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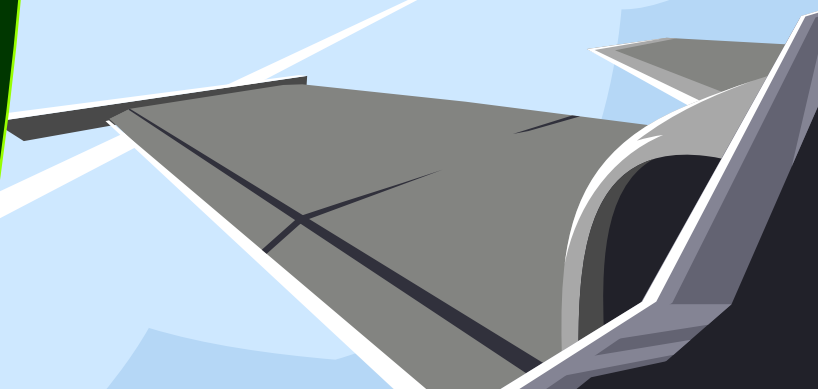

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The global microchip shortage is affecting businesses in all industries across the world and the data centre sector is certainly no exception. In many respects it couldn't have come at worse time, given that the digital transformation agenda is well underway and companies are more reliant on data centres than ever before.

There appears to be no end in sight just yet for the global microchip shortage, so in order to assess the long-term consequences for supply chains and the production of network infrastructure technology, Question Time has asked a panel of industry experts to discuss the issue and suggest ways that the data centre sector can respond. They also suggest ways that data centre operators can be better prepared in order to respond to fluctuating supply and demand.

Thank you to everyone that responded to last month's Question Time that addressed whether data centre owners and managers should take more responsibility when it comes to ethically disposing of network infrastructure equipment that is no longer required. In this month's issue we have a special feature dedicated to green network infrastructures. Stu Redshaw of EkkoSense looks at why energy price increases and heatwaves are making net zero commitments more challenging for data centres, while Zac Potts of Sudlows explains why making data centres more sustainable requires smart thinking.

We also have a special feature dedicated to the subject of data centre infrastructure management (DCIM) technology, with major players currently redefining what it is and what it should do. RiT Tech's Mark Acton examines why deploying DCIM to mitigate operational risk is no flight of fancy, while Michael Akinla of Panduit explains how DCIM capabilities are being adapted for the cloud generation.

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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Uptime Institute's 2022 Global Data Center Survey reveals strong industry growth

Uptime Institute's 12th Annual Global Data Center Survey has found an industry that is growing, dynamic and increasingly resilient, but still working to address increasing pressure for sustainability progress and reporting, continuing staffing shortages, supply chain delays, outages and other complex challenges.

Many data centre operators are unprepared for mounting sustainability requirements and regulations – most respondents say they report on overall data centre power use and Power Usage Effectiveness (PUE), but many still are not tracking critical environmental metrics. Although 63 per cent of operators believe authorities in their region will require them to publicly report environmental data in the next five years, just 37 per cent collect and report carbon emissions data. New laws, standards and requirements will force operators to address these gaps and establish more stringent sustainability tracking and reporting practices.

PUE progress is in stasis for now and future efficiency gains must focus on IT power – the average annual PUE reported in 2022 was 1.55. Going forward, achieving substantial data centre efficiency improvements will require a new focus on IT efficiency, along with metrics to track and report progress.

The share of all outages costing operators over $1m has reached 25 per cent, a significant increase from 15 per cent in 2021. In 2022, 60 per cent of operators reported experiencing an outage in the past three years – down from 69 per cent in 2021 and 78 per cent in 2020. Although the data indicates a trend toward improved outage rates, the frequency of outages is still much too high and with more than two-thirds now costing operators upwards of $100,000, the consequences are getting worse.

Data centre equipment vendors remain optimistic despite demand pressures and lingering supply chain problems. Three quarters of vendors project financial growth in 2022 despite reporting dampened revenues due to persistent supply chain issues. Nearly half of respondents involved with data centre construction have suffered significant delays or other events in their supply chains, while one third have experienced moderate issues.

Problems attracting and retaining qualified staff are worsening. 53 per cent of data centre operators report difficulty finding qualified employees in 2022 – up from 47 per cent in 2021 and 38 per cent in 2018. Meanwhile, 42 per cent of respondents report issues with staff being hired away, which demonstrates the growing challenge of employee retention.

'The global digital infrastructure sector continues to enjoy strong growth and expansion,' said Andy Lawrence, executive director of research at Uptime Institute Intelligence. 'We've seen the industry invest in increased resiliency and reliability, but there's still work to be done when it comes to improving efficiency, environmental sustainability, outage prevention, staffing pipelines and more.'

APOLAN identifies the top markets driving PON adoption

The Association for Passive Optical LAN (APOLAN) has announced the top five market verticals driving the replacement of copper based networks with POL solutions. Passive optical networking (PON) is allowing hospitality, government, healthcare, education and all enterprise offices to achieve improved efficiency at a lower cost, and supporting green buildings and more efficient spaces. It also provides a future proof and high speed infrastructure to keep pace with today and tomorrow's technology demands.

'Worldwide, PONs are proving to be a vital component for smart buildings and campuses, to enable the communication and operational systems that supply data and optimise building performance,' said Brian E Hardy, executive vice president at ITConnect and APOLAN chairman. 'POL solutions allow management, operations and end users to take advantage of these services while being sustainable, secure, safe, reliable and resilient.'

CIO role has drastically changed over last 24 months

A global study from Lenovo has revealed that nine out of 10 UK chief information officers (CIOs) feel their job has gone beyond technology and into non-traditional areas including data analytics, business reporting, sustainability and talent acquisition.

The job now increasingly includes digital transformation and business process automation. With the expansion, global CIOs have also suggested that the job has become more challenging over the past two years with the increasing use of artificial intelligence and automation in the workplace.


Sridhar Iyengar

Sridhar Iyengar, managing director at Zoho Europe, commented, 'Due to the nature of hybrid working and the demands of the modern day business, which places even more value on intelligence, data and automation, it was almost inevitable that CIOs would see a huge change in their role and, while transitioning, be spread thin across jobs outside their typical remit. This is because many organisations did not have the infrastructure in place to enable a smooth transition to hybrid work, and it's the CIOs that have been left to pick up the slack.'

IT departments shake off the stereotype of being Little Miss Turn It Off And On Again

Little Miss and Mr Men memes have taken over the internet in the past few weeks. The IT department may have once been known as Little Miss Turn It Off And On but recent Research investigating how IT departments have coped with a move to mass remote working has shown that IT teams can wave goodbye to the moniker.

Research by Velocity Smart Technology has found that over a third (37 per cent) of UK workers said they receive better support from the IT department since the pandemic hit. IT teams now resolve problems far more quickly – with the mean fix time dropping to just 12 hours in 2021, down from 19 hours in 2020.

Anthony Lamoureux, CEO of Velocity Smart Technology, said, 'IT teams should certainly receive a massive pat on the back for the way they have adapted to a completely new set of support challenges, but by no means should they be getting complacent. They have adapted to the new demands created by a dispersed asset base and extended working hours after a frenetic year spent providing employees with technology solutions and support in adapting to new ways of working.'

Colt raises €170,000 for refugees in Ukraine and beyond

Fundraising since April this year, Colt Technology Services has donated €170,000 to the Disasters Emergency Committee (DEC) to support the organisation in its mission to save, protect and rebuild lives through effective humanitarian response. The DEC brings together 15 leading UK aid charities to raise funds quickly and efficiently in times of crisis.

Colt employees joined together in a show of support for the fundraising efforts, driven by the company's global corporate social responsibility (CSR) teams. The business then matched employee contributions euro for euro. The donation raised will support essential lifesaving services, emergency housing and, in the long-term, help refugees rebuild their lives.

Gary Carr, Colt's chief financial officer, said, 'We have been deeply saddened by conflicts in Ukraine and beyond. It is a time to dig deep and raise funds for those affected by crisis across the world, and I've been amazed at the generosity and energy of our Colt employees' fundraising efforts. It is a privilege to support DEC charities as they provide urgently needed provisions, shelter and care to those fleeing conflict and disaster.'

Organisations need to modernise business communications to support accelerating hybrid work

Mitel recently commissioned research that unveiled crucial insights into the needs of organisations seeking to modernise their business communications to support hybrid work. The research was conducted in the Australian, French, German, UK and US markets across industries that include construction, finance, healthcare, hospitality, manufacturing, IT, professional services, retail/wholesale, telecom, transportation and utilities.


Daren Finney

Despite initial responses to the pandemic, organisations have a long way to go to support remote work adequately. The survey found that UK organisations expect that 44 per cent of their workforce will work from home 3-4 days a week on an ongoing basis, and 20 per cent will work from home exclusively. Yet just eight per cent of UK organisations reported having a hybrid first mindset when making operational decisions, and 43 per cent possess only basic hybrid work capabilities when it comes to technology and tools that enable effective collaboration between remote and office employees.

On the flipside, 75 per cent of employees agree that better communication and collaboration tools help them do their job better. Yet just 33 per cent of organisations in the UK reported having mature remote work practices with advanced communication and collaboration tools.

'There is an urgent need for organisations to modernise their communications experiences in ways that will help employees and customers thrive in the era of hybrid work,' said Daren Finney, senior vice president global channels at Mitel. 'However, with the amount of persistent change organisations are facing, it can be challenging to figure out how to successfully navigate the modernisation process.'

NEWS IN BRIEF

Vertiv has been recognised as a sample vendor for micro data centre solutions in Gartner Hype Cycle reports for both Edge Computing and Midsize Enterprises.

SolarWinds' survey examining the state of the IT job market amid industry wide labour shortages and hiring challenges found that 67 per cent of IT pros are completely confident about their career choice, even in the face of a potential economic downturn. However, 31 per cent of respondents don't feel fairly compensated in their role and only four per cent believe they're overpaid.

Gigabit Networks has been recognised with a brace of award wins. The company was named Midlands Fibre Broadband Provider of the Year at the inaugural IT Awards 2022 and also brought home Best Emerging Internet Service Provider from the Midlands Enterprise Awards 2022.

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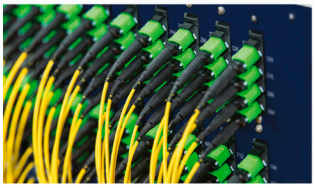

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Data security is not an

Hi Rob

Investing in data security prevents l consequences that can cost your business time, money and reputation. Acquiring threat intelligence data is vital in preventing cyberattacks, and web scraping is the method of choice for data driven businesses. Business and personal activities are increasingly being digitised, with enterprises continuously collecting data to improve services and refine operational processes.

Cyberattacks are on the rise and data breaches can devastate companies financially, while irrevocably harming their reputation. Other direct consequences and costs of cyberattacks include intellectual property theft, staff costs to remediate and repair systems, legal fees from litigation, increased insurance premiums, and regulatory and compliance fines. Some indirect negative consequences can include brand and reputational damage, public relations costs, loss of future contracts and loss of revenue due to downtime.

Threat intelligence forms the backbone of any security strategy, giving businesses the tools to defend their networks. Data governance involves managing the availability, accessibility, quality and overall security of system data based on internal standards and external regulations governing data usage. Managing threats, data processing and other data related processes can benefit significantly from effective data governance. Implementing some key governance practices can create value, improve productivity and increase data safety across the organisation.

The first step of a threat intelligence process is to provide a foundation for your threat intelligence strategy by planning and directing the scope of the project. First, determine the information and processes critical to your business that must be protected and outline any potential business impacts. Then clarify any possible

option

information concerning malicious entities that will give your team an edge when responding to threats.

The second step involves collecting data in accordance with the requirements set out in the previous step. Web scraping can be used to collect data from public websites. Data collected is then analysed by cybersecurity specialists and cross-referenced with the goals and objectives of the project. Insights obtained during this step are used to assess current vulnerabilities and reinforce any digital weaknesses.

Threat intelligence obtained so far in the process is shared with other organisations via distribution channels. Some cybersecurity firms provide threat intelligence feeds via their own internal threat intelligence distribution platforms, providing alerts in real time. Once completed, the threat intelligence lifecycle continues to the first step, where the initial plan is reanalysed, and adjustments are made according to the feedback obtained.

Data collection has become a daily activity, with many proper management practices still waiting to be implemented as others attempt to abuse issues in security. Such issues, however, have the potential to cause greater damage to individuals and companies than nearly any other threat. Understanding that data security is no longer an afterthought is essential.

Andrius Palionis
Oxylabs

Editor's comment

Data is the lifeblood of most businesses and protecting it is vital. As Andrius points out, a failure to do so can have serious legal repercussions, as well as leading to reputational damage. The threat intelligence process that he outlines is therefore well worth taking note of.

