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World Backup Day – creating resilience by design



Celebrated around the globe on 31 March each year. World Backup Day is with us again - this year sharing the limelight with Daylight Savings Day, Easter, and of course, National Bunsen Burner Day...

Every day, enterprises, governments, and consumers lose huge volumes of valuable data by failing to backup. And today's widespread AI use means that backing up has never been more important; new research shows that bad actors are increasingly adopting AI to forge more sophisticated attacks.

As per 'Mission Critical: Unlocking the UK AI Opportunity Through Cybersecurity,' 87% of the UK's enterprises are vulnerable to cyber-attacks, including 39% who are 'at high risk.' The attack on the UK's election watchdog - recently attributed to China's Advanced Persistent Threat 31 (APT 31) hacker group - is a poignant example of the threat faced today.

Accordingly, World Backup Day serves as a timely reminder for the need for effective data backup, recovery strategies and protection protocols.

"Modern data threats require modern data protection solutions," states Fred Lherault, field CTO (EMEA/emerging Markets) at Pure Storage. "It's critical that organisations double down on building resilience and agility across their organisation. By future-proofing critical IT infrastructure and implementing a modern data protection strategy with effective processes to safeguard and restore data, organisations can avoid cybersecurity and downtime nightmares."

Many businesses are implementing tailored strategies, including real-time, incremental backups, which are less resource-intensive than full database backups and allow missioncritical data to be saved more frequently.

"Automation takes this process one step further - for example, change data capture (CDC) technology creates backups in realtime only as changes occur - replicating even high-volume datasets without overwhelming IT infrastructure," explains Steve Mulholland, RVP EMEA, Fivetran. "Backups are only as good as the tools that run them. A solid backup strategy built on technologies like CDC can help businesses recover faster, maintain compliance and improve performance across IT estates."

Katie McCullough, CISO at Panzura recommends thinking "beyond traditional backup strategies by integrating immutable data and robust security controls from the outset. This approach not only enhances data recovery capabilities but also fortifies data against cyber threats, making resilience an intrinsic part of the data recovery process.'

Effective data backup solutions can help mitigate the risk of data loss and significantly speed up data recovery - however, the human factor is critical: "the cybersecurity chain is only as strong as the weakest link - the human link," says Dylan Border, director of cybersecurity, Hyland. "That makes World Backup Day a day to focus on avoiding complacency above all else. To ignore constantly changing factors, or to assume that you have mastered your craft, is what will put your organisation most at risk. Are your employees getting regular security awareness training? If not, make it a priority to share security training materials once a month. Are your team members experts of the security tools they manage? If there's gaps in their knowledge, get them training. There's more to backing up files than might meet the eye."

"This World Backup Day, let's commit to a culture of regular testing and formalised data recovery plans, ensuring data isn't just backed up but is truly resilient and recoverable in the exact form needed, exactly when needed," pledges McCullough.





81% of organisations trust AI despite fundamental inefficiencies

Fivetran's latest survey reports that 81% of organisations trust their AI/ML outputs despite admitting to fundamental data inefficiencies.

Organisations lose on average 6% of their global annual revenues, or \$406 million, based on respondents from organisations with an average global annual revenue of \$5.6 billion. This is due to underperforming AI models, which are built using inaccurate or lowquality data, resulting in misinformed business decisions.

The survey found that nearly nine in 10 organisations are using AI/ML methodologies to build models for autonomous decision-making, and 97% are investing in generative AI in the next 1-2 years. At the same time, organisations express challenges of data inaccuracies and hallucinations, and concerns around data governance and security. Organisations leveraging large language models (LLMs) report data inaccuracies and hallucinations 42% of the time.

"The rapid uptake of generative AI reflects widespread optimism and confidence within organisations, but under the surface, basic data issues are still prevalent, which are holding organisations back from realising their full potential," said Taylor Brown, co-founder and COO at Fivetran. "Organisations need to strengthen their data integration and governance foundations to create more reliable AI

outputs and mitigate financial risk."

Meanwhile, 24% of organisations have reached an advanced stage of AI adoption, where they utilise AI to its full advantage with little to no human intervention. However, there are significant disagreements between respondents who work more closely with the data and those more removed from its technical detail.

Technical executives - who build and operate AI models - are less convinced of their organisations' AI maturity, with only 22% describing it as "advanced," compared to 30% of non-technical workers. When it comes to generative AI, non-technical workers' high level of confidence is coupled with more trust, too, with 63% fully trusting it, compared to 42% of technical executives.

Additionally, while those working in more junior positions see outdated IT infrastructures as the top barrier to building AI models (49%), their more senior colleagues say the problem is primarily employees with the right skills focusing on other projects (51%).

The root of the wasted data talent potential and underperforming AI programmes are the same: inaccessible, unreliable, and incorrect data. The magnitude of the issue is shown by the fact that most organisations struggle to access all the data needed to run AI programmes (69%) and cleanse the data into a usable format (68%).

