinct coloured sheaths can be a highly advantageous decision.

A colour coding scheme can be devised. Services such as CCTV, access control, building management systems and core network can all be instantaneously identified within cable management and in cable runs due to the sheath used. While smart buildings continue to get smarter

‘Copper cabling systems, once installed, require ongoing management and maintenance throughout their lifespan. System manufacturers offer various features and products that can simplify this process and make it easier to work on the system over time.’

and there is a need for more services to be put on the copper cabling, Ethernet is becoming more prevalent. Not all services will be installed by the same installer or contractor, so the colour coding of the sheath can help prevent the engineer on-site accessing the wrong cable runs.



GETTING APPROVAL

Another key tick in the box a copper cabling system should have is third-party verification. It’s useful to know that there are two types of approval programmes available – full maintenance approval and a certificate of compliance.

You should always be looking for a system and copper cables that have full maintenance approval. Certificate of compliance approvals do not have factory inspections and approval certificates without factory inspections do not take into account or review the stability required in continued production performance.

Factory inspection visits help develop understanding and confidence that the required production and quality control processes are in place before concluding that testing is done on representative samples from regular production. Put simply, factory inspections by third-party test houses will demonstrate that tested quality is at production performance, day in and day out. Full maintenance, third-party approvals provide assurance and peace of mind for end users, installers and customers when choosing a product.

LOOK AFTER IT

Copper cabling systems, once installed, require ongoing management and maintenance throughout their lifespan. System manufacturers offer various features and products that can simplify this process and make it easier to work on the system over time.

Things like slimline boots on patch

leads do not sound overly important or interesting, however, the use of these can make it so much easier for engineers performing adds, moves and changes to the system. In increasingly dense cabling deployments, slimline boots allow for better visibility of port labelling and services, making it easier to identify and access the correct RJ-45 latch to release from the port, and can be a very beneficial feature.

FOUR TO THE FLOOR

Copper cabling systems are quickly becoming the fourth utility. Users of systems that leverage this technology demand unwavering performance and reliability. Systems designed and manufactured in accordance to ISO 11801 provide peace of mind, ensuring compatibility with the class and category of cabling deployed, both today and in the foreseeable future. Requirements for a single system solution will become more prevalent, so when choosing a system, look for a standards compliant, third-party backed, feature rich and diverse choice. This will have the performance required, with the added benefit of helping with the environmental challenges, both internal and external, that need to be overcome during deployment and ongoing use of the system. ■

NEIL STALEY

Now the company's product marketing executive, Neil Staley joined Mayflex in 1991, working in the sales team. Over the years he has worked in different sales roles, both internally and externally, and helped set up the company's highly successful projects department.

HellermannTyton

HellermannTyton offers a complete copper system as part of its LAN product range. In 2022, the UK manufacturer launched a brand new range of Category 6A and Category 6 products to simplify and streamline its product portfolio.

The Category 6A solution includes the Cat6A jack, patch panels, cable and patch leads. The Cat6A jack is designed to be toolless and does not require any specialist termination tools, while the Cat6A panels come in both flat and flat angled versions.

The new field termination plugs are used to create modular plug terminated links (MPTL) on-site for direct connection to fixed location devices. Similar to the Cat6A HTC jack, the MTPL is a toolless product, providing engineers with a quick, flexible on-site solution. Along with the Category 6A products, HellermannTyton also has a range of Category 6 panels and outlets, along with a selection of LC and Euro modules, faceplates and backboxes.

All of the new products from HellermannTyton are supplied in plastic free packaging where possible, so the company can do its bit for the environment and the planet.

CLICK HERE for more information.
www.htdata.co.uk

TREND Networks

In its latest software update, TREND Networks has unveiled a streamlined user interface (UI) for SignalTEK 10G, introducing a Basic mode alongside the existing Advanced mode. This update caters to diverse technician levels, acknowledging the intimidation novices feel with the tester's extensive capabilities.