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When the chips are down

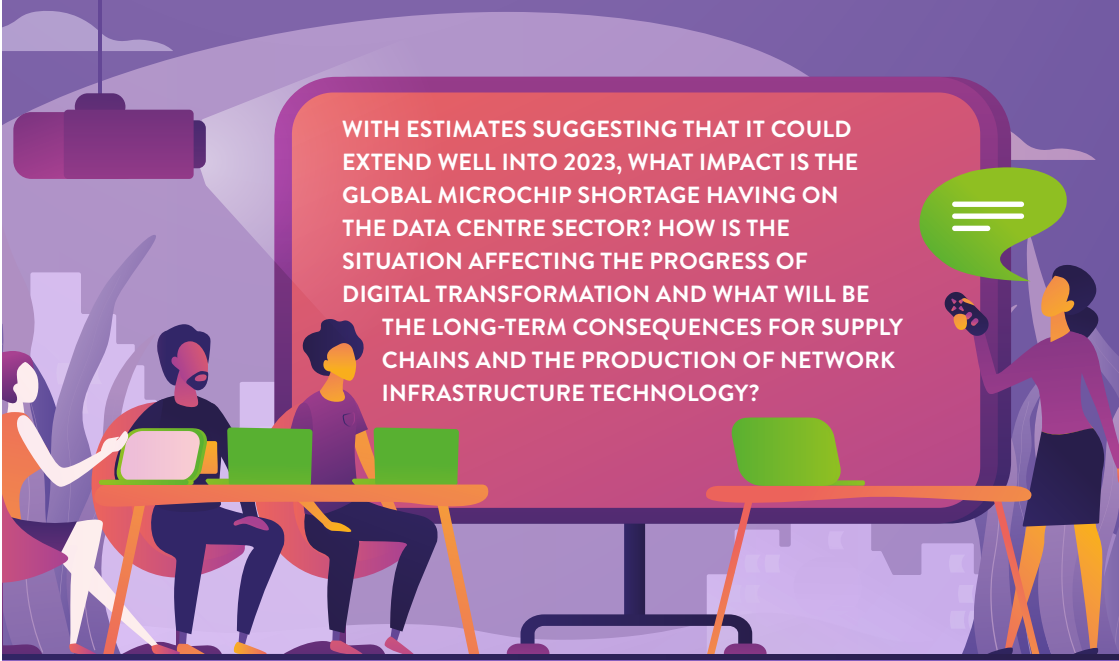
A global microchip shortage is causing supply chain challenges and significant delays in IT equipment availability. Inside_Networks has assembled a panel of industry experts examine the impact this situation is having on the data centre sector

The network infrastructure industry should be concerned about anything that affects its supply chain and there are serious issues at the moment. Some manufacturers are quoting lead times of around 12 months and this is causing problems for data centre owners and managers, with projects being delayed until specific components can be delivered.

Forrester is expecting the shortage to continue into 2023. Meanwhile, statistics from the Equinix 2022 Global Tech Trends Survey revealed that 59 per cent of IT leaders felt their businesses were plagued by global supply chain issues and shortages, while 58 per cent specified the global chip shortage as a threat to their business. Put simply, every manufacturer, supplier and solution provider in data centre industry is feeling the impact.

In order to assess the long-term consequences for supply chains and the production of network infrastructure technology, Inside_Networks has assembled a panel of experts to discuss how the data centre sector can respond and whether the situation will affect the progress of digital transformation.

Don't forget, if you have a question that you would like answered **CLICK HERE** and we'll do our best to feature it.



CHRIS DYKE

SALES DIRECTOR UK & IRELAND AT ALLIED TELESIS

Data centre build projects are being heavily impacted by the global chip shortage. Almost all projects are already on accelerated timelines, putting pressure on supply chains, but this is being ratcheted up by hyperscalers, which are demanding extra capacity in every available, or soon to be available, data hall.

Data centres are particularly demanding, as they typically require best of breed solutions with optimised power and data efficiency across the entire estate. This leads to a focus on a handful of vendors, again compounding the problem. With data centres already priority customers for vendors, this creates a knock on effect for the rest of their customer base.

On the whole, digital transformation is still relatively on track. This is very much due to specialist integrators' ability to be flexible and think outside of the box with their eyes wide open. This ensures that their projects are not adversely affected.

We are seeing enough capacity available to service the demand, but it might not always be via the same channels that it had been pre-pandemic. This means that the number of integrators able to successfully deliver projects within budget and on time has been diminished, as many are heavily tied to a small handful of legacy vendors and supply chains.

Supply chains will recover in time but the pent-up demand for project delivery caused by the pandemic is exacerbating the problem, and this will continue throughout 2023 and probably into 2024. Insourcing and smart procurement by vendors and trusted partners will be a key factor in ensuring minimal impact for customers both large and small.

Minimising the risk, typically in production of finalised product, by insourcing through owned infrastructure and factories, makes an enormous difference. This has allowed some companies to negate a lot of the challenges that others have faced during the last year, and which are unlikely to change for the next 18-24 months.

'SUPPLY CHAINS WILL RECOVER IN TIME BUT THE PENT-UP DEMAND FOR PROJECT DELIVERY CAUSED BY THE PANDEMIC IS EXACERBATING THE PROBLEM, AND THIS WILL CONTINUE THROUGHOUT 2023 AND PROBABLY INTO 2024. INSOURCING AND SMART PROCUREMENT BY VENDORS AND TRUSTED PARTNERS WILL BE A KEY FACTOR IN ENSURING MINIMAL IMPACT FOR CUSTOMERS BOTH LARGE AND SMALL.'

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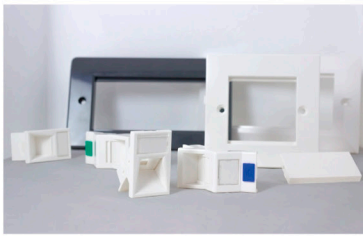

JOHN HALL

MANAGING DIRECTOR AT PROXIMITY DATA CENTRES

We have seen a slowdown in customers upgrading their IT equipment in our edge colocation data centres, partly because of the global chip shortage. In discussions with them the major concern has been whether having to extend server refresh programs might impact on effective equipment performance. This concern has been exacerbated by the very hot weather the UK experienced during the summer.

The above puts added emphasis on the benefits of using well designed and maintained data centres to ensure that outages of power and cooling are avoided. As IT equipment ages and has multiple software upgrades and patches, so it becomes more and more important to provide a stable environment and avoid any downtime.

However, the microchip shortage is not the only factor affecting digital transformation. There is still a significant skills shortage, particularly when looking at migrating services into a cloud environment. Having the level of on-site data centre engineering competence available is important, especially for configuring and interconnecting complex hybrid cloud environments.

Nevertheless, digital transformation has not entirely stopped and we are working on several projects with both new and existing clients. A number of these are edge applications that are delivering new services. A few require low latency connectivity such as virtual and augmented reality, while hybrid cloud solutions are also gaining momentum as customers realise the benefits of using a mixed infrastructure. By connecting public and private clouds together, hybrid clouds can optimise available compute, connectivity, bandwidth and storage capabilities, which enhances applications responsiveness, user experience and productivity.

Fortunately, it is possible to extend the life of servers, storage and routing equipment through the careful management of the data centre environment. In terms of network infrastructure, we have not experienced any significant delays based on the growing numbers of service providers adding optical fibre to edge data centres.

> 'FORTUNATELY, IT IS POSSIBLE TO EXTEND THE LIFE OF SERVERS, STORAGE AND ROUTING EQUIPMENT THROUGH THE CAREFUL MANAGEMENT OF THE DATA CENTRE ENVIRONMENT.'

ANDY HIRST

MANAGING DIRECTOR CRITICAL INFRASTRUCTURES AT SUDLOWS

The data centre sector is one of many industries that has been impacted by the chip shortage, and what an impact it has had! Just what is needed after Covid-19, price hikes in steel and copper materials, and resource shortages.

The chip shortage affects almost all technology driven manufacturing. But does it matter if we get our car or Apple iPhone a few months later than anticipated? Perhaps not, but with technology within the data centre industry continually evolving and the ongoing pressure to reduce carbon footprints, it could not have come at a worse time. It is impacting development and innovation, which is especially problematic considering the data centre industry has one of the largest carbon footprints.

So, aside from impeding our efforts to reduce the carbon footprint, the chip shortage has also had an impact on project delivery times and go live dates. This impacts businesses from a financial and commercial perspective and in some cases damages reputations, with some equipment being delayed by six months or more.

Some organisations have reacted to this and adapted as much as they can. For example, Sudlows has been working with clients to secure equipment with early planning and procurement processes and communicating updates to clients.

Although some equipment lead times do seem to be easing, others don't. With the semiconductor market being in excess of a $500bn market globally, even at full production there well may be a bottleneck, which will take the delay well into 2023.

The frustration with this shortage is that over the years global chip manufacturing plants have gradually closed down, and globally we have become more reliant on chips being manufactured in the Asia Pacific region – predominantly China, Japan, Korea and Taiwan. This has clearly been identified as a global technology risk and I have no doubt that other areas of the world will follow Europe, which has started to see this as an economical and security risk and will therefore be investing in the growth of the European market share of chip manufacturing.

It may be too late to fix this particular shortage but at least it may make organisations think and maybe de-risk this issue going forward.

'WITH THE SEMICONDUCTOR MARKET BEING IN EXCESS OF A $500BN MARKET GLOBALLY, EVEN AT FULL PRODUCTION THERE WELL MAY BE A BOTTLENECK, WHICH WILL TAKE THE DELAY WELL INTO 2023.'

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MIKE HOY
TECHNOLOGY DIRECTOR AT PULSANT

Unfortunately, there's no end in sight just yet for the global microchip shortage. Supply chain bottlenecks are creating operational disruptions, creating longer lead times for servers and impacting the progress of digital transformation strategies for many businesses. However, the data centre industry is largely showing good preparedness and agility to minimise the negative effects of the chip shortage and support their customers in weathering the storm.

It is the well-executed and careful planning, forecasting and purchasing that data centre operators do in advance that is allowing them to respond to the current situation. More importantly, it is the early engagement with vendors, cloud and software providers, and managed service providers that helps shorten the infrastructural challenges for organisations wishing to house and expand their IT architectures in a data centre. At the end of the day, the more vendors can prepare for disruptions, the more they can prepare their suppliers, and the clearer organisations can be on how to proceed with their digital transformations.

It also impacts everyone in the ecosystem in reprioritising orders and investments, and being flexible and open to different solutions. Data centres providing access to cloud, colocation and connectivity based on shared infrastructures could take away the headache of sourcing equipment, so that customers can continue on their digital transformation journeys.

Organisations could purchase or rent hardware kits from their data centre operators instead of waiting to ensure digital transformations can still proceed as planned. Data centre providers should act here as trusted advisors and partners for their customers to help them evaluate the best option for the time being and to future proof operations and enable further expansion in years to come.

Open conversations, transparency and strong relationships across the connected ecosystem are certainly an antidote for the shortages. Combined with thorough and sensible planning for the months and years ahead, everyone in the chain can be better prepared to respond to fluctuating supply and demand. There is light at the end of the supply chain crisis – even if it's not visible yet.

> 'THE DATA CENTRE INDUSTRY IS LARGELY SHOWING GOOD PREPAREDNESS AND AGILITY TO MINIMISE THE NEGATIVE EFFECTS OF THE CHIP SHORTAGE AND SUPPORT THEIR CUSTOMERS IN WEATHERING THE STORM.'

STEVE MORRIS
MANAGING DIRECTOR AT N2S

Digital transformation and data centres have an insatiable appetite for consuming IT equipment such as servers, PCs laptops, network and private branch exchange (PBX) devices.

It's been common practice to rip and replace these IT assets within 3-5 years of their original manufacture. However, the current microchip shortages have served as a wake-up call, highlighting just how unsustainable such an approach has become. This is not only from an environmental perspective – global electronic waste is already at record levels and the United Nations (UN) forecasts predict it to reach 74 million tonnes by 2030 – but from a commercial and economic one too.

There is no silver bullet to quickly solving the current chip issue and the knock-on effect for equipment supply chains. But moving forward, a key part of the long-term solution must be for private and public sector organisations to fully implement circular IT lifecycle models, geared to optimising hardware lifetimes. To succeed calls for closer collaboration between user organisations, their equipment manufacturers and channel providers.

In this scenario, assets no longer required but still in serviceable condition are professionally refurbished and resold for reuse. Only when these are at end of life and beyond useful repair are they responsibly and ethically recycled, with none going to landfill. As many materials as possible need to be recovered and extracted for re-entry into the supply chain, especially the vital metals and rare earths contained on microprocessor wafers. This circular approach also serves to help decarbonise supply chains, helping businesses align to Scope 3 emissions targets – soon to be mandatory.