CDW to digitally transform **Stockport NHS Foundation Trust**

CDW has joined forces with Stockport NHS Foundation Trust to better enable staff and improve patient care with innovation and digital capabilities.

The collaboration is part of an 18-month digital transformation programme, and includes introducing cutting-edge solutions at Stepping Hill Hospital, the main acute hospital in the Stockport area.

The digital transformation includes the implementation of a new Cisco wireless network infrastructure, digital informatics supporting agile working, Kontakt.io Real-Time Location Services (RTLS) for medical device management integrated with Imprivata Enterprise Access Management (formerly OneSign) and VDI infrastructure for fast and easy access to clinical workspaces. The partnership also incorporates a Zebra electronic blood tracking system which enhances traceability and reduces potential errors, thereby improving patient care.

Stockport NHS Foundation Trust runs Stepping Hill hospital; the first acute hospital in the UK to implement the Kontakt.io Real-Time Location Services solution. Setting a precedent for innovation within NHS trusts, Stockport is paving the way for other trusts to integrate new technologies that can vastly transform and enable improved patient outcomes.

With some 6,300 staff, Stepping Hill serves 300,000 patients annually. Like many hospitals, it had been heavily reliant on manual processes. The hospital had a clear need to modernise and introduce technology to enhance patient care and flow.

"We knew we needed to be smarter to maximise and optimise our existing resources. The new technology makes sharing devices and information more seamless and has enabled us to provide the infrastructure and digital capability to support a more agile working environment and more mobile workforce across multiple care settings," said Holly Carr, chief clinical information officer and clinical safety officer.

The trust turned to CDW as its technology partner due to its longstanding experience and wealth of knowledge in the healthcare sector and because CDW provided consistent value and consultancy throughout the programme. The transformation will serve as a model for other NHS trusts seeking to implement technology to improve overall performance.

"The forward-thinking vision that Foundation Trust Stockport NHS harboured for integrating technology sparked genuine excitement at CDW,' said Phillipa Winter, chief technologist for health and social care at CDW. "It stands as a remarkable example of harnessing technology not to substitute human efforts but to elevate and amplify their impact on day-to-day tasks. This transformative approach not only empowers clinicians to extend their reach to more patients but also affords them the precious opportunity to invest additional, high-quality time in patient interactions, fostering a future where healthcare is not just efficient but deeply human-centred."

Boldyn Networks and G.Network to accelerate 'Smarter London Together' with new deal

Boldyn Networks and G.Network have announced a new strategic partnership to fast-track the capital's ambitions to become a leading global smart city.

The partnership will help supercharge the 'Smarter London Together' roadmap developed by the Mayor of London and chief digital officer (CDO), Theo Blackwell, by enhancing connectivity, optimising city services, and fostering sustainable development across the capital. This includes creating a new high-speed fibre network across London, improved mobile coverage through the deployment of small-cell units in busy areas of the city, and bringing 4G and 5G to the underground sections of the Tube and Elizabeth line for the first time.

partnership combines The new Boldyn's expertise in smart infrastructure development with G.Network's fast and affordable full-fibre broadband and will see the two companies develop and deploy innovative solutions tailored to meet the evolving needs of Londoners, businesses, and communities.

Projects will include working together to enhance internet connectivity in congested mobile areas across London by delivering 4G/5G small cell provision. capability that also provides a foundation for future smart cities use cases. The partnership will also see G.Network support Boldyn Networks, the Greater London Authority and Transport for London's (TfL) project to roll out improved fibre connectivity to London's boroughs.

'Ensuring access to robust and reliable digital infrastructure is vital for London and this partnership between Boldyn Networks and G.Network is a significant step in realising our vision," said Theo Blackwell, chief digital officer for London. "The Mayor is committed to create a city that leverages technology to boost connectivity, services, and sustainability making the capital a better, safer and more prosperous city for all."

"We are delighted to be working with G.Network in our shared commitment to deliver London's smart city ambitions, as we build a new fibre network across London in partnership with Transport for London," said Billy D'Arcy, CEO of Boldyn Networks UK and Ireland. "By harnessing the power of cutting-edge technology and robust infrastructure, we aim to unlock new opportunities for innovation, efficiency, and inclusivity, ultimately improving the quality of life for all Londoners."

"Our exciting partnership with Boldyn Networks marks a significant moment in London's digital transformation and an important step for G.Network. Together, we will demonstrate how smart infrastructure expertise, coupled with our gigafast network can turn the mayor's vision for a better-connected London into a reality," said G.Network CEO Kevin Murphy.

Celent: NatWest Group automates data for the win

NatWest Group has been honoured with the Celent Model Risk Manager Award of the Year for its successful initiative to simplify and automate change and risk governance processes.

This award recognises the company's ability to reduce multiple assessment cycle times using patterns of governance. One example being product governance, which has fallen from 4.5 days to less than 20 minutes, marking a key milestone in their 'moonshot' goal of reducing cycle time from 73 days to 73 minutes.