Basic mode simplifies testing, allowing cable qualification or network tests with minimal settings, thereby reducing errors and training time. Moreover, the software upgrade enhances SignalTEK 10G's fibre optic testing, enabling accurate fibre loss measurement and supporting coarse wavelength division multiplexing (CWDM) small form factor pluggable (SFP) modules for bandwidth and attenuation tests on single fibres.

SignalTEK 10G has been compared to a Swiss Army knife, as it can be used for so many applications. Providing a single, economical tester capable of carrying out various tasks, Basic mode is perfect for novices who can use it to qualify cables, while a host of more advanced functions are available for experienced network engineers.

To find out more **CLICK HERE.**
www.trend-networks.com

Fluke Networks

There are many reasons why cabling certification is more important than ever.

Every time you complete the installation of a structured cabling system, you can choose whether to certify it. All links in the system should be tested in some way to make sure that they're connected properly, but is it necessary to measure and document the performance of every link?

All cable suppliers say that if you want a long-term warranty on your installation, certification is required. There are other benefits for you as the installer too – protection in case of disputes, quality control, even your reputation among your customers and the competition.

Let's look at the value of certification for your projects in different situations.

CLICK HERE to learn more about cabling certification and why it's so important.

www.flukenetworks.com

Siemon

Siemon has been at the forefront of copper innovation for decades and offers a comprehensive portfolio designed to support our customers – no matter what the application.

Siemon TERA is still the highest performing, most secure offering on the market for Category 7, 7A and 8 applications. Z-MAX remains the industry leading Category 6 and 6A shielded and unshielded solution, providing unmatched usability and standards exceeding performance.

Released in 2023, UltraMAX is a next generation solution for unshielded Category 5e, 6 and 6A requirements. It delivers the ideal blend of usability, quality and performance within a sleek footprint that's ideal for delivering more versatile, intuitive and cost effective deployments.

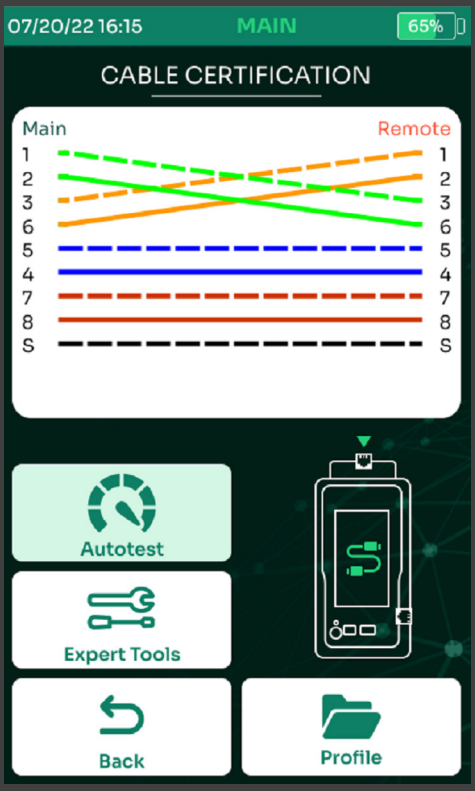
Siemon also offers a best in class range of direct attach cables (DACs), which provide the ideal solution for high performance, low latency, low power switch to server connections. Interoperable with all leading vendor switches and servers, they are available as passive assemblies in standard and breakout configurations for 10-100Gb/s in various form factors.

CLICK HERE for more information.
www.siemon.com

Speaking terms

Lisa Schwartz of AEM explains the meaning of verification, qualification and certification, and why understanding the differences between them is vital when testing copper cabling systems

In the world of structured cabling, terms like verification, qualification, certification and the emerging category of qualification+ are frequently encountered. Unfortunately, many don't fully understand the differences between each cable test category, which can lead to lost time and money on a job if the right type of testing isn't performed. Whether you're a cable contractor or a network operator in need of cabling installation, it is imperative to comprehend these distinctions and when to apply them.