Aside from the environmental and social benefits of helping to sustainably reduce the mining of virgin materials, maximising equipment lifecycles through reuse offers practical business advantages, allowing more enterprises, data centres and IT service providers to procure still perfectly fit for purpose hardware at attractive rates, realising space savings by no longer needing to hoard unused equipment, and achieving financial returns on pre-used assets resold into the market. Additionally, by being more closely aligned to the UN's Social Development Goals, enterprises can enhance their environmental, social and governance (ESG) and gain compelling PR value in front of customers and employees.

> 'A KEY PART OF THE LONG-TERM SOLUTION MUST BE FOR PRIVATE AND PUBLIC SECTOR ORGANISATIONS TO FULLY IMPLEMENT CIRCULAR IT LIFECYCLE MODELS, GEARED TO OPTIMISING HARDWARE LIFETIMES.'

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JON LABAN

RESET CATALYST AT THE OCP FOUNDATION & OPENUK BOARD MEMBER

Why is there a chip shortage now? Put simply chips are suffering the same fate that toilet paper did at the beginning of the coronavirus pandemic – high demand and not enough supply.

How long did the shortages of toilet paper last? Just weeks and not years like the chip shortage situation today. But why is that? Methinks it's to do with the manufacturing complexity resulting from the inherent proprietary physical complexity of today's chips. Each physically unique chip requires its own unique production line and it can take at least a year before its production line is up and running, and optimally spitting out quality propriety chips from that single chip vendor.

Is there a way to simplify chips? Yes, and I would like to mention reduced instruction set computer (RISC) chips and, in particular, RISC-V International, which is an open source project. I and others predict that in 10 years' time domain specific architectures will account for more than 80 per cent of processors in data centres. Even Intel, with its 50 year dominance of x86 has now seen the writing on the wall and is investing in RISC-V production.

Another way to alleviate the chip shortage is to reuse chips and this is happening today at huge scale with circular economy data centre open source vanity free Open Compute Project (OCP) servers. In case you weren't aware, 'reuse' is an advantage chips have over toilet paper!

Why do I keep mentioning open source? It's because it breaks open the proprietary narrow vendor supply chains and allows rapid expansion of production. Open source tech has also been identified by the UK government as crucial to reducing supply chain risks by expanding supply of critical national infrastructures like our telecommunications system and the country's digital infrastructure. It means shifting the needle from a small number of proprietary vendors of telecommunications networks globally today to potentially hundreds of open source.

So perhaps in the future making chips may be as easy as making toilet paper and when we see global glitches in demand the supply side won't take years to catch-up.

'ANOTHER WAY TO ALLEVIATE THE CHIP SHORTAGE IS TO REUSE THE CHIPS AND THIS IS HAPPENING TODAY AT HUGE SCALE WITH CIRCULAR ECONOMY DATA CENTRE OPEN SOURCE VANITY FREE OPEN COMPUTE PROJECT (OCP) SERVERS.'

Does buying an expensive certif make sense for a smaller instal

Available exclusively through Mayflex in the UK, AEM offers a wide variety of test However, making the right purchasing decision is crucial for achieving maximum

The investment in test equipment for cable certification is considerable for smaller data cabling companies, so there could be a case for not buying an expensive full certification tester. This is especially true during times of economic turbulence.

Thought process

Here are the major factors that should be considered:

• Cost

There's no point in investing in a tester near its end of life. This can potentially waste your hard earned cash if it becomes obsolete after two years of ownership. Ideally, you should invest in the most recently introduced testers to protect your investment and aim for at least five years of ownership. With some cable certification testers in the UK costing more than £13,000, including care plans over three years of ownership, this is an enormous investment for the smaller contractor

• Hiring

Firstly, you must look at how often you will use the tester and for what purpose. Is obtaining a manufacturer's cabling system warranty important for your customers? How many tests do you carry out in a year? Hiring will be very sensible if you carry out less than 12,500 warranted tests per year. You could hire a tester for 50 days a year and pay less than £2,000 a year. This would allow you to have more cash in your business that could be used for other investments, such as a new van.

• Leasing

Another option if you are using a tester and doing more than 12,500 tests yearly is leasing. This has the advantage of spreading the cost over 2-3 years with the considerable benefit of freeing up cashflow over this period. So, you're not having to commit to the total cost upfront, which may be important to the smaller installer. The critical advantage of leasing is that it can benefit your business as the lease cost can be tax deductible.

Mayflex Hire Service

Mayflex offers a Hire Service on a range of AEM certification, troubleshooting and installation tools that are capable of testing Category 5e to Category 8 and fibre optic infrastructure.

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AEM

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return on investment

and certifying requirements. Save yourself the cost of purchasing a new tester unit or try out the latest tester before committing to buying one.

CLICK HERE to find out more about the Mayflex Hire Services.

The intelligent solution

If you are looking to purchase a tester then the AEM provides a perfect solution. What's more all the CV100 platform testers come with a 3-year standard warranty, including a comprehensive 3-year care plan and free calibration. so there are no additional costs in the first three years.

AEM even covers accidental damage for the main and remote units, so we'll replace them if they are accidentally damaged and we cannot repair them at our UK service centre.

3 YEAR CARE PLAN

AEM's CV100 platform offers multiple testers in one device, designed for today's applications and the IoT world. Talk to Mayflex to find out more about the award winning AEM CV100 platform and how you can hire a tester or lease one.

Get in touch

For more information about Mayflex **CLICK HERE,** call our sales team on 0800 757565 or **CLICK HERE** to send an email.

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Mayflex appoints Billy Hopkins to its security sales team


Billy Hopkins

Mayflex has appointed Billy Hopkins in the role of account manager for converged technology, with an emphasis on IP security. He joins Mayflex from Hanwha Techwin Europe, where he was based for the last three years as a national account manager

Simon Steer, director of sales for security at Mayflex, commented, 'We are delighted to welcome Billy to the team. He's got great experience in the security market and has a strong technical background, which I believe is extremely beneficial when selling IP security solutions and supporting our customers to make the right decisions. Billy will be looking after customers to ensure they receive the very best service and support, particularly around our key security brands.'

Telehouse appoints Harry Snape to spearhead channel growth

Telehouse International Corporation of Europe has appointed Harry Snape as channel partner manager to spearhead the expansion of its Channel Partner Programme. Bringing 12 years' sales experience at companies including Mimecast and Trend Micro, Snape will oversee the growth of Telehouse's Channel Partner Programme in Europe, working closely with partners to help develop new services and grow their businesses.

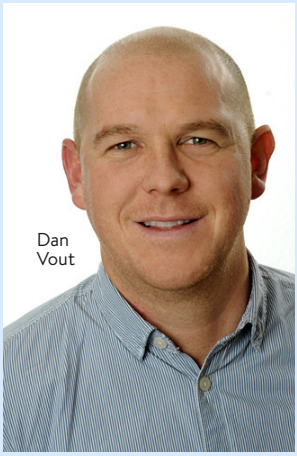

Harry Snape

Launched in 2021, the Telehouse Channel Partner Programme is designed to help system integrators and managed service providers (MSPs) boost their bottom line by incorporating colocation at Telehouse's London Docklands campus into their core offering. With access to Europe's most connected data centre campus, partners can uncover new, complementary business opportunities without the need to invest in new products or infrastructure.

'It's an exciting time to have joined Telehouse with the opening of Telehouse South and ongoing expansion of the Docklands campus,' Snape commented. 'Having fast and secure access to the heart of the digital world in London is a real source of competitive edge for channel partners and will be pivotal as many continue to seek new ways to differentiate and evolve their services to meet growing demands for hybrid and multi-cloud infrastructure.'

Siemon signs new distribution partner in Ukraine

Siemon has signed a new partner in Ukraine. DEPS is a leading IT distributor that specialises in supplying integrated communication solutions to Ukrainian internet service providers and medium to large corporate end users across different vertical markets. The company is highly regarded for its technical expertise and level of service.

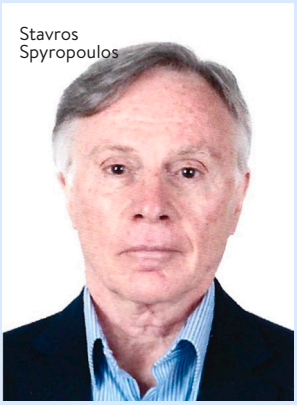

Dan Vout

Siemon has selected the new partner thanks to its customer focused approach and established relationships with installers, integrators and end users in the Eastern European market including Ukraine, Serbia and Moldova. DEPS was also chosen for its leading pre-sales, marketing, technical and aftersales service, as well as the speed of delivery.

'DEPS is a very well established business supporting leading organisations in Eastern Europe in deploying data centre infrastructure as well as enterprise and industrial IT networks,' said Siemon's sales manager, Dan Vout. 'With the support of our new partner, we plan to offer our extensive range of network infrastructure products to these markets, support customers with our technical and design expertise, and quickly deliver products for new projects.'

Subzero Engineering appoints new business development manager to focus on African region

Subzero Engineering has appointed Stavros Spyropoulos as its new business development manager for the African region. Spyropoulos brings with him a wealth of experience in the electrical and IT sectors, having held a variety of sales, marketing and management roles throughout his career.


Stavros Spyropoulos

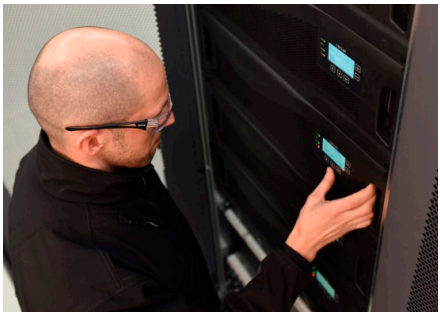
In his new role, Spyropoulos will be responsible for scaling the company's partner base, building on its engineering, structured cabling, heating, ventilation and air conditioning (HVAC) partners to drive growth across the continent of Africa. With technological expertise in the electrical and IT space technologies, he understands the critical role that consultants with extensive experience in Africa play in the industry.

'The data centre industry is one of the world's most important sectors, no less so in Africa, which embraces the accelerated and robust growth of digitalisation on the continent,' said Spyropoulos. 'I believe Africa will benefit greatly from Subzero's philosophy, with its environmental impact services and innovative approaches to vendor agnostic data centre solutions that provide our partners with an opportunity to address end user challenges, add considerable value and drive long-term growth.'

Why communication is key for UPS management

Ensuring the optimal performance of an uninterruptible power supply (UPS) and any associated equipment is all about communication. For example, installing and connecting an inexpensive SNMP card will allow for remote monitoring, alarms and any issues to be flagged.

Following the installation of a UPS, it is not uncommon to find that the SNMP card is simply not connected to the network, so data isn't being communicated. It is important that the SNMP is correctly set-up, to allow the end user to receive real time event data including alerts of any unexpected status changes. Similarly, remote monitoring of batteries can also be achieved through a Battery Analysis & Care System (BACS) and temperature sensors to establish the health of each individual cell. It's a safe way to monitor and condition the batteries continuously.



Aaron Oddy, sales engineer at Centiel UK, comments, 'At Centiel our leading 4th generation, true modular UPS CumulusPower, known for its nine nines (99.9999999 per cent) system availability, plus our standalone PremiumTower UPS are also enabled with Bluetooth to allow real time information to be viewed and downloaded including status, alarm and event logs. Bluetooth connects end users and engineers with the UPS system to help ensure it is working optimally and availability is maximised. The app also offers a quick way to access important information about the UPS' performance.'

It's not only digital communication though! Efficient communication between teams at the design, implementation and maintenance stages is also critical to achieve optimum UPS performance. Centiel believes joined-up thinking between contractors, consultants and manufacturers is a must for any UPS installation. This requires open and honest discussions, whether that's to overcome challenges with a room layout at the design stage or to create bespoke preventative maintenance plans to suit precise needs.

Oddy concludes, 'Centiel's staff are technical sales consultants all trained to communicate the right information and technical knowledge. Nothing is hidden. We always do the right thing for our clients to ensure they have the absolute best solution to suit their needs. Contact us to find out how we can reduce the total cost of ownership and optimise the performance of your power protection solution today.'

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R&M

Corning opens optical fibre manufacturing plant in Poland to meet growing demand for high speed connectivity

Corning has opened a new optical fibre manufacturing facility in Mszczonów, Poland, to meet demand for high speed connectivity in Europe. The facility is Corning's latest in a series of global investments in fibre and cable manufacturing totalling more than $500m since 2020, supported by growing demand and strong customer commitments.


Wendell P Weeks

The new facility adds approximately 250 employees to the company's workforce of more than 3,000 in Poland and builds on Corning's successful 20 year history of manufacturing in the region. It provides Corning with advantaged access to talent through the skilled workforce and technical training available in the greater Warsaw area. Corning already manufactures optical cable and connectivity components at its campus in Strykow.