"NatWest's exemplary approach showcases a commitment to process excellence and operational efficiency," said Ian Watson, head of risk research at Celent. "Utilising low-code automation as a catalyst for agility and speed, empowering NatWest to unify data in data fabric, swiftly re-engineer workflows, increase automation, and fortify risk controls. This achievement exemplifies a remarkable synergy between strategic

foresight and technological prowess."

NatWest faced challenges in navigating multiple layers of internal scrutiny and approvals. A policy change could take up to 3-4 weeks to complete under the previous governance process. And with all the required change and risk assessment. the time from idea to value could take 3-4 months. The NatWest team found opportunities to automate 46% of data in their governance processes.

"It used to take 73 days to go through governance, and our goal was to reduce it from 73 days to 73 minutes. We knew that's what we had to achieve," said Steve Marjot, head of change at the Centre of Excellence at NatWest Group. "Our lowcode automation solution became the central hub, the workflow management system, and a key part of our data fabric, pulling in the right data and rules when they were needed. We are still on the journey but great progress has been made to-date.

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UCaaS users to grow, but available market falling

The global Unified Communications as a Service (UCaaS) market is set to grow to over 131 million users by the end of 2028, with a compound annual growth rate (CAGR) of 10.3% over the next five years, according to new research from Cavell.

The findings also reveal that mobile UCaaS services are growing in importance, now accounting for over 15% of the market. However, the total available market is reducing because the same number of on-premise PBX (private branch exchange) users are not moving to become cloud PBX users. Instead, many enterprises are putting some or all their employees on collaboration-only licenses without an external PSTN (public switched telephone network) functionality.

Meanwhile, 62% of providers are diversifying their portfolio to ensure the resilience and adaptability of their telecommunications business; 48% are building AI capabilities into their products - to drive cost reduction in operators businesses; and 33% of users will be Microsoft Teams voice enabled by the end of 2028. Cavell has also noted a reduction in both margin and revenue streams relating to traditional cloud communication and UCaaS services for more than 36 months. This has been acknowledged by more than 40% of respondents in the latest research who have recognised a decrease in UCaaS revenue.

"Historically, providers won new users by migrating from on-premise solutions.

However, as the market has matured this has changed as there are fewer onpremise deployments to migrate. This will drive more competition and the need for providers to differentiate whilst also potentially starting pricing consolidation,' said Dominic Black, director of research services at Cavell. "Indeed, we have seen from our research that the proportion of customers being won from a competitor's UCaaS solutions has been increasing steadily in the last few quarters. Our latest research shows that nearly half (49%) of cloud communications providers have won the majority of their customers from competitors, which is the first time this figure has matched the percentage won by migrating from on-premise solutions."



Pulsant opens new data hall in Manchester

Pulsant has cut the ribbon on its new $\pounds 4.5$ million data hall in Manchester and welcomed Dacoll as its first customer in the upgraded facility.

"Manchester needs infrastructure investment commitment. It is the number one tech city outside of London, and home to more than 650 active, highgrowth companies. It is a top five area for scale-ups and the biggest sector in the region is software," said Rob Coupland, CEO of Pulsant. "This investment is our commitment to this area and we are focused on enabling these game-changing companies to deliver value, jobs and progress into the city and beyond. These businesses have already secured more than £530 million of investment and this expanded infrastructure means they can unleash that potential."

The expansion supports Manchester Digital Strategy's 2026 targets for £1 billion investment in digital infrastructure and a 50% increase in digital sector businesses by 2026. This latest development to the Trafford Park site is part of platformEDGE, Pulsant's national edge strategy to equip regional businesses with the infrastructure to capitalise on new technologies such as analytics, AI and IoT.

"The Manchester facility enables us to expand our service capabilities to clients located across the North West. We are seeing increased demand from those clients to have their data located closer to their businesses because faster access means faster growth. This is backed up by their data being housed in an environment that is secure and can meet future growth requirements," said Andrew Richmond, enterprise sales director at Dacoll.





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As customer and investor requests for sustainability reporting increases, so does the importance of accurate measurement of IT loads, all the way down to the device level. Reducing the environmental impact of enterprise IT begins with collecting data and reporting metrics to establish a baseline. But with dozens of potential metrics this can be a daunting task. For many CIOs, the main problem is they aren't sure where to start. Data centre space and energy costs require you to make the most of every square meter and kW. This will also enable you to avoid underselling floor space and be better equipped to keep up with increasing demand. As pressure mounts to measure energy consumption, DCIM becomes an essential tool for sustainability.

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Akamai Technologies: EMEA most at risk from API attacks, commerce industry leads the pack

Akamai Technologies, Inc. has released a 35.5%. This is partially due to the complex new State of The Internet (SOTI) report -'Lurking in the Shadows: Attack Trends Shine Light on API Threats' - which highlights the array of attacks that are hitting APIs, including traditional web attacks, and the regions most at risk.