CABLE VERIFICATION

When a cabling project undergoes verification by an installer or network support operator, this represents the most basic level of cable assurance testing. The tests conducted aim to confirm that the cables are correctly connected from one end to the other. This entails verifying that all the wires in a copper cable have been properly punched down or crimped to their designated termination points, and that the overall length of the cable run falls within acceptable limits.

Common issues identified during cable verification tests include incorrectly terminated wires, cable breaks or shorts, and cable lengths that exceed specified maximums. However, in most instances, simple verification tests do not suffice to deem the cabling as production ready and would not qualify for any warranty offered by the cable manufacturer.

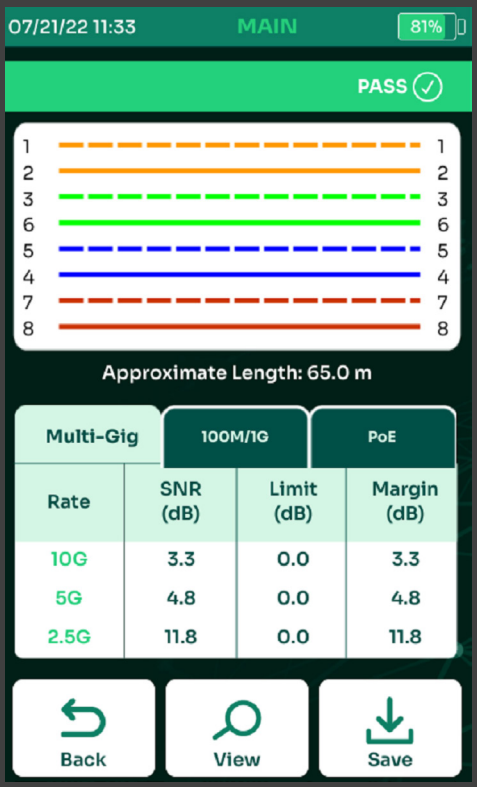
CABLE QUALIFICATION

The next cable validation category is qualification. This level of testing performs all the basics performed when verifying cables – and expands on them with additional tests.

The purpose for the additional series of tests is to confirm that the cables will operate properly when running at certain speeds or when transporting time sensitive data such streaming video. These tests may

include validation of throughput capacity up to multigigabit speeds, streaming data performance and power over Ethernet (PoE) detection. Potential cabling issues that can be discovered during qualification testing include duplex mismatches, crosstalk, noise and basic PoE issues. Most qualification testers will be able to test Ethernet links at 10Mb/s, 100Mb/s and 1Gb/s.

While cable qualification tests can be used as a lower cost method for non-critical cable installations, they will not meet the test standards required to apply a cabling manufacturer's warranty to the job. That's why most cabling projects include full cable certification testing as part of the plant install process. Instead, qualification level tests are more applicable when troubleshooting existing cabling.



CABLE QUALIFICATION+

A relatively new cable test category is called qualification+. Testers that are qualification+ capable are a bit different from other test tools. These should be thought of as hybrid tools that bridge the gap between network connectivity and standards based testing tools. This is because the added features of a qualification+ tester are primarily geared toward IT shops that require a tool for in-depth troubleshooting – or to verify that next generation PoE and multigigabit projects will operate correctly on existing cable runs.

A qualification+ test tool provides ANSI/TIA 1152-A compliant single ended test results that are close to what full cable certification testers can provide. Additionally, as businesses evolve and begin adding various smart building/internet of things (IoT) capabilities on to their networks, a qualification+ tester helps ensure these high bandwidth, high PoE consumption devices will operate on existing cable runs. These types of tests will help assure the success of new IoT or smart building projects.

CABLE CERTIFICATION

At the top of the cable test validation category list from a cable installer perspective are tests that guarantee all installed cabling and terminations meet the cabling manufacturer's strict specifications. Doing so will grant the customer a manufacturer's warranty for the newly completed plant.