'Corning is expanding its fibre manufacturing operations in Europe, as our customers accelerate investments in future ready networks,' said Corning chairman and chief executive officer, Wendell P Weeks. 'From broadband to 5G to cloud computing, tomorrow's networks all depend on optical fibre. This facility will ensure we can continue to efficiently serve our customers in Europe and beyond, during a time of record demand. We appreciate the support of state and local officials, and the dedication of our skilled workforce.'

CHANNEL UPDATE IN BRIEF

Aerospike has appointed Martin James as vice president of EMEA. He is responsible for driving regional growth and meeting customer demand.

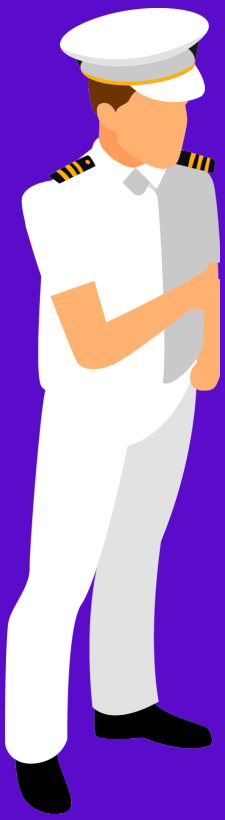
JAAM Automation has formed a new partnership with Jigx to promote and sell its products throughout EMEA.

Asite has created a new partnership with SmartViz, which will expand operational capabilities available to asset owners. It will also enable outcome driven digital twins through real time data and occupancy analytics, simulations and visualisations for asset performance optimisation.

NS1 has appointed Kim Kaminski, a veteran marketing leader with more than 25 years of experience, as chief marketing officer (CMO). Kaminski is chartered with elevating the company's market presence and formulating breakthrough global marketing programs for its network infrastructure solutions.

Michelle Grover has joined Slalom as its first chief technology officer (CTO).

Maverick or pragmatic?



RiT Tech's Mark Acton examines why deploying data centre infrastructure management (DCIM) to mitigate operational risk is no flight of fancy

'Military precision' is not a misnomer. Being in the business of bombs and bullets demands organisational excellence and exacting standards, and is the reason why so many companies actively court the services of those calling time on their careers in the armed forces. Soldiers, sailors and airmen are masters at mitigating risk, having been meticulously and exhaustively trained to counter myriad threats in complex areas of operation.

FLYING HIGH

This military preparedness is key to saving lives in conflict but also preserving the wellbeing of incredibly valuable pieces of hardware, such as the Royal Air Force's (RAF) fleet of Typhoon aircraft. With each fighter jet costing circa £75m, pilots do not get to fire the afterburners of the UK military's most expensive weapon system in anger without first undergoing hundreds of hours of training in simulators and computer driven cockpits on terra firma.

The RAF's trust in technology to help its personnel avoid future flak is a lesson those in the data centre sector would do well to note, given that their mission's primary objective is to ensure the reliability and availability of clients' IT services 365 days a year. While fuelling the cloud is not as dangerous as flying above the clouds, the financial thrust needed to do so is similarly sky high and doing all that is possible to protect this investment – a build price in the region of a quarter of a billion pounds and annual running costs of £20m – is far from maverick behaviour.

INTELLIGENT DESIGN

The right DCIM solution can form a key component of this defensive arsenal, providing a level of real time situational awareness not possible using information afforded by discipline specific tools and the human eye – no matter how experienced, skilled and alert its owner may be. By federating all the data available from its surrounding environment, a fit for purpose DCIM will deliver vital intelligence on the interdependencies of IT assets, power and cooling that enables potential risks to operational efficiency to be identified and mitigated.

Knowledge is power but is something data centres – which are often organisationally siloed – have been historically bad at garnering. A building management system can be great at monitoring the performance of its host's mechanical and electrical elements, just as a configuration management database might be adept at storing accurate details about hardware and software assets, but basing proactive and reactive operational decisions on isolated sources is the equivalent of flying blind.

JOINED UP THINKING

An organisation's servers can be the very best money can buy but if the building's power fails those expensive blinking lights are worthless if the cause of the problem cannot be quickly addressed. DCIM joins the dots and serves as a force multiplier.

Just as the success of a Typhoon sortie relies on the orchestration of multiple elements – the aptitude of the pilot, intelligence from mission command and fidelity of the target acquisition coordinates provided by forward air controllers on the battlefield to name but a few – so too does the smooth running of a data centre.

RISE OF THE MACHINES

The advancement of computer analytics means that it is now possible for machines to do the mathematical heavy lifting in the facilities charged with meeting society's insatiable demand for connectivity – to draw data from across a facility's grey and white space, calculate permutations in a split second and suggest a roadmap to optimisation.

I am yet to meet an individual capable of doing the same and given that to err is human, it is easy to see how DCIM can become an invaluable ally. Capable of generating automated, high-fidelity work orders that can signpost engineers and technicians directly to a point of failure or suggest the optimal configuration for new assets, it can dramatically reduce the chance of human misadventure.

MOVING ON

Research conducted by Jerry Williams, and based on his work in the UK energy sector, highlights there is a 50 per cent chance of something going wrong when a person is required to perform an unfamiliar task at speed and under pressure. While this figure does drop dramatically to 0.04 percent if the task is a familiar one, the advantages of having a DCIM guide in the event of a crisis is clear – when dealing with downtime,

‘The advancement of computer analytics means that it is now possible for machines to do the mathematical heavy lifting in the facilities charged with meeting society’s insatiable demand for connectivity.’

‘evens’ are not the type of odds that promise peace of mind.

An alternative to mitigating human hiccups would be to again borrow from military best practice and ‘drill’ data centre staff repeatedly in the hope that they can more instinctively respond to critical situations, no matter how rare. Such intense training, however, would come at a considerable cost – both in terms of time and money.

RULES AND REGULATIONS

DCIM’s ability to plug any gaps in the understanding of the finer nuances of the day to day realities of data centre operations could also prove crucial in fending off any regulatory risks.

The sector is coming under increasing government scrutiny over power consumption, albeit while contradictorily being asked to facilitate faster networks and greater capacity, so being armed with accurate facts may assist operators in fighting their corner. DCIM configured to report Power Usage Effectiveness (PUE) against ISO standard metrics and key performance indicators could create a clearer picture of causal links and help ensure any regulations are introduced for

the right reasons.

Finally, and perhaps most importantly, the adoption of an analytical autopilot can eliminate any threats to a data centre's fiscal fitness. Whether ensuring an operation is not haemorrhaging money as a consequence of unwittingly under-utilising capacity or delivering savings through unprecedented levels of synchronicity in the consumption of space, power and cooling, DCIM is a worthy wingman when it comes to evading risks to profit margins.

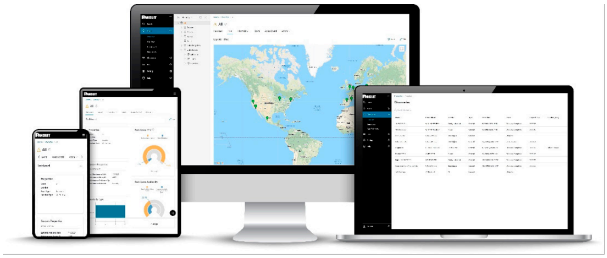
TOP MARKS

In an ultra-competitive market, those data centre operators with designs on being the sector's top gun but don't yet have an automation ace as part of their crew, should 'feel the need...'. ■

MARK ACTON

Mark Acton has been a specialist in the field of data centre operations for over 20 years. He focuses on the delivery of business critical services from highly reliable, world class data centres with 24x365 availability expectations. With extensive international experience and solid technical skills, he is a regular public speaker, conference host and industry advisor on data centre technical issues, as well as being involved in ISO data centre standards development.

Panduit



Technology drives almost all sectors of the economy, so it is essential to have access to your hardware, whether on-premises or in hosted environments. Panduit SmartZone Cloud DCIM software is an enhanced Azure cloud based enterprise web application that integrates power and environmental monitoring with cabinet access, asset tracking and connectivity management.

Data centre managers, engineers, operators and customers can now monitor critical infrastructure resources and make informed decisions about capacity, changing environmental conditions and performance from any authorised device worldwide. Real time monitoring, dashboard visualisation, management and reporting of key attributes across assets, power, cooling, provisioning and physical infrastructure are vital steps to aid data centre agility.

Panduit's SmartZone Cloud DCIM solution offers unlimited users accurate, automated and centralised physical infrastructure visibility to help stakeholders achieve service level agreements. It tracks critical infrastructure resources and provides a single pane of glass, visual representation of rack and outlet level power management, rack access management, environmental monitoring and asset management.

For more information **CLICK HERE.**

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R&M

Data centre managers need to automate the exchange of data between (overlapping) management applications that each manage a particular aspect of the data centre. How can data be synchronised between these applications? Open programming interfaces and HTTP internet make this possible, along with application programming interfaces (APIs).

A new blog from R&M's product manager smart networks, Reinhard Burkert, explains how servers 'talk' to each other. The blog examines how APIs, such as the one used for R&M's inteliPhy net DCIM, help integrate systems and management functions to operate one or more data centres efficiently and successfully, and the role of documentation and testing.

CLICK HERE to find out more.

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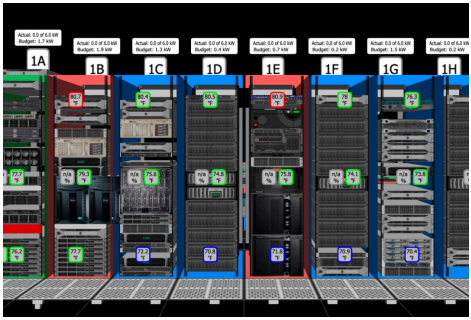
Sunbird Software



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With fully documented built-in application programming interfaces (APIs) and out of the box connectors, Sunbird DCIM easily integrates with configuration management databases (CMDBs), ticketing tools, DevOps tools, building management systems and more to enable a single source of truth. Integration and real time data exchange can be used to unlock the additional productivity and efficiency that comes from having a holistic view of all IT equipment and supporting infrastructure, and their relationships and dependencies.

Driving automation via integration with Sunbird DCIM allows you to get more value out of your existing tools, breaks down organisational silos and encourages data driven collaboration, reduces manual effort, increases data accuracy and enhances the presentation of data.

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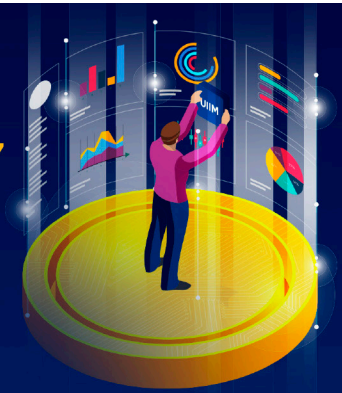
WHY DEPLOYING A DCIM TO MITIGATE OPERATIONAL RISK IS

NO FLIGHT OF FANCY



Service personnel are masters at mitigating risk, having been meticulously trained to counter threats on operations.

This preparedness saves lives but also preserves the wellbeing of valuable hardware, such as the RAF's Typhoon aircrafts.

With each jet costing circa £75 million, pilots do not get to fire the afterburners in anger without first undergoing hundreds of hours of training in simulators.

Trusting in technology to help avoid future flak is a lesson those in the data centre sector would do well to note.

While fuelling the Cloud is not as dangerous as flying above the clouds, the financial thrust needed to do so is sky high and protecting this investment is far from maverick behaviour.

The right Data Centre Infrastructure Management (DCIM) solution can form a key component of this defensive arsenal, providing a level of real-time situational awareness not possible using information afforded by discipline-specific tools.

In an ultra-competitive market, those data centre operators with designs on being the sector's top gun that don't yet have an automation ace as part of their crew, should "feel the need...".