Akamai's data, which tracks API attack traffic from January through December 2023, reveals that in 2023, the Europe. Middle East and Africa (EMEA) region experienced the highest percentage of API attacks on a global basis at 47.5% exceeding the next closest region, North America at 27.1%.

The commerce industry had the highest percentage of overall web attacks that impacted organizations at 74.6%, which is more than twice the percentage of the next closest vertical, the high-tech industry, at

Synti advocates for 'data first' in **SAP S/4HANA** migration

Syniti has announced the results of a UK and Ireland-wide survey of SAP users, delving into data challenges ahead of a crucial time for many organisations as they prepare to migrate to SAP S/4HANA.

The key findings reveal untapped data strategy potential that, left unchecked, could impact the success of major data migrations and technology adoption. Although 79% of respondents reported that their use of data analytics has increased over the last 12 months, only 12% have a comprehensive data strategy covering their entire organisation. Just 7% of those questioned are very confident when it comes to the quality and accessibility of their organisation's data, 73% say compliance is their main data management concern, while 77% think data management presents a challenge when moving to SAP S/4HANA. 82% say data management challenges will slow their organisation's adoption of AI technologies.

Although the growing importance of data management and its impact on business outcomes is well documented, data strategy still tends to sit with the IT team (62%) with low C-suite ownership (3%). This lack of buy-in from senior leaders could explain the low numbers reporting comprehensive data strategies, the high levels of data challenge and compliance concerns. The knock-on effect of not putting data first is that there are increased challenges especially during data migration. Overall, the organisations questioned say that the quality and accessibility of their data remains an issue. The challenges are wide-ranging and with real-life implications not only for migration and adoption of new technologies. Data silos stifle real-time decision-making according to 89% of respondents, and data duplication is also listed as a top challenge (80%).

nature of the commerce ecosystem, their high reliance on APIs, and the valuable data organizations in this sector possess.

Consistent with the global trend, HTTP Protocol and Structured Query Language Injection (SQLi) attacks have been the predominant attack vectors for APIs in EMEA during the last 12 months. During the same reporting period, 40% of the nearly four trillion suspicious bot requests were aimed at APIs. Meanwhile, Cross-Site Scripting (XSS) remains a favoured technique for API attacks, and Command injection (CMDi) is also prevalent.

organisations have "Commerce complex and dynamic attack surface, affecting both servers and clients. The sector's infrastructure is difficult to secure as it includes IoT devices that use web

applications and APIs to drive online conversions and deliver the customer experience that modern consumers expect. As a result, the industry is an attractive target for cybercriminals, who are targeting vulnerabilities, design flaws and security gaps to abuse web-facing servers and applications," said Richard Meeus, EMEA director of security technology and strategy at Akamai. "Although commerce is not as heavily regulated as the financial services or healthcare industries, it still needs to focus on security, as attacks can be far more punishing to the bottom line." Commerce organisations need to ensure they have complete visibility into API activity, using behavioural analytics to detect complex threats and improve detections by analysing historical data."

75% of large and medium businesses struck by cyber attack

of medium and large sized businesses were hit strengthen cyber resilience across the board by a cyber incident in the past year, as attacks against large businesses are on the rise.

The minister for artificial intelligence (AI), Viscount Camrose, has urged British businesses to bolster their cyber-attack defences as nearly 80% of high-income charities faced cyber security breaches in following cyber-attacks.

According to government data, three quarters the same period. He emphasised the need to to safeguard critical assets, customers, and the broader economy.

The government has introduced the Cyber Governance Code of Practise to help business leaders build stronger cyber protections and prepare response and recovery plans

Virgin Media deploys 4G/5G smart poles on existing fibre cabinets

Virgin Media (O2) reports that it has 'digital electricity' technology, successfully deployed 4G and 5G smart poles on top of its existing fibre broadband cabinets, in collaboration with Liberty Global, to help boost mobile network coverage and capacity.

Virgin Media has 25,000 street cabinets deployed across the UK to serve its fixed line broadband ISP network. The company has also been developing a lot of small cell related deployments to help improve mobile coverage. This latest trial shows that the cabinets can support a supply of both data capacity and power for the cells. The new poles house 4G small cells and are much smaller than traditional phone masts, meaning they don't require planning permission and can be installed in less than a day.

"In a UK first, the electricity is supplied by Virgin Media's fibre network rather than a traditional power supply through innovative

Word on the web...

which transmits power from on-street cabinets in the local area along fibre optic cables. The same fixed fibre network is also used to carry data to and from the mobile cells and the internet," said VMO2 in a statement.

"As we continue investing to upgrade and expand our network, we're always looking for new ways to work smarter and deliver more for our customers. Groundbreaking trials like this can help boost mobile coverage and bring next generation services to even more customers," said Jeanie York, CTO of VMO2. "The ability to use our existing national fixed network to backhaul and power small cells could be transformational helping us save time and money, open up new revenue streams, support smart city technology and fully leverage the benefits of our scaled converged network."