Certification test tools not only give you all the testing and troubleshooting features found in cable verification and qualification

'Certification test tools not only give you all the testing and troubleshooting features found in cable verification and qualification tools, but they also add sophisticated RF measurement tests that ensure cabling meets industry and manufacturer standards for multiple types of deployments.'

tools, but they also add sophisticated radio frequency (RF) measurement tests that ensure cabling meets industry and manufacturer standards for multiple types of deployments. All certification test results can be saved and shared with the manufacturer and customer for their records. These test results can also be submitted to the cabling manufacturer for review and warranty.

BENEFITS AND DRAWBACKS

For professional cable installers, a certification test tool is by far the most obvious choice when looking at the various cable test categories. Certification tests are required to satisfy the manufacturer's cable warranty from an installation perspective. But for those that only install a handful of cables per year, a validation or qualification test tool may be a more economical option.

Finally, when it comes to IT shops that are seeking a tool for troubleshooting and/or network performance planning purposes, verification testers perform very basic troubleshooting tests, while qualification and qualification+ testers offer additional troubleshooting, PoE/multigigabit performance validation and detailed standards compliant measurements.

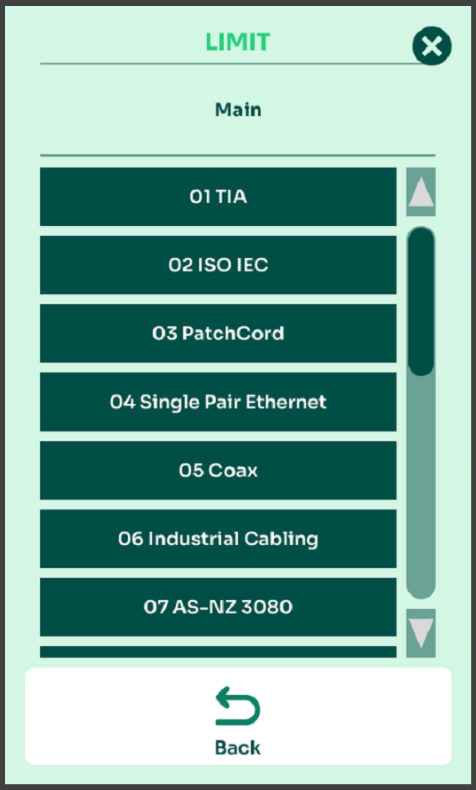
PREMISES CABLING STANDARDS

In most parts of the world, four pair twisted pair copper cabling for telecommunications and data networks follows either the TIA-568.2-D or ISO/IEC 11801-1 specifications. These standards define the requirements for structured cabling systems including the electrical and performance characteristics of the cabling components. These standards are essential for maintaining the quality and compatibility of cabling systems in a rapidly evolving technological landscape. They are a cornerstone for businesses and organisations seeking to implement or upgrade network infrastructure, particularly in the context of smart buildings and emerging technologies.

The inclusion of both required and optional test parameters in standards like TIA-568.2-D and ISO/IEC 11801-1 is crucial for addressing the evolving needs of modern network infrastructures, particularly in the context of smart building applications. Here's a more detailed explanation of the significance of these test parameters and why you should include both the required and optional test parameters as part of your documented certification testing:

- Required test parameters

These are the essential parameters that must be tested and met to ensure the basic functionality and performance of the cabling system. They are the minimum criteria that the cabling must meet to be considered compliant with the standard. Required test parameters typically include factors like signal attenuation, near end crosstalk (NEXT) and return loss, among



others. Meeting these parameters ensures the cabling's ability to transmit data with reliability.

• Optional test parameters

As technology and applications evolve, optional test parameters are introduced to address specific demands and challenges that may arise in advanced use cases. In the context of smart building applications such as digital lighting, security systems, wireless access points and IoT technologies, optional parameters become particularly relevant. These parameters may include characteristics like power delivery, resistance to interference and compatibility with PoE. Ensuring that cabling meets these optional parameters is essential for guaranteeing its ability to support these advanced applications effectively and without performance degradation.