Support structure

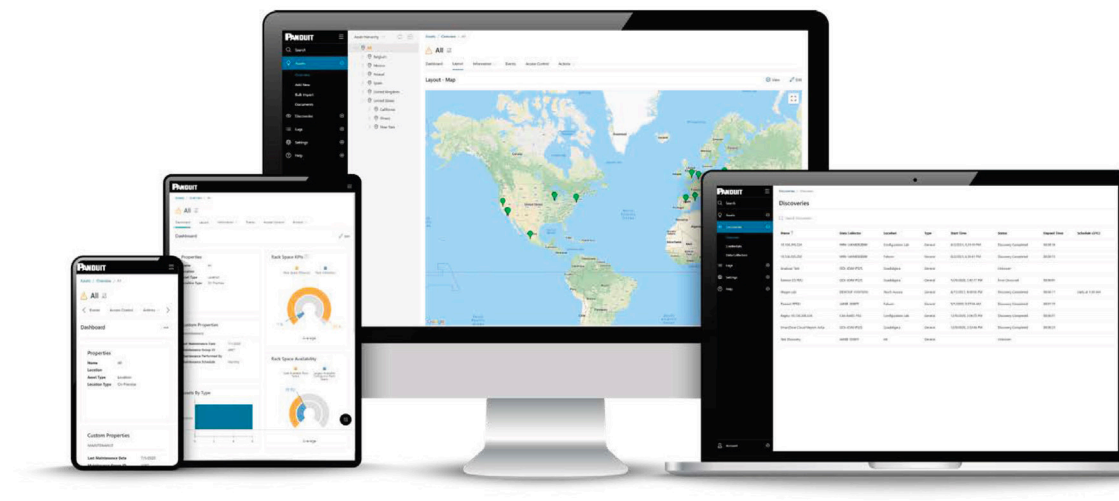
Michael Akinla of Panduit explains how data centre infrastructure management (DCIM) capabilities are being adapted for the cloud generation

Today's DCIM capabilities have developed with the increasing utilisation of hybrid digital infrastructure to meet changing business and leisure needs, and create opportunities for growth. The global DCIM market is poised to reach $3,075m with a compound annual growth rate (CAGR) of 8.6 per cent by 2028, according to BlueWave Consulting research.

UP IN THE SKY

The rapidly increasing adoption of cloud computing and need for efficient management of data centres to reduce energy consumption and increase efficiency, has driven the latest generation of DCIM solutions that now offer truly cloud native platforms. The massive investment in data centre construction led by global tech giants, as well as colocation, enterprise and edge organisations, necessitates the adoption of DCIM solutions to generate the scope of data required to effectively manage individual or multiple sites from a single platform.

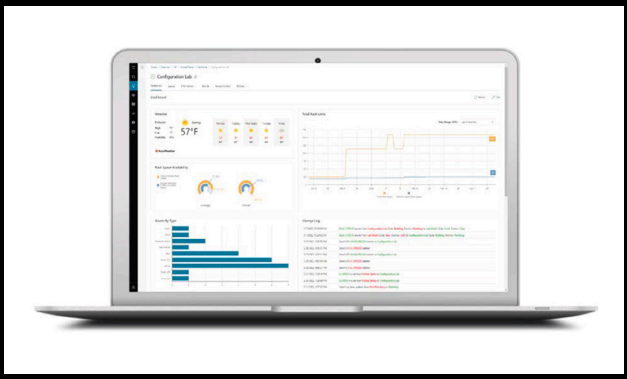
To match this, the latest DCIM capabilities have been created from the ground up to take advantage of cloud flexibility, scalability, enhanced manageability, security and operational ease of use. Data centre, enterprise and edge infrastructure is supported through the management, monitoring



and alerting of the five essential data processing requirements – power, cooling, environment, IT and connectivity.

MONITOR AND MANAGE

Some DCIM systems offer software agnostic and multiple vendor support for IT and facilities devices. They can also align with smart local power distribution products and the latest modular



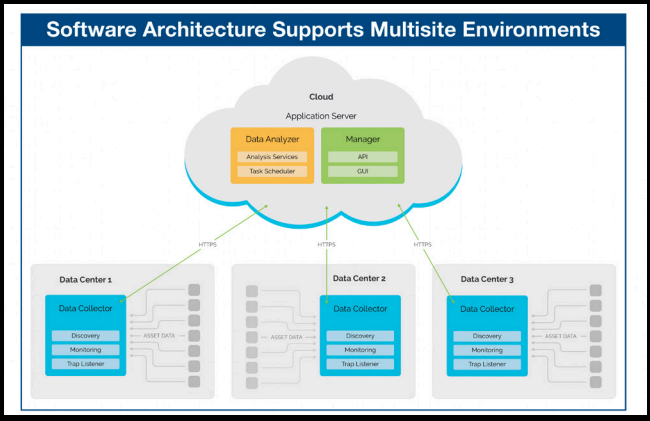
uninterruptible power supplies (UPS), as well as a host of environmental sensors and monitoring devices. There are growing concerns regarding the increasing power consumption of data centre servers and communications devices, and these intensify the need for DCIM systems that offer a wider range of monitoring down to the rack level.

Over the past couple of years, the proliferation of smart internet of things (IoT) devices strategically positioned across the infrastructure has driven the need for DCIM. The increasing amount of data generated and captured enables users to visualise rack level power, environment and cabinet security access – both physical and electronic. Users can use a single pane of glass to manage the data centre infrastructure resource. In addition, floorplan layout, rack elevation and power path visualisation enable users to identify single point of failure, reduce overprovisioning and improve risk assessment.

SAFETY FIRST

To achieve the benefits of the latest cloud native implementation, a DCIM platform must be highly secure and include encryption on data at rest and in transit, while two-factor authentication is a must have. The past two years have witnessed great changes in work practices, which have been supported in the transformation of DCIM to provide access from outside the premises, and highly secure non-physical access to unlimited locations for users, with role based access.

Operator and user equipment installation is simplified through plug and play device auto-discovery, an intuitive web interface



'Over the past couple of years, the proliferation of smart internet of things (IoT) devices strategically positioned across the infrastructure has driven the need for DCIM.'

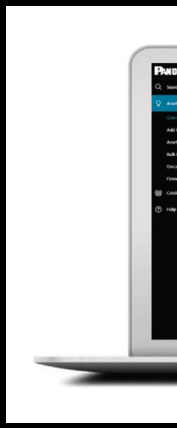
and real time updates for software and environment monitoring. This has given rise to fine grained access control and security focused development lifecycles, which are strengthened with multiple security scanning and assessment solutions. These provide analysis of complex web applications and web services to ensure highly resilient service provision.

NEAR AND FAR

Today's next generation DCIM solutions provide accurate, automated and centralised visibility into the digital infrastructure to ensure stakeholders achieve service orientated goals. They enable operators and users to make informed decisions to meet the demanding needs around capacity planning, remote management, and end to end service level agreements (SLAs). Real time information and clear understanding of power, space and asset usage, environmental conditions, connectivity and cabinet access is available to provide the complete overview of the data centre operation.

The latest smart cloud DCIM software offers enterprise web applications hosted in the cloud. The capabilities users need to look for include power and environment monitoring, along with asset and connectivity management and cabinet access. It is essential that DCIM tracks critical infrastructure resources and provides visual representation of a rich set of asset attributes, connectivity, space availability, and power and environmental resources to ensure that the digital infrastructure supports mission critical applications and enables effective optimisation of data centre resources.

With external accessibility comes the need for comprehensive security. It is essential that user roles define what users can do in the application. In addition, an administrator must have the capability to define access controls on specific assets to limit what users can see and interact with.



With cloud native solutions users can add access credentials for managed devices. This allows the use of a configured SNMP community string to access sensors such as current utilisation from a managed power distribution unit (PDU). Device credentials are stored in the solutions cloud database and encrypted using Advanced Encryption Standard (AES-256), with keys that are unique to the user.

LEVEL BEST

The expansion of DCIM has required the development of increased levels of device definitions to collect and use the correct data to identify each device on the system. A device can be a server, computer room air conditioning (CRAC) unit, PDU, UPS or any IP accessible device. To correctly model the device, DCIM software needs to understand the device type, manufacturer and model. This is then mapped to applicable attributes, sensor data and

communication protocols. To capture the model and device definitions, one or more of the following knowledge sources is used:

• Model data

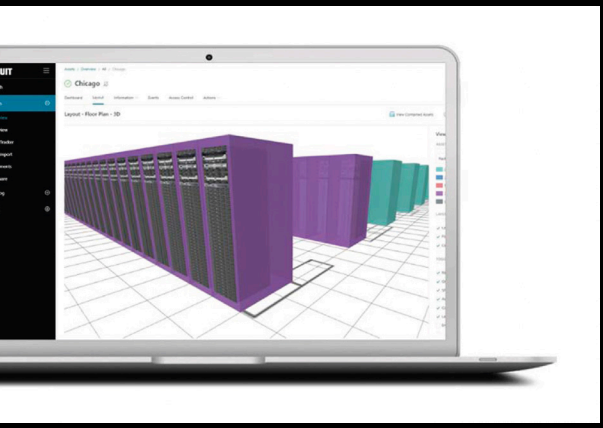
Model data allows the system to identify the device, down to manufacturer and model. It also allows the device to be classified based on extended attributes such as space utilisation, expected power utilisation, network related information and other relevant data.

• Device definition

Having defined the device, the system can now identify it and react dynamically to its variations, pulling data from the various sensors. This data is then mapped to instrumentation points within the system model.

• SNMP traps

SNMP sends push notifications when a significant event happens, like a UPS losing power and switching to battery. Trap notification events are mapped to the device using the trap definition and they are passed on to a systems notification subsystem.



ESSENTIAL SELECTION

Data centres are essential to everyone's daily life and more complexity has grown around the core attributes of processing and storing data. The latest DCIM platforms are a critical capability in maintaining the data centre and networks on which it depends. They offer operators and users a sophisticated range of capabilities to ensure efficient and effective management of the increasing valuable data asset within. ■

MICHAEL AKINLA

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

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On the factory floor

Robert Luijten of Fluke Networks look at how test and measurement are fundamental to Industrial Ethernet performance

Ethernet is becoming the bloodstream of industrial automation. As manufacturers look to Industry 4.0, improving production efficiency using more intelligent control and cloud services to support predictive maintenance and more responsive systems means Ethernet provides the vital link between real time processes on the shopfloor and the systems that supervise them.

TALK TIME

The more widespread use of Ethernet in the industrial environment is bringing greater complexity, not just in terms of the number of machines that are able to talk to each other but in terms of the range of devices that need a connection to the core network. For example, smart sensor nodes will use wireless connections to communicate through Ethernet connected gateways as the industrial internet of things (IIoT) gathers pace.

The decision to connect more devices and allow more information to pass between them and the cloud will drive the use of higher bandwidth switches and interfaces in the factory network's backbone, taking advantage of the Gigabit Ethernet and 10 Gigabit Ethernet standards that are now available. The use of these higher speed switches will reduce problems caused by congestion. Indu-Sol's research found that many service calls were the result of production interruptions that could be tracked down to congestion within switches, resulting in vital packets being dropped.

INFRASTRUCTURE UPGRADES

A key question that faces anyone managing industrial networks is the suitability of the existing infrastructure to carry these new services and accommodate high speed switches. When a switch is installed with the intention of supporting gigabit plus speeds, the upgraded link may use twisted pairs within the cable that may not have been utilised to the same degree. The fast connections will quickly expose shortcomings in the existing cabling.

Older installations may employ Category 3 grade cable, which is only rated for use at 10Mb/s. Category 5, on the other hand, has been commonplace for many years. It will support data rates up to 100Mb/s in its standard form and up to 1Gb/s in the enhanced Category 5e form. Category 6 pushed performance towards 10Gb/s, though this will typically be over limited distances. Category 6A cable should be able to carry 10Gb/s signals up to 100m though the

original Category 6 grade is rated only for spans of a little over 50m.

MAKE THE GRADE

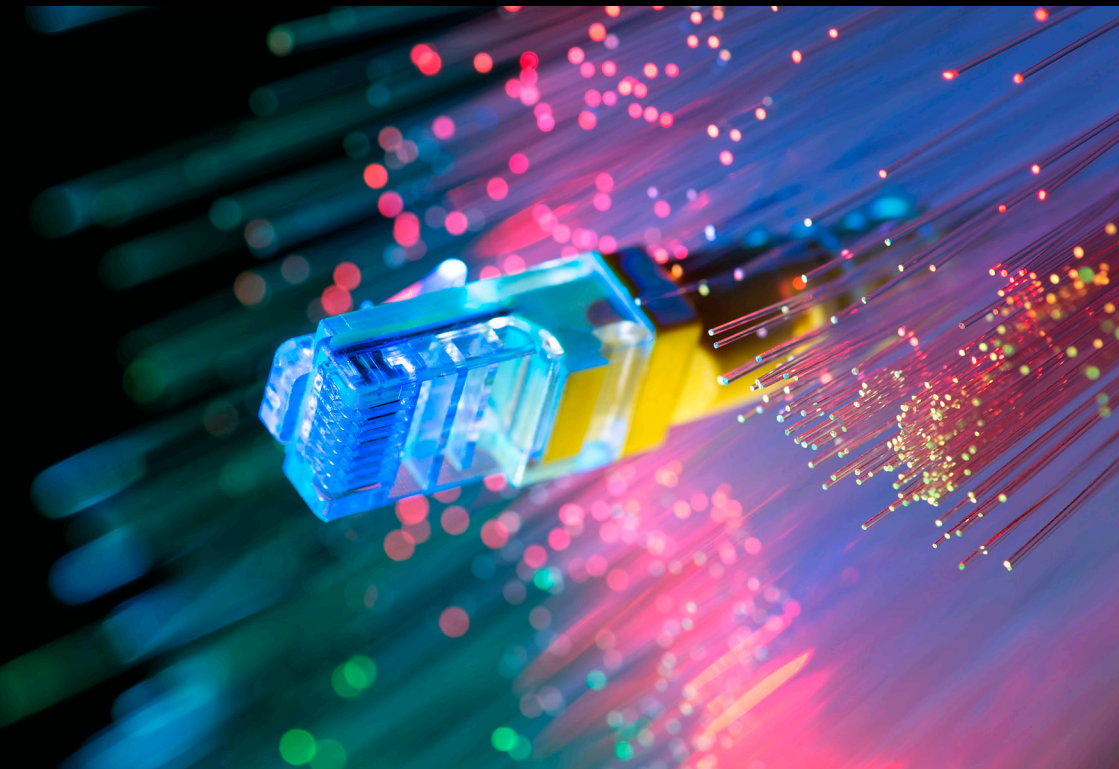
The mixture of cable grades presents technicians responsible for maintaining connectivity in the industrial environment with a key problem – can a specific span support upgraded switches and devices? The documentation for the network may not be fully up to date and contain inaccuracies. Even if the cable uses a suitable grade, its performance may have been affected by installation errors and damage. This might not affect the existing devices but will demonstrate problems when higher speed connections are used.