Optimising visibility and control in distributed environments

Larry Goldman, director, product marketing, Progress

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Improving cybersecurity in healthcare



Jason Mafera, IGEL field CTO, Healthcare

Cybersecurity is a top concern among healthcare professionals, notably CFOs, many of whom have experienced the disruptive and costly effects of a breach. A survey conducted by the UK's Healthcare Financial Management Association (HFMA) found that 55% of healthcare providers list cybersecurity as their top investment priority for 2024.

Vulnerability management, data security and threat detection were cited as areas of prime interest. These three areas tie back to the proliferation of endpoint devices which clinical staff now use every day. While firewalls, network monitoring and other security practices are imperative, it pays to give more thought to endpoint computing itself given this directly impacts a NHS Trust's overall level of security.

Prevention at the endpoint

As cyber threats escalate, a preventative approach to better security at the endpoint can reap positive results in not only operational outcomes but better adherence to data privacy and compliance regulations. The best risk mitigation, or prevention, at the endpoint requires lessening device risk factors, using the cloud for secure storage, employing a secure OS, efficient and centralised endpoint management, and communication with end users - all elements which will improve your overall security posture.

Cloud storage and access can reduce risk

Healthcare staff and clinicians often work at several hospital locations or in different departments on any given day. They can use mobile devices that may not meet best security practices. Additionally, staff may access a number of applications and desktops. Moving applications to the cloud is a solution to further minimise the risk of an individual introducing malware or ransomware into a trust's network as they travel around locations and use different devices. Staff can retrieve applications and virtual desktops as authorised. It also allows for centralised management, patching and recovery and cloud-based updates.

When accessing workloads via the cloud, healthcare professionals can use a single sign-on (SSO) identity provider (IDP). Single sign-on improves productivity by enabling people to easily access their desktops and applications regardless of hardware like mobile carts or nurse workstations. It is gaining popularity among healthcare users who have patient workloads that require the most efficient use of time and do not want the inconvenience of continually entering passwords as they work throughout the day.

A secure OS is imperative

Moving to more secure endpoint computing requires an operating system that supports Zero Trust methodologies and integrations, eliminates local data storage, is read only, and encrypted. Zero Trust, as defined by the National Institute of Standard and Technology, "is the term for an evolving set of cybersecurity paradigms that move defenses from static, network-based perimeters to focus on users, assets, and resources. Zero Trust assumes there is no implicit trust granted to assets or user accounts based solely on their physical or network location (i.e., local area networks versus the internet) or based on asset ownership (enterprise or personally owned)."

Security practices like single sign-on and multi-factor authentication (MFA) are needed to support Zero Trust principals. Zero Trust is in part a response to the BYOD era and is gaining prominence as more and more organisations are looking for ways to support productivity while lessening the risk of cyberthreats gaining successful access to the network or data. The number of workflows in healthcare will remain complex and varied. Protection measures like Zero Trust at the endpoint provides a framework to tighten security.

In addition to fully embracing Zero Trust, NHS Trusts need an endpoint OS that can support various VDI, DaaS and SaaS environments. Using an OS with this varied capability is an economical choice.

Centralised management and staff communication is key

"A single pane of glass" is a commonly heard phrase in the IT world. In an NHS Trust setting, it is relevant in that it refers to the need to centralise management of your endpoint OS and cloud computing storage and workloads to achieve efficiency and cost controls. Centralised management can support multiple hosted services and applications, relieving the burden of IT staff and requiring fewer resources to manage the endpoint infrastructure.

We know that phishing, social engineering and other cyberattacks are successful because the individual user opened a virus-laden link or clicked on a dangerous website. Internal communications to educate healthcare staff about the constant dangers of cyberthreats must be part of an overall security improvement and threat prevention strategy. Increasing communication with staff is an essential element to achieve this. Avoiding penalties, data breaches and lack of patient trust – all lead back to the individual at the endpoint.

Prevention is doable

Besides adhering to more stringent cybersecurity and privacy regulations, preventing ransomware and data breaches is central to a well-managed healthcare system. By using the cloud for storage and access, organisations can eliminate some of the risks that can occur at the endpoint. Additionally, tools like single sign-on and MFA, to support Zero Trust, are essential to controlling access to data and applications.

Lastly, security is now everyone's responsibility. Keeping staff engaged in the best security practices helps to ensure healthcare can focus on patient outcomes and avoid disruption in providing services.



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Data centres and the future of low carbon heat in the UK

Shahid Rahman, EMEA – data centre strategic account lead (engineered IT cooling solutions), Mitsubishi Electric

Data centres are essential in a world where we rely on a substantial flow of information for almost every part of our lives. But they are significant energy users, and their impact on the global energy supply and the environment is a major challenge. Increasing regulation has slowed or halted some data centre development – the Dutch government banned new hyperscale projects for nine months, and the Irish government has introduced policies to scrutinize data centres more closely.