SUPPORT STRUCTURE

Including both required and optional test parameters ensures that cabling can serve a broad range of applications – from basic data transmission to power delivery for devices like IP cameras, access points and lighting systems. This adaptability is critical in the dynamic landscape of modern smart buildings, where a single network infrastructure supports a diverse array of services and technologies. ■

LISA SCHWARTZ

Lisa Schwartz is director of product marketing at AEM. She has worked in the test and measurement industry for 31 years, spanning five major brands of test equipment for cable certification and network connectivity testing. The primary capacities Schwartz has served in have been product management, business development and marketing. In her current role at AEM, she oversees product marketing, working closely with sales and engineering to ensure AEM's test solutions are competitive and innovative.

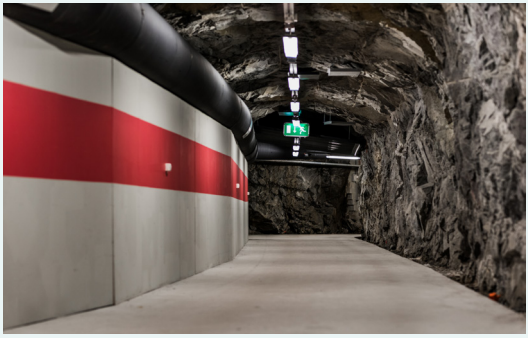
Kao Data's second Harlow data centre goes live and operational

Kao Data's second Harlow data centre – KLON-02 – is now fully complete, commissioned and operational. The 10MW, NVIDIA DGX Ready data centre is designed and built to the highest standards of sustainability and efficiency, and marks a key step forward in the continued expansion of Kao Data's high performance infrastructure platform. It further underpins the Harlow campus as one of the UKs preeminent locations for advanced computing.

KLON-02 provides a further 3,400m² of high density, scalable, technical space to its data centre portfolio, with room for up to 1,800 racks of graphics processing unit (GPU) powered IT equipment across four technology suites. The new data centre will continue to follow Kao Data's OCP-Ready and hyperscale inspired design blueprint, providing customers with a secure, sustainable and scalable home for their mission critical workloads.

Verne Global unveils liquid cooling at The Rock in Finland

The growth of artificial intelligence (AI), machine learning and other high density workloads are placing additional strain on conventional air cooling technologies. Recognising the pressing need for more efficient and sustainable solutions, Verne Global is utilising liquid cooling technology at its data centre campus in Pori, Finland – known as The Rock.



Verne Global has collaborated with both Dell Technologies and Intel to introduce direct liquid cooling to The Rock. This facility is powered by 100 per cent green energy and has its own solar power plant. Built into the bedrock – in a network of underground tunnels formerly used by the military – it provides further efficiencies by reducing the need for cooling.

The deployment features direct liquid cooling on Dell DLC3000 rack solutions with up to 80kW+ cooling capacity and 4th Gen Intel Xeon Scalable processors to maximise performance and cooling efficiency. Working with Dell and Intel enables reliable and efficient performance for the fastest growing AI workloads that businesses depend on today.

Host-IT opens its latest data centre in Chester

Host-IT has announced the opening of its latest data centre located in Chester. It is ideally situated to serve the north west of the UK and follows four other site openings during 2023 in Birmingham, Bristol, Nottingham and Leeds, expanding the total portfolio to six with its pre-existing Milton Keynes data centre.

Built to Tier 3 standards, the 3MW site has a full uninterruptible power supply with generator back-up, and all power is sourced from renewable energy suppliers. Set in 3.4 acres, the facility includes meeting rooms, office space and kitchen facilities. A full range of services is available including shared colocation, quarter, half and full racks. More advanced services such as dedicated servers, bare metal and back-up are also accessible. The secure facility has 24/7 access and provides on-site engineering support.