Poor cable routing can lead to excessive interference from high voltage electrical equipment. Mistakenly used office grade connectors are more likely to suffer from environmental factors such as vibration, extremes of temperature and humidity, and attack by corrosive chemicals over time compared to their industrial grade counterparts. Repairs to equipment may have resulted in cables being damaged or bent too tightly to maintain reliable connections.

PERFORMANCE STANDARDS

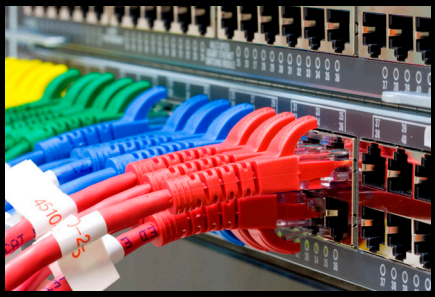
Testing of the cable infrastructure is vital but it can be difficult to put into practice. A common technique for attempting to test the performance of cabling links is to attach Ethernet transceivers to each of the cable and then use one to send data at the desired speed into the cable to see if it reaches the other end without error.

The problem with this kind of



'The more widespread use of Ethernet in the industrial environment will bring greater complexity, not just in terms of the number of machines that are able to talk to each other but in terms of the range of devices that need a connection to the core network.'

transmission test is that it demonstrates only that those specific transceivers can communicate. Other equipment that may be less tolerant of errors once attached to the cable segment may fail, with no indication of why it should be the case. That is because the test does not evaluate the performance of the cable itself.



BIG ISSUES

A clear problem with using just Ethernet transceivers for a test is that it will not easily distinguish between problems of performance versus continuity issues, particularly for the higher speed protocols. One issue may be that individual strands in the cable are mis-wired, broken or simply not present.

A common technique for testing continuity, which is also useful for determining which cable connects two endpoints, is the use of audio signals sent over individual wires. However, this is a laborious test to conduct and is made even more time-consuming when the ends of the cable are far from each other.

A more suitable test scenario would be to have an instrument that is able to switch between pairs in sequence automatically without having to make manual changes at the far end. This will quickly reveal situations such as a two pair cable being in place where a four pair cable is required.

ROUTE TO SUCCESS

Another reason for moving to dedicated instrumentation for continuity testing is that it can also support the discovery of cable routing. In many situations, more cabling is laid than is used for active communication. These additional cable runs could prove useful for network upgrades but only if it is clear where the endpoints are and how they are connected. One technique that is present in some dedicated cable testers is the use of digital tone to indicate the connectivity between endpoints.

Where cables are unmarked or the records following installation are unclear, it can be difficult to determine how suitable a cable run is for linking upgraded switches. However, the performance can be measured directly with the right techniques.

As part of its standards setting procedures the IEEE sets out recommended measurements to indicate whether cabling will suffer from excessive noise and quality issues that may lead to packets being dropped. These

measurements analyse characteristics such as near end crosstalk (NEXT), return loss and insertion loss. It is possible to perform these tests using generic laboratory style test equipment – instrumentation designed for network applications will generally provide easier set-up and interpretation of the results.

AUGMENTED TESTING

There are other convenience features that can be found on dedicated instrumentation that make related tests easier to perform. For example, an important test that is useful in the industrial environment is to check that power over Ethernet (PoE) capability is active in a switch and is operational for each port.

One approach is to plug in a device at the other end of the cable and determine whether it is receiving power. This does not necessarily indicate the switch is not configured for power but that a continuity problem is causing issues. A dedicated tester can use facilities in the core protocol to activate and PoE and confirm it is operational in one go.

VIRTUAL REALITY

Testing needs to go beyond physical layer parameters in the Industry 4.0 environment. To ensure good separation between real time control and other channels, network managers may choose to take advantage of the virtual local area network (VLAN) features in today's switches and routers. However, VLANs complicate the testing process.

Even though they may be physically and logically connected, the switch will only pass data between ports assigned to the same VLAN. This complicates the diagnosis of connection failures as the hardware may be entirely functional, but the software is misconfigured. This calls for the use of equipment that can understand VLAN packet information when testing network behaviour. Software running on a laptop with a suitable network adaptor can be used to perform these tests. However, they can be difficult to set up compared to simply using a dedicated tester with VLAN support.

ESSENTIAL SELECTION

As the focus on industrial network performance intensifies, effective and simple measurement and testing are practically essential. ■

ROBERT LUIJTEN

Robert Luijten is Fluke Networks' EMEA training manager. A true test and measurement expert, with more than 38 years of experience, he was responsible for the European launches of the Fluke Networks DSP-4000, the DTX CableAnalyzer, as well as the Versiv cabling certification system.

The heat is on

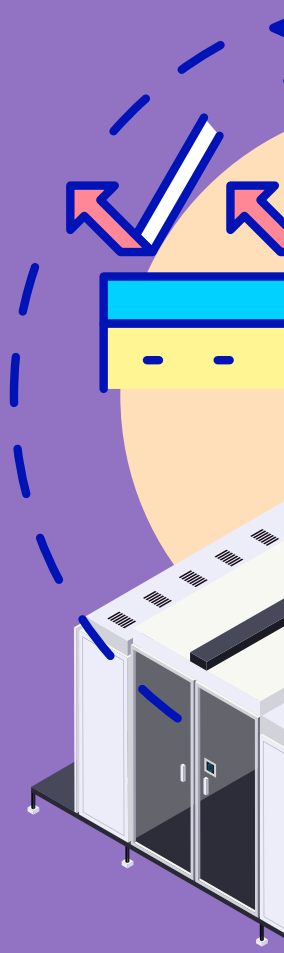
Stu Redshaw of EkkoSense looks at how energy price increases and heatwaves are making net zero commitments more challenging for data centres

With leading brands and government bodies committing to ambitious net zero targets around the time of the 26th UN Climate Change Conference of the Parties (COP26) in Glasgow last year, 2022 should have been the year when organisations really got to work on securing carbon reductions. And with data centres increasingly targeted as one of the largest consumers of energy, IT operations teams knew that it was likely that they would quickly become an area of focus for environmental, social and governance (ESG) teams and their climate goals.

NOT SO SIMPLE

Of course 2022 hasn't turned out to be quite that simple. The global recovery from the coronavirus pandemic has led to significant supply chain and resourcing issues, while the war in Ukraine has caused massive disruptions to European energy supply and electricity prices. This summer has also seen record heatwaves across Europe, clearly putting data centres and their associated cooling infrastructure under pressure just to maintain services. Green issues and net zero commitments may appear to have been placed on the back burner, but they definitely haven't gone away.

The extreme temperatures experienced in July led to a number of high profile data centre failures, with cooling related issues confirming that even the largest operators can be impacted by unseasonably high temperatures. From our own perspective at EkkoSense, where we are able to monitor the real time status of thousands of racks across facilities of all sizes, it was reassuring that we could detect hardly any significant thermal performance anomalies in data centres that had already benefited from cooling performance optimisation. Indeed, we barely saw more than a 1°C variation within fully optimised rooms.



OUTSIDE INFLUENCE

Where there were issues, however, they predominantly stemmed from thermal performance failures outside of the data centre. There were

frequent reports of facilities management teams having to hose down external cooling devices to prevent overheating.

Given that most external cooling infrastructure in the UK was never designed to perform in conditions of 35°C or above, it's perhaps surprising that failures weren't more prevalent. These examples show just how vulnerable a data centre's performance can be when you can't depend on the performance of the external cooling infrastructure. A facility may be running on an N+1 basis, but if two cooling units go offline simultaneously because of extreme temperatures, then you're quickly moving towards an N+2 requirement.

DEEP IMPACT

Extreme heat clearly affects external plant, but the impact is felt inside the data centre, where things can start going wrong very quickly. If a data centre site is correctly optimised and things suddenly start going wrong from a thermal perspective, it's hard for operations teams not to leap to conclusions.

Instead of moving quickly to identify and isolate the root cause of a temperature surge, what many operators do is to start changing things – moving floor tiles or reducing setpoints – not realising that the root cause of the problem isn't actually in the data centre. Our analysis shows that in situations like this there's simply no point in trying to change your data centre dynamics on the hottest day of the year!

However, data centre operators also need to recognise that it's no longer tenable for them to trust a cooling infrastructure that's only designed to operate up to 35°C. While 40°C plus UK temperatures were previously seen as a potential once in a century event, the fact that the July records broke records by such a margin suggests that extreme heat is likely to be a much more common occurrence.

HOT SPOT

Unlike other parts of the world, the UK data centre sector simply isn't prepared for this. In the southwest of the USA, for example, it's seen as normal for 40°C plus

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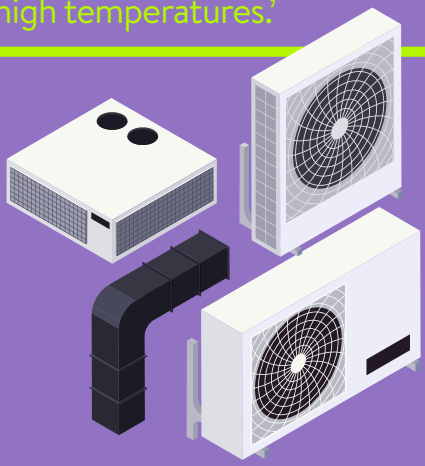


temperatures to be recorded upwards of 10 times a year. Because of this, data centre facilities and cooling infrastructure are designed and operated accordingly, with extreme temperatures already factored into a facility's risk profile.

The reality is that the UK sector isn't ready to operate in these sort of conditions – and not just from a data centre perspective but also across the wider infrastructure piece. Because of this, it's important that we move quickly to learn the lessons from the July heatwave and also pay close attention to how the rest of the world succeeds in operating in much higher temperatures. We simply can't rely on having a temperate climate any longer.

Of course, if data centres are to successfully manage this transition towards operation in higher temperatures, it's essential that they have access to the kind of tools that can help them to make smart data centre performance choices. Regardless of the external conditions, operations teams will still need to have a real time, dynamic viewpoint across their entire estate if they are to succeed in optimising performance and reducing carbon emissions as part of their net zero activities.

FIVE ALIVE

With the right levels of software driven optimisation and cooling in place, operations teams will be as well placed as they can be for when the next 40°C plus event occurs. Based on our assessment of readiness during this year's heatwaves, here's our five recommendations that will help give your team a head start when the next one inevitably comes:

- Conduct a pre-summer high temperature incident audit across all your data centre sites

A detailed high temperature incident survey audit across all sites is essential – analysing not only your data centre facilities but also all your external cooling plant and other infrastructure resources and ensuring they are optimally maintained.

• Learn from the July 2022 heatwave

Any data gathered during this unique high ambient temperature UK weather event should prove invaluable. Despite all the discussions around climate change, few organisations really considered its potential impact on their data centres, with 35°C still baked into specifications as an uppermost likely operating condition. These standards now need to be reset, with July 2022 serving as an initial extreme template.

• Action this year!

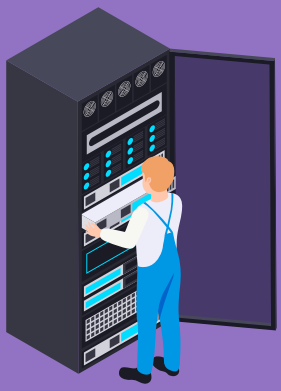
Summer 2023 will come round quickly enough, so it's important that any remedial cooling infrastructure maintenance or other improvements necessary following the heatwave are carried out as quickly as possible.