All of this means that decarbonising these spaces is a top priority for the country to reach net zero by 2050. What's more, data centre users are increasingly concerned with their carbon footprint.

Thankfully, solutions exist that can make data centres more energy efficient and minimise their impact on the environment.

Reusing heat from data centres

One way that data centres can cut the carbon impact of heat is by reusing it. There has been a great deal of focus on using cooling technologies that meet energy-reduction targets, but shifting the focus onto the reuse of heat energy gives data centres the potential to decarbonise for a greener future.

A great example of this in action is taking place in Germany. The new German Energy Efficiency Act has made the reuse of 'waste' heat a requirement, and data centres will have to achieve 10% heat reuse from 2026, and 20% by 2028.

Several approaches to heat recovery can be applied. One model is district heating and cooling as a service: a heat pump recycles the water from the district heat network to cool the data centre. The waste heat from the cooling activity is then collected by the heat pump and pushed to the city network. The reheated hot water from the data centre mixes with the water in the general heat network, increasing the return temperature. Overall, energy consumption across the whole heat network is reduced, and so are energy costs and carbon footprint.

Many leading data centre developers and owners are embracing the benefits of heat reuse. Amazon's Tallaght data centre in Dublin uses a system where heat generated by servers is transferred to an air-handling unit and then recycled to warm water. This approach results in an estimated annual reduction of 1,500 tons of carbon dioxide emissions and provides heating for over 505,000 square feet of local public buildings, 32,800 square feet of commercial buildings, and 133 apartments.

Heat pumps and heat networks to improve energy efficiency

Embracing technology like heat pumps and heat networks is also critical.

Heat pumps are particularly useful for making the most of waste heat. Data centre output heat is around 30-35oC. Heat pumps can use water at this temperature as a heat source, topping up the temperature to 70oC or even 80oC. This heat energy can be used in the data centre (or nearby buildings) to meet domestic hot water (DHW) demand. Alternatively, it can be used on a wider scale in heat networks connected to buildings and homes located further from the data centre via a network of pipes. The Climate Change Committee (CCC) estimates that 18% of UK heat could come from heat networks by 2050 (up from 2% today).

Making the right choices

The first step is to ensure that there is an outlet for the waste heat a reasonable distance from the data centre – or that there is an existing heat network that can use extra capacity – through heat mapping.

It is then vital to understand what the cooling demand of the data centre is across the year, and to size and specify cooling equipment. The ideal solution is a watertowater heat pump, or a heat pump chiller. The heat output can then be calculated to establish the annual heat output profile. A successful match of data centre heat output and local heating requirements is what designers will look for when setting out these projects. Buildings that are close to the data centre, such as nearby offices or public buildings, may not have high heat requirements. However, heat networks which supply domestic customers have higher and more predictable heat demand profiles.

Energy efficient data centres will lead the way to net zero

There is huge potential for data centres to

adopt heat recovery solutions and become part of the UK's drive to decarbonise heating. Approaches like district heating and cooling allow society to reuse the excess heat from data centres using a heat pump. This kind of process not only enhances energy efficiency in data centres but also contributes to providing neighbourhoods with heat and hot water in a more sustainable way.

Framing the data centre sector as part of the solution for our decarbonised future, rather than simply an energy user, has clear benefits for future development and growth – and one we should all be working towards.

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Accelerating ERP-cloud adoption in the public sector

Don Valentine, commercial director, Absoft

Digital transformation deadline

Local authorities are facing growing pressure to accelerate digital transformation programmes. Budgetary demands are making it imperative to explore the power of technology to automate processes, improve efficiency, and enable effective service delivery. Local authorities also require far more insight into both the value of budgetary spending and their progress towards net zero targets. Many organisations must upgrade or change their existing onpremise ERP solutions before the software falls out of support.

Cloud-based ERP solutions will automate streamline processes, and enabling authorities to be more effective. local A single source of accurate and up-todate information, combined with intuitive analytics, will mean that the public sector organisation can model changes in business rates, council tax rates, headcount, or inflation into budget planning and forecasting. Trusted information will support confident projections for up to five years, enabling a local authority to demonstrate a longer-term outlook.

Different implementation approach

Early adopters of cloud-based ERP solutions have led the way - and in the process created growing awareness not only about the tangible benefits that can be achieved, but the need to adopt the right approach. There is a fast-growing understanding of the value of the 'adopt not adapt' model. Avoiding the cost, risk, and delay associated with custom development and adopting best practices processes built into cloud ERP is now recognised as a key factor in achieving a successful implementation.

To maximise the value of the public cloud, local authorities need to opt for a clean build and best practice processes. This approach, however, is a change from traditional public sector procurement practices, and some local authorities are still prone to issuing tenders based on extensive lists of user requirements.