PROJECTS & CONTRACTS IN BRIEF

Leviton has announced a new three year agreement with Spie, marking 20 years of cooperation and commitment between the two organisations. Leviton and Spie Nederland have maintained a long-lasting, relationship to provide vital markets such as hospitals, schools and government buildings with high quality network infrastructure and installations.

Siemens Gamesa has gone live with a flagship ModCel containerised data centre design from Secure IT Environments at its renewable energy manufacturing facility in Hull. The ModCel data centre will support production systems and communications at the site, which manufactures industry leading wind turbines amongst other products.

Digital Infrastructure Advisors (DIAL) played a key role in Morgan Stanley Infrastructure Management's acquisition of a majority stake in UltraEdge. DIAL provided commercial, technical, development and operational due diligence advisory services, and helped Morgan Stanley Infrastructure Partners make an informed decision about the acquisition – ensuring that it aligned with its investment strategy and objectives.

Equinix has completed a power purchase agreement with Neoen in Sweden, which will add 15MW of wind generation capacity to the local grid. The asset, Storbrännkullen Wind Farm, is located in the Swedish municipalities of Ragunda and Sollefteå.

Spirent Communications has signed an agreement with a leading financial services organisation to modernise and automate its global network of test laboratories.

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It's the real thing

David McGuirk of QiO Technologies looks at how artificial intelligence (AI) is being used to drive sustainable data centre infrastructure

Enterprises and data centre operators need to find new ways to deliver and report concrete improvements in operational efficiency and sustainability that will also mitigate rising energy costs. Data centres already contribute a significant proportion of greenhouse gas emissions – currently estimated at two per cent globally. International commitments to the Paris Climate Agreement demand a halt in the growth in these emissions by 2025, and then a reduction of 25 per cent by 2030.

CLARITY OF THOUGHT

At the same time, new sustainability reporting standards also require exacting transparency through the measurement of energy and resource use across servers and networks. It's surprising then that many large enterprises and data centre owners and operators are still not aware of their reporting requirements.

When asked by QiO about this, 28 per cent of respondents admitted they do not currently report to any internationally recognised sustainability reporting standards. Another 26 per cent said they don't know if they have any sustainability reporting requirements next year. To shift this mindset and prepare better for change, I believe three critical shifts need to take place.

• Bring people together

As a first step, organisations need to make

‘Data centres have worked hard to minimise costs and energy consumption in the past decade, even as their workload volumes have grown dramatically. As the demand for data continues to grow, they wil find it difficult to continue that trend without a change in approach and the tools they use.’

more effort to bring siloed teams together. Executive management teams are mandating their organisations to reduce costs, deliver best in class digital services, be accountable and do the right thing for the planet, people and communities

Driving action to meet this multi-faceted challenge falls under the responsibility of four key functions. There are the finance teams, which need to energy reduce costs and report related energy consumption reductions accurately. Next up are IT and network teams, which need to respond to the need to improve power management to optimise energy consumption and therefore costs, but without any impact on service levels and customer experience.

Then there are sustainability teams, which must develop strategies to cut greenhouse gases (GHGs) by identifying opportunities across their organisation, increasingly by focusing on reducing energy consumption of core IT infrastructure. Finally, there are facilities teams, which typically pay the energy pay bills and must work with IT and all other stakeholders involved to reduce those bills.

Though they are not all technical, all these parties need to be involved in making critical decisions and changes to ‘business as usual’. They need to work together with a clear mandate and targets. To achieve this, enterprises need to review their internal organisation, restructure and incentivise all parties to work together towards the same goals. For everyone, the mantra needs to be that cost efficiency tied to sustainability is not part of the business plan – it is the business plan.

- Get data that can power the right decisions

Every organisation needs accurate data about current and future performance. Accurate data is also critical for sustainability reporting demands for the Energy Efficiency Directive (EED) and the Corporate Sustainability Reporting Directive (CSRD), as well as other new reporting requirements.