• Avoid heat of the moment actions

Extensive real time data shows that it's important not to interfere with an already optimised data centre when you're being impacted by external failure – you'll only make things worse.

• Create a 'heatwave grab pack' for things to do

Develop a readily accessible checklist detailing things to do (and not do), key contact details, pre-agreed next step mitigation plans, as well as any plans for emergency cooling. ■



STU REDSHAW

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

HellermannTyton

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

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

HellermannTyton's RapidNet solution carries its very own environmental credentials as a pre-terminated system. At the factory, each cable is pre-terminated and cut to its specified length, minimising bulk cable waste. On-site, RapidNet is ready to be installed and can be supplied on reusable plastic drums, resulting in minimal packaging waste.

HellermannTyton has been working closely with a number of core customers, taking the necessary steps to reduce and eliminate single use plastics in packaging where possible. Our products are manufactured in the UK and therefore we have shorter logistics paths, resulting in a reduced carbon footprint and less environmental impact.

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

Siemon

Environmentally conscious businesses are no longer just looking for greener products and solutions to help reduce their carbon footprint, but for trusted partners that follow sustainable business ethics in line with their own environmental ideologies.

Since buying its first tree farm in 1962, Siemon has continually supported environmental policies and conservation efforts. A 15,600ft² solar power facility at Siemon's corporate manufacturing campus reduces the company's annual carbon dioxide emissions by over 373,000lbs a year and an innovative waste management program has helped Siemon achieve zero landfill status.

Today, all of Siemon's global manufacturing facilities are ISO 14001 certified with individual environmental management systems. All of these efforts combined have helped it become carbon negative and the company will continue to drive environmental responsibility and green initiatives for its clients.

To find out more **CLICK HERE.**
www.siemon.com

Excel Networking Solutions

Excel Networking Solutions offers one of the most comprehensive ranges of copper cabling solutions – supplied in 100 per cent plastic free packaging. Inclusive of Category 5e, 6, 6A, 7A and 8 copper cable classes, Excel's structured cabling products constitute an end to end solution where performance and ease of installation are prerequisites.

With multipacks of keystone jacks, customers can save up to 60 per cent off their preparation time. Each tray of 24 jacks is supplied in a simple 100 per cent recycled and recyclable cardboard tray, as opposed to individual single use plastic bags.

By choosing the Excel multipacks it's quicker to install, easier for your engineers on-site, lowers installation costs, reduces waste on-site and is 100 per cent recyclable.

CLICK HERE for more information.
www.excel-networking.com

Rittal

Rittal is expanding its smart cooling unit solutions with its Blue e+ S range. This latest generation of cooling units with lower output categories of 300W, 500W and 1,000W has been designed for efficiency, ensuring a smaller footprint and lower costs.

Blue e+ S offers innovative energy saving features for the production process. What's behind this is the technology used, combining a heat pipe with inverter controlled components. The heat pipe works without a compressor, expansion valve or other regulating elements and does not need any electrical energy except to operate the fan. Depending on the thermal energy generated in the enclosure and the current ambient temperature, cooling can be performed with the heat pipe alone.

The additional compressor cooling only operates if a large amount of heat has to be dissipated from the enclosure or if the ambient temperature is very high. And what's more – when it does operate, it is far more energy efficient than conventional units. This is because the compressor and fans possess an inverter controlled drive, which automatically adjusts their speeds depending on the requirements.

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

Progress report

Zac Potts of Sudlows explains why making data centres more sustainable requires smart thinking

We are undeniably at a critical point. We have benefited from fantastic growth and development over recent years, except much of that growth and development – in its current form at least – is quite unsustainable. But what does that really mean?

GOAL KICK

The concept of sustainability is not complicated and although it's difficult to universally agree a definition, the principle is simply that of long-term viability. It's where social, economic and environmental requirements are not foreseeably going to be unable to be met at some point in the future.

The concept is broad, but basic. The foresight to see where limits may be encountered is a little more complicated and, indeed, requires more thought. Although there are various teams focused on one area or another, in terms of covering the scope of the issue, the United Nations (UN) Sustainable Development Goals (SDGs) provide a solid foundation, with 17 different goals.

When we consider data centres in the context of sustainability, and particularly in the context of the UN SDGs, it's clear that they have an important role to play on both sides. Data centres, and their associated infrastructure, are critical to facilitating development and growth through the provision of infrastructure, access to information and knowledge, and support to research, industry and innovation. However, the data centre, as a dense deployment of IT hardware and supporting infrastructure, inherently assumes much responsibility when it comes to the consumption of energy and resources.

GROWING UP

The services supported by data centres globally have grown exponentially and so data centres have grown to accommodate and support this growth. Fortunately, the data centre and wider IT industry have been acutely aware of the level of responsibility that comes with accommodating this growth.

To evolve the modern data centre, engineers have worked tirelessly to improve efficiency in almost every area – from the computational and electrical efficiency of the server, to the cooling and power efficiency of the facility that supports them. Because of this, it is somewhat remarkable that the International Energy Agency reported that despite 2020 data centre workloads increasing to almost 10 times their 2010 figure, the associated data centre energy use in that time increased by only 10 per cent.

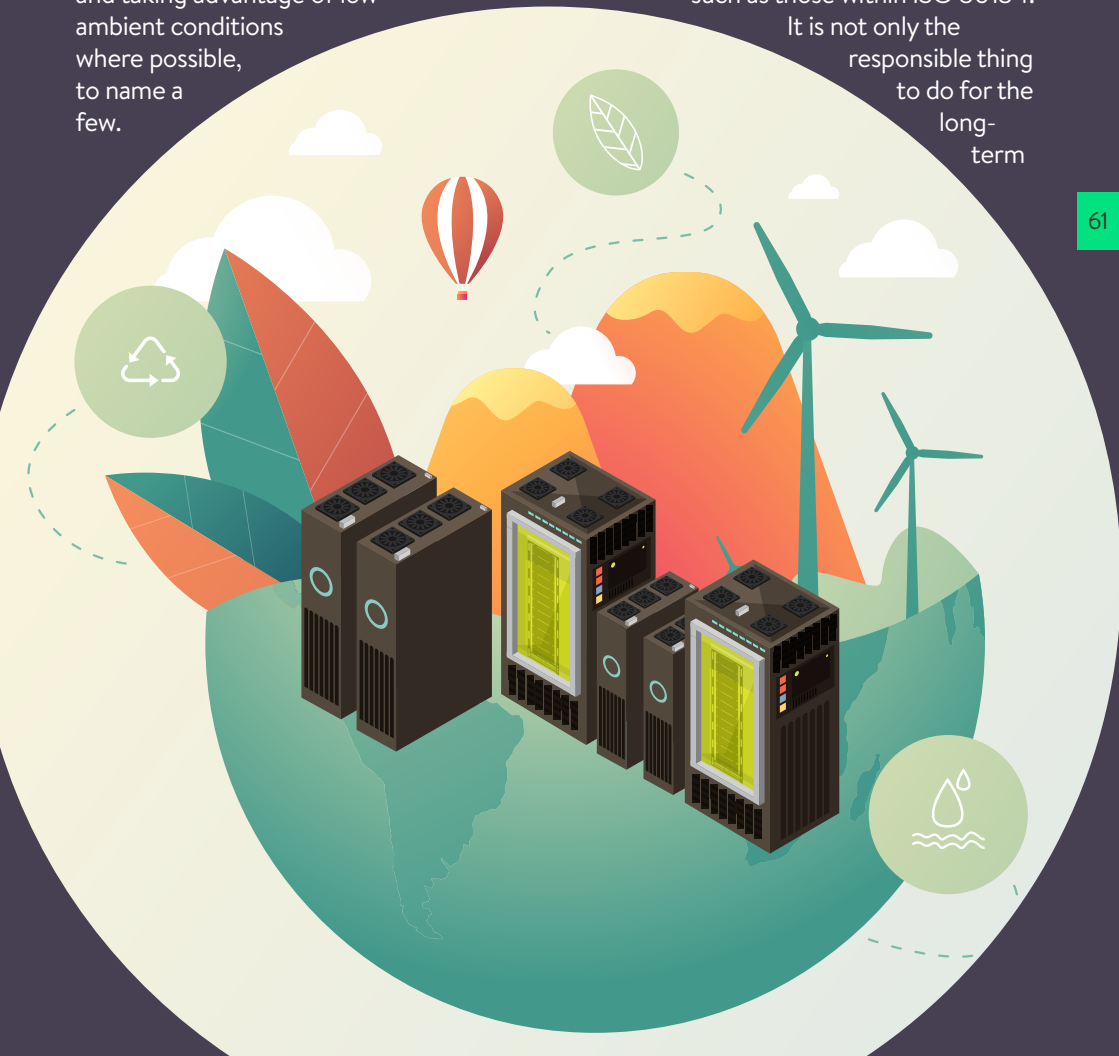
The work and effort that has enabled the underlying exponential growth in demand to be so significantly dampened cannot be ignored, but it is critical to recognise that as demand continues to grow we must further our efforts to address and improve sustainability across the board. We must continue to be able to lessen the impact of the underlying growth as far as possible.

EVOLUTIONARY TRAIL

Improvements to computational efficiency have been a key area of development but the evolution of the facilities themselves, and the approach to areas such as power and cooling, has played a significant part. If we look at the changes that have driven facility efficiency improvements over the last decade or so, although clearly effective, they are in many ways simple – hot and cold aisles, air containment and segregation, not overcooling the space, and taking advantage of low ambient conditions where possible, to name a few.

There are, however, many existing facilities that have still not adopted best practices and so we must really push to ensure that all facilities are being operated against established standards and guidance such as EN 50600 and the associated technical reports, the EU Code of Conduct for Data Centres (Energy Efficiency), or other peer reviewed guidance. We must also ensure that they are being measured and reported against established and defined key performance indicators (KPIs) such as those within ISO 30134.

It is not only the responsible thing to do for the long-term



but, due to increasing energy costs, implementing many of the best practice recommendations or strategies to improve measured KPIs will also be financially justifiable in the relatively short-term.

ENERGY FLASH

Sourcing renewable energy is not new for data centre operators, however, where the choice in location exists, there is a growing desire to build in regions that have low carbon electrical infrastructure – and to avoid those that don't. Where it is not as viable to build elsewhere, a key part of site selection is to identify locations with maximum potential for directly connected renewables, or which can offer additional opportunities such as heat reuse.

Unfortunately, we are not going to achieve what we need to with current best practice data centres. We must continue to innovate – to find new, more efficient ways to do things and continue to rethink how we approach the challenges faced, and to do so with a broad consideration of the overall concept of sustainability.

It is good that sustainability is a core principle of modern business. If the long-term impact wasn't sufficient enough, the impact on both consumer perception and financial investment too ensures it is justifiably high on the agenda. Unfortunately, with this comes a fair amount of greenwashing, which must be challenged, but there is a huge amount of genuine effort to think outside of the box and tackle the sustainability challenge head on, which must be commended.

BUILDING BLOCKS

In data centre design and construction, sustainability is particularly prominent. We are being increasingly challenged to decarbonise the build process, to report on the materials and methodologies used in the construction process and to think of and suggest better options.

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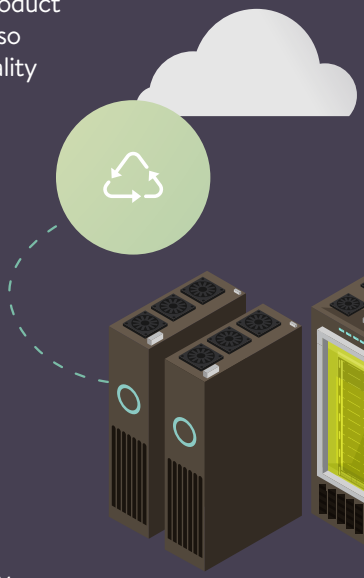
There is much more interest in the sustainability credentials of the products and services being specified and used. We are being asked about embodied carbon, and for Environmental Product Declarations. Where previously we might be asked where a product is manufactured so inferences of quality and reliability could be made, the question is now often targeted more at knowing the carbon intensity of the grid that supports the manufacturer, as well as workers' rights or inequality. We are being asked about biodiversity and how developments can improve it. We are being asked to look at new and innovative technologies. We are being asked to think beyond net zero – can we create a net benefit?



MOVING FORWARD

Being asked these questions is a reflection of the forward thinking attitudes present in

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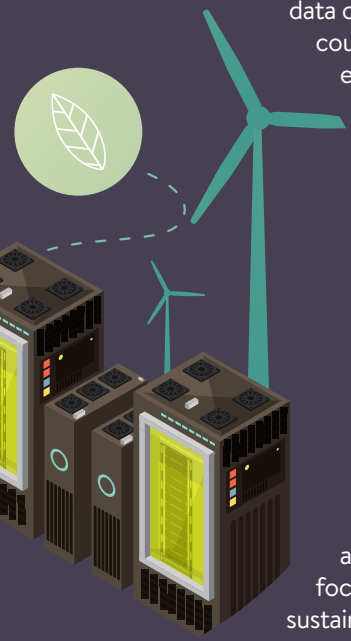
the industry and it is the type of thinking that will allow us to continue to innovate and reach the ambitious goals set. Even where we are not being asked with as much enthusiasm, we and others in the supply chain actively advise and recommend where there is potential to improve these aspects and, more times than not, these opportunities are welcomed.