Rather than creating an exhaustive list of often irrelevant requirements, local authorities should be assessing the best practice models offered by ERP vendors. They should consider the implementation models and tools that have been developed to ease the process and support organisational change management. Tools such as a Cloud Mindset Assessment or a Readiness Assessment should be deployed in support of the procurement process. A Cloud Mindset Assessment highlights the diverse levels of digital maturity between individual departments and functions, a vital insight in supporting the necessary operational Change Management required to make the implementation a success. The Readiness Assessment highlights the differences between current processes and best practices. Additionally, the procurement process needs to focus on looking for an implementation partner with the experience and understanding to support a successful migration to the cloud, and very importantly will be a cultural fit with the organisation implementing the ERP.

Local authorities should recognise that the day-to-day implementation process is now inherently different. In the new world, a local authority is inherently involved in the process, working side by side with an implementation partner from the outset and using tools such as SAP's Activate project methodology which provides clear deliverables and instructions for both end-user organisations and partners throughout the six-phase project.

The shift to self-enablement is one of the most significant changes associated with cloud projects compared to on-premise. With cloud-based deployments, there is an expectation that the user base will log into and play around with a 'starter system' very early in the project.

As a result, when they join Fit to Standard workshops with an implementation partner, they already have a feel for the system and

can contribute to the discussion meaningfully based on experience of using the system.

Conclusion

The benefits of digital transformation are clear. Not only are the cloud-based ERP systems incredibly functionally rich and intuitive, but the supporting tools are designed to ensure a local authority can get the best out of the system from day one – if the mindset and implementation model are correct.

Taking the time to get a feel for the new cloud-based ERP technologies will help

clarify the requirements for a successful implementation. This understanding will also inform the skills needed internally to support the process and highlight any additional resources that will be required.

Local authorities that understand the cloud technology concept first, before looking at operational requirements, can be far more focused and insight-driven about what can be achieved with digital transformation, before even considering a specific technology or partner. And that is a vital step in achieving a successful cloudbased ERP deployment.

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The future of the digital stadium

Stadiums are going digital, with AI, VR, AR and a near limitless and growing demand for connectivity placing new pressures upon the networks...

Once upon a time, stadiums and theatres were a simple thing, a place to view a sports team, a musical, a gig from your favourite performer. While AV equipment, CCTV, etc. have always had their place, for the consumer, such sites would feature bathroom facilities, food and drink stands, merchandise shops, and not a lot else – maybe not even cellular coverage.

All that has changed with the era of digitalisation, as stadiums have become an 'experience' in and of themselves. Exciting new technologies have come into play, with four key business drivers: maximising fan engagement, unlocking new revenue streams, increasing operational efficiencies, and improving sustainability.

"Stadiums are already areas of highdensity demand with tens of thousands of visitors in a confined space wanting connectivity, which places significant performance requirements on networks," says Paul Osborne, chief commercial officer UK & Europe, Boldyn Networks. "These requirements are set to grow substantially and developing a highly reliable network with sufficient coverage and capacity will be key."

and capacity will be key." Indeed, "large stadiums are showing year-over-year exponential growth in term of capacity being consumed over wireless connectivity during events," agrees Samuel Buttarelli, VP, sales ICN EMEA/APAC, CommScope. "The data consumption is bi-directional, with higher demand on uplink prior the game start and during half-time breaks and higher demand in downlink during the game itself. In the future we see this trend continuing and therefore networks need to

be designed for ease of scalability."

Connectivity is crucial to allow stadiums to evolve and innovate, embrace new digital content delivery to enhance experiences, concessions, advertising, subscriptions, and content creation.

"It's vital that today's network solutions are deployed in a modular and flexible manner so they can evolve to meet the future needs as technology develops," says Osborne. "All wireless systems in venues and stadiums rely on underlying cabling. One foundational principle when installing DAS systems, WiFi and other solutions is to ensure the fixed cabling – including structured cabling, fibres, power, and containment - is designed in a way that allows for systems to grow and evolve. This is particularly important as next generation wireless standards typically evolve every 7-10 years."

Fans at the heart of the experience

Providing fool-proof connectivity for such large-scale buildings is no mean feat – particularly in an era defined by the ease with which consumers can (and do) complain about perceived shortcomings like connectivity not-spots.

"We are talking about an exceptionally demanding environment. The technological challenge of having very high-performance connectivity in places with such a high density of users eager to consume data is extraordinary," explains Albert Hernando, global head of DAS & small cells. "Therefore, a combination of next-generation connectivity technologies must be incorporated. The challenge is also at the business model level, to make highly performing connectivity profitable

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in a type of venue that usually fills up a few times a month."

Meticulous planning and execution are required to design and deploy a solution that delivers reliable coverage and capacity, says Osborne: "it should have fans at the heart of the experience. User 'journeys' and 'touch points' should be well understood, as tens of thousands of visitors descend on a stadium."