Organisations need to find a way to measure and report on the fine detail of data centre performance so that they can reduce costs, transform operational efficiency and cut GHG emissions with the same approach. This kind of data will enable the shift from business as usual to a sustainable business within a net zero economy.

- Adopt technology that can deliver immediate gains

There is the need to harness tools that are up to the challenge of interrogating large amounts of data, modelling use cases and then seeing how they perform in real life. But even if organisations could hire and deploy big teams of data scientists, the scale of the task ahead of them is simply too big.

Across estates of 500+ servers, as well as the networks that connect data

centre components, users and internal and external resources, interrogating vast amounts data to monitor performance in different use case scenarios is beyond the current capability and time resources of most internal teams.

This means enterprises need to evaluate new technical solutions that will help them achieve their goals.

New AI systems designed specifically for data centres are uniquely placed to help by producing real time data on workloads, resource use including power and all other relevant factors required by the new standards at multiple levels – with particular focus directed towards the IT stack. As a matter of urgency, operators need to understand the emerging ecosystem of sustainability tech suppliers that play in this space.

HOW AI CAN HELP

Suites of ready to deploy AI solutions with in-built algorithms are already available that can integrate with existing data centre infrastructure management (DCIM) systems, with no disruption to service. These can look at workload usage patterns and make millions of real time automatic adjustments to optimise power use – a kind of low power mode for IT. Efficiency gains in the IT stack have a cascading effect across data centre infrastructure – less power used equals less cooling required.

The benefits include autonomous control of IT systems that transform efficiency – and with no impact on business continuity or service levels. For example, AI systems can automatically adjust performance and sleep states to match time of day workloads, while maintaining quality of service. You can run systems on open or closed loop, so you can either manually implement suggested state changes or allow automatic implementation.

ESSENTIAL MIX

Energy mix optimisation is also key. AI systems can use location specific weather forecast data to accurately predict energy generation from on-site solar or wind distributed energy sources. This helps

to reduce fuel consumption and energy demand during peak tariff times, resulting in lower running costs and reduced emissions.

Energy efficiency indexing is another important benefit of AI. Operators can reduce energy and water consumption and thermal management costs in real time, without spending hours manually gathering and analysing time series usage and workload data. AI driven energy efficiency indexing algorithms can recommend fan speed, temperature and even processor power state settings based on real time server workloads, resulting in quantified cost savings and reduced carbon emissions. Predictive analytics within AI systems can also improve efficiency by helping operators to predict the failure of equipment – helping them to sweat assets for longer and reduce costs further.

TWICE AS NICE

Modelling and optimisation of equipment is an advantage too. Like a digital twin for buildings and heating, ventilation and air conditioning (HVAC), AI systems can plan the power and cooling distribution systems and model them within a piece of software. What if scenarios show how a change in one piece of equipment will affect the whole system of systems. Other scenarios can look at the performance of systems and help companies model the most efficient energy set-up.

An enhanced view of network performance and energy consumption is another major plus. Instead of manually checking the condition of hardware, network engineers and maintenance teams can use AI to monitor device metrics like temperature, power supply and fan speed. They can also monitor the availability of devices such as servers, as well as network bandwidth and traffic patterns, by leveraging flow technologies to provide real time visibility.

NEW APPROACH

Data centres have worked hard to minimise costs and energy consumption in the past decade – even as their workload volumes have grown dramatically. As the demand for data continues to grow, they will find it difficult to continue that trend without a change in approach and the tools they use. AI is the game changing technology that will enable the shift from business as usual to data driven decision making and automation for a sustainable business within a net zero economy. ■

DAVID MCGUIRK

David McGuirk is director of data centre and telecoms at QiO Technologies. His approach creates a close partnership with clients to ensure that business priorities, sustainability and empowerment are at the heart of technology investment and business transformation.

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