Of course, similar conversations are being had with the providers of IT hardware and services, and other parts of the data centre too. The data centre is not, of course, one single element. The data centre industry is without doubt facing increasing regulation and where currently some of this forward thinking is somewhat optional for an individual organisation, a much greater focus on the sustainability of data centre operations is coming, if not already here.



LEVEL BEST

A growing level of mandatory reporting and compliance with stricter requirements will increasingly mean that outdated, inefficient and unsustainable practices are exactly what they should be – unsustainable. However, I'm confident that the result of this will be some great innovation and ultimately something we'll be able to be genuinely proud of. ■

ZAC POTTS

Zac Potts is head of sustainability and innovation at Sudlows. Having previously led the design, construction and testing of data centres for a wide range of end users and operators, he now focuses on identifying and implementing new technologies and methodologies that support the development of some of the most efficient and sustainable data centre projects globally.

Bulk Data Centers unveils power upgrade at its N01 campus

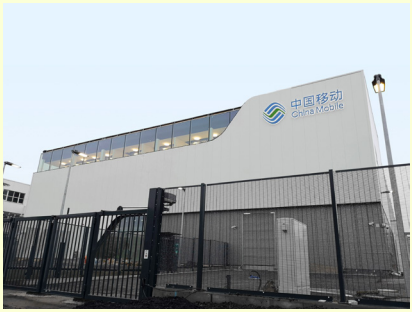
Bulk Data Centers has announced a number of expansion projects across its sites in Norway. Investment is focused on ensuring long-term availability of power, providing highly connected and scalable sites powered by 100 per cent renewable energy.

Set within the backdrop of many European locations struggling with power constraints, Bulk has completed the installation of the N01 on-site substation delivering 125MVA of dual connections to the adjacent Kristiansand substation. Generation comes from nearby large scale hydroelectric power plants and provides customers with immediate access to 100MW of power, ensuring a resilient low carbon energy source. The power upgrade is the first part of a wider scheme that will eventually see the N01 campus connect to 1GW of power for data centre customers.

To meet demand for low cost and renewable powered data centre capacity, the operator also confirmed that construction has commenced on its second data centre at the N01 campus, offering an additional 10MW of IT capacity. In addition, further land will be prepared for a 40MW data centre planned for construction next year.

China Mobile International scales up new data centre in Frankfurt with fast and flexible digital solution

ABB has provided electrical switchgear and control equipment to China Mobile International (CMI) for its new data centre in Frankfurt, Germany. The solution was delivered via electrical power distribution supplier, E+I Engineering, with the package including four medium voltage (MV) switchgear panels equipped with ABB's Relion 620 series protection relays.



The solution was designed and delivered to meet CMI's tight timescales. Installation and commissioning times were significantly reduced by use of fully remote factory acceptance testing and because the digital protection and control scheme is based on a single fibre optic communications line instead of multiple copper wire connections.

Key components in the new data centre are ABB's ZEE600 Remote Operating Panels (ROP). The panels protect operator safety by enabling remote control over all four ABB UniGear ZS1 switchgear panels via a touchscreen interface mounted in a separate room.

Johnson Service Group live data centre upgrade completed by Secure IT Environments

Secure IT Environments has completed a two phase data centre upgrade project for Johnson Service Group. The initial upgrade phase to the data centre, which was originally built by Secure IT Environments in 2009, was for the full replacement of the uninterruptible power supply (UPS) system. This was upgraded to two Riello Multi Sentry (MST Series) 40kVA UPS systems, with new 10 year battery cabinets complying to IEC60896-2 for construction, performance and design life.

The second phase of the project saw the upgrade and replacement of the original air handling units in the data centre. This was undertaken in a phased approach, allowing the data centre to remain live, ensuring cooling capacity was not compromised and services remained available continuously. The phase was completed over a three week period with new energy efficient FlaktGroup Direct Expansion Multi-DENCO air cooled air handling units in a downflow configuration.

PROJECTS & CONTRACTS IN BRIEF

Proximity Data Centres is now a strategic point of presence (PoP) for Cogent Communications.

Gigaclear has selected Exfo's remote optical fibre testing and monitoring solution to support its expansion plans. Exfo's technology will ensure 'first time right' deployment to reduce fault finding and truck rolls during operation, and rapid fault identification once in service.

Nutanix has announced a partnership with Trust Systems and Crown Hosting Data Centres to deliver against Crown Hosting's Shared Hybrid Initiative with a new service for public service customers wanting to migrate to the cloud on their own terms.

Three UK has partnered with Freshwave on the operator's first deployments of the Neutral Host In-Building mobile specification. After successful pilots at two of Workspace's properties in London, and at a multinational firm's UK headquarters in the capital, the approach has now been adopted by Three UK for its 4G indoor connectivity.

Rackspace Technology has implemented a private cloud managed services solutions for Hoteles City, the leading Mexican hotel development, construction and management company. Running in a VMware environment, the platform will enable Hoteles City to continue to transform its infrastructure, deliver superior guest experiences and face new business challenges within the hospitality industry.

HellermannTyton

HellermannTyton provides a complete range of multi-dwelling unit (MDU) solutions designed for the smallest of properties, the largest of properties and everything in-between.

HellermannTyton's full range of MDU optical fibre distribution enclosures adds strength, flexibility and multiple options to its FTTX product portfolio. The extended range of MDU enclosures offers a full end to end last mile fibre solution, providing installers, engineers and network designers with a wide choice of product to suit their fibre project.

The full MDU S series comprises six fibre enclosures, each offering different options depending on the building and the network design. The largest S5 option presents capacity and pre-connectorisation, meaning high fibre count installs can be completed quicker and easier.

The S4 and S3 are the mid-range options and can be either connectorised or splice only, accommodating up to 240 fibres (S4) or 96 fibres (S3). The S2, S1 and S1XS are perfect for the smaller install offering up to 24 fibres (S2) or 12 fibres (S1 and S1XS).

To find out more **CLICK HERE.**

www.htdata.co.uk

Fluke Networks

The award winning FiberLERT from Fluke Networks is the first live optical fibre detector for resolving the cause of communications failure in fibre optic networks. The pocket sized tool enables the effective troubleshooting of invisible near infrared (850nm-1625nm) wavelengths used in fibre optic communication, with the quick identification of failures in a port, polarity and transceivers.

There is no need for complicated set-up or interpretation of the measurement data by technicians and engineers. Simply place the tool in front of an active fibre optic port or patch cord and the tester will emit a continuous light and optional tone if a signal is present.

Key features:

- Detects optical power in singlemode and multimode fibre (850nm-1625nm)
- No set-up or interpretation – light and sound indicate signal
- Non-contact detector reduces risk of contamination and damage
- Suitable for ports and patch cords, singlemode, multimode, angled physical contact (APC) and ultra-physical contact (UPC)
- LightBeat indicates operation and battery status
- Two year product warranty

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Above and beyond

Robert Belgrave of Pax8 looks at how the cloud increases sustainability within organisations

Over the last few years the cloud has exploded in demand. As businesses worked through the coronavirus pandemic and as organisations continue to utilise remote working, the growth of the cloud has accelerated even further. According to predictions by Gartner, the cloud market is estimated to be valued to reach £387m in 2022.

TIME TRAVEL

The recent growth of the cloud couldn't have been timed any better given the current state of the environment – climate change is on the rise and greenhouse gases are at a 4.5 million year high. The need for a solution has never been more urgent as organisations are beginning to understand their role in tackling the environmental challenges faced today. This is where cloud technology comes into play.

The cloud not only drives organisations in the right direction of their digital transformation journey, but also helps organisations meet their sustainability goals. Research in the The Energy Efficiency Potential of Cloud Based Software report has shown that moving commonly used software applications to the cloud could reduce energy usage by 87 per cent. Moreover, migrating to the cloud reduces carbon emissions, costs and increases the

'The IDC estimates that cloud computing could eliminate one billion metric tons of carbon dioxide through 2024. Organisations that operate using the cloud are not only helping to improve sustainability in the short-term, but are also committing to a sustainable long-term approach as well.'

amount of renewable energy being used, therefore redirecting organisations to a more sustainable, greener future.

NEW THINKING

During the cloud's early stages, the consensus was that the increase in traditional data centres used to power the cloud would heighten their negative impact on the environment. Undoubtedly, these data centres required a great deal of electricity to operate, draining power supplies whilst also demanding high maintenance. In fact, data centres have been responsible for approximately two per cent of overall greenhouse gas emissions – nearly the equivalent of the entire global airline industry.

However, these concerns were quickly brushed aside as the rise of newly constructed data centres – used to power the cloud – were built using the latest sustainable technologies and powered by renewable energy sources. Fossil fuel usage is now a thing of the past for cloud users, as they are becoming more ecologically responsible and it's this growing trend of businesses migrating to the cloud that has provided a unique opportunity to become more environmentally conscious.

Organisations that use the cloud share the same data centres as other cloud users. Naturally, less money is required for maintenance as they do not individually self-power the data centre. Due to resources being shared and cloud vendors working on behalf of various businesses, cloud computing reduces the total number of data centres needed, thereby lowering the overall carbon footprint.

Before the emergence of the cloud, corporations needed to plan their capacity in advance to purchase the appropriate hardware to scale up their business. However, the cloud enables organisations to increase their capacity when needed, without making significant changes to the infrastructure in place, allowing for a seamless experience when scaling.

THE RISE OF RENEWABLES

By migrating to the cloud, some organisations may not be aware that they are not only helping to drive sustainability within their businesses, but they are also a part of a wider movement. For example, cloud vendors are now acting in response to the environmental challenges faced today by further increasing the amount of renewable energy they use, such as wind turbines and solar panels. Renewable energy sources emit no carbon emissions,

do not require any water for cooling and have minimal negative impact on the environment.

Renewable energy is the resource the world needs to achieve a sustainable, greener future and cloud vendors, having made commitments to achieve 100 per cent renewable energy, recognise this. As a result of these commitments, the IDC estimates that cloud computing could eliminate one billion metric tons of carbon dioxide through 2024. Organisations that operate using the cloud are not only helping to improve sustainability in the short-term, but are also committing to a sustainable long-term approach as well.

Wind and solar energy are the most cost effective energy sources, pricing better than their fossil fuelled competitors. According to UK government figures, the cost of renewable energy has reduced dramatically, which can be attributed to the following reasons – technological advancements in the industry, more competitive supply chains and economies of scale. The already low price is set to continue to reduce with wind and solar energy expected to cost half as much as gas in 2025. Consequently, cloud computing, fuelled by renewable energy sources, operates in a financially sustainable fashion through its cost effectiveness.

ROLE PLAY

As well as reducing carbon emissions from methods outside of an organisation, carbon output can also be reduced from methods within internal operations. For instance, the cloud offers multiple access to the same document on a range of devices. Staff who commute long distances or work remotely can use this feature to keep in contact with the workspace.

Moreover, the cloud offers increased flexibility in the workspace and achieves this by removing computer and data storage issues. By depending on other organisations to manage these types of IT related problems, it enables more time to be allocated to other more essential aspects of the business. Furthermore, the pandemic has transformed how organisations work, which has enabled cloud technology to assist the adopted hybrid working environment. With this altered way of working, less staff members are driving to work, which contributes to reducing global waste.

A BRIGHTER FUTURE

Whilst the environmental challenges faced today are on a global scale, the solution is small. For organisations seeking solutions to be more sustainable, cloud computing provides the answer. The cloud not only offers an increase in efficiency, mobility and scalability, but also provides a blueprint for organisations to be more sustainable. The cloud removes the negative externalities associated with traditional data centres and introduces renewable energy sources along with its benefits – all whilst reducing carbon emissions. As a result, cloud technology acts as a pioneer in achieving sustainability, moving organisations towards a greener, more sustainable future. ■

ROBERT BELGRAVE

Robert Belgrave is chief executive officer (CEO) at Pax8 UK. He started his career in technology as a solution architect, cutting his teeth on the high profile site launches of Virgin.com, Virgin Galactic, and the BRIT Awards' first online voting system. Belgrave has served on the British Interactive Media Association's (BIMA) Central Council for the last four years and currently heads up the Blockchain Think Tank. Alongside this, he is a co-founder of Ecologi, an organisation with the ambitious goal to offset a carbon footprint the size of a G7.

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