"The challenges are related to the continued optimisation of the radio environment," explains Buttarelli. "Highly dense wireless capacity requires minimal interference to maintain a high-quality user experience. Adding more capacity without maintaining the highly optimised radio environment might create degradation in the individual user experience. We expect in the future automated AI driven software defined radios and intelligent antennas able to control radio interference.'

"Each venue is different from a RF perspective - depending on the materials employed in the stadium and the status of the surrounding macro cellular "Key environment," agrees Osborne. rooms and 'back of house' offices/below ground areas may also need to be covered. Of critical importance is the survey carried out at the venue to inform the high level and detailed level designs. Consideration of how fans get to the stadium from transport hubs and rail routes is also important - with coverage and capacity plans developed for the entrances and outdoor areas of the building.'

WiFi7 for the win?

Ultimately, connectivity must be sufficient in both coverage and capacity.

"The most effective and reliable technology to deliver this in wide areas of high-density demand is 4G/5G cellular mobile connectivity. Typically, this is achieved using a dedicated venue network based on a DAS, which uses a network of antennas to provide mobile coverage where it's needed, ensuring continuity with public networks outside the stadium, particularly important in supporting frictionless e-ticket stadium entry," says Osborne. "However, ensuring good coverage and performance for all mobile network operators is a further challenge. This is where the neutral host model comes in. This provides a single mobile infrastructure that can be shared by all mobile network operators, radically reducing the amount of space required for network equipment."

No single technology can hope to deliver the all-singing, all-dancing connectivity required for stadiums and theatres today, but WiFi and cellular will remain integral.

"A combination of connectivity



technologies will be necessary to support all the requirements not only for fan experience, but also to serve operations, security, and efficiency of the 'smart stadium,'" says Hernando. "The main technology in the short and medium term will be 5G, incorporating techniques such as slicing, beam forming, massive MIMO, mmW and MEC among others. This connectivity technology will be complemented with WiFi 7, IoT and MEC connectivity."

"With mobile devices consuming more and more data - and increasing scope



believes that the core challenge in meeting connectivity demands is that most stadium infrastructure is based on copper, which reaches its limits inside buildings because of length restrictions.

The standard permanent link is usually 90m long while the channel can span up to 100m. For far away devices, given the scale of most stadiums and rising data demands, copper won't be sufficient soon." says Benjamin. "Despite the initial outlay, transitioning to a fibre infrastructure now - and prioritising fibre for any new builds will pay dividends in avoiding time-



recognition and, on a more extreme scale, immersive experiences like the Sphere in Las Vegas," explains Benjamin.

Meanwhile, some UK stadiums have already launched 'frictionless' retail stores where guests scan their payment device at the entrance, collect their items and walk out of the store to complete their purchase.

'This all puts additional strain on stadium infrastructure, with more and more real-time applications that need processing at the edge of the network," adds Benjamin.

Something that would once have seemed straight out of science fiction, AI, VR and AR have a key role in creating tomorrow's smart entertainment venues.

"We need to re-imagine the smart stadium concept to provide an improved and highly immersive experience," says Hernando. "Engaging the spectator to come to the stadium is the great objective. Especially for the new generations who are 'digital natives,' transformative, innovative, and exciting experiences are a must. This will be achieved with the introduction of technologies such as integrated social media, in-game experiences, AR, and AI. The level of interaction required by these technologies puts great pressure on the networks, with extremely high throughputs and very low latency.'

We expect AR to take a critical role for stadiums, enhancing user experience and overall attractiveness for the venue,' agrees Buttarelli. "Most use cases related to AR/VR are highly sensitive to latency to assure high quality user experience. This means engineers will need to design stadiums with an increasing level of edge computing with most of the applications required for the venues handled by on site data centres with very limited requirements to exit the venues into a centralised network data centre."

Osborne agrees that, looking ahead, such venues will become AI-enabled digital stadiums, supporting a wide array of AI enhanced digital services that underpin the key business drivers.

"For example, digital applications that enable wayfinding, digital ticketing, inseat food and beverage (F&B) ordering, or AI driven content overlays and language personalisation, open up new ways to grow revenue and enhance the fan experience," says Osborne. "From recent research, we know there's also appetite from event goers for more advanced applications to enhance their experience, such as AR overlays that let fans see real-time stats by pointing their phone at a particular player. These new digital capabilities go hand in hand with demand for traditional services, such as the ability to share experiences in real-time on social media."

"With the rise of real-time applications that need processing at the edge, businesses of all kinds are seeing a need to start migrating data workloads deeper into the network."

for interactivity between devices and the action - stadium operators will need to have an eye on next-gen WiFi. WiFi 7 is already emerging and close to wider market adoption - with data rates of up to 40Gbps, this brings an even greater need for fibre and composite cable that can offer the necessary distances on power," agrees Benjamin.

"WiFi is continuously evolving, with WiFi 7 a great example with its ability to handle massively increased peak and average data speeds. We find it a great complement to DAS 4G/5G networks, providing effective connectivity in certain areas such as the stadium entrance and hospitality areas," adds Osborne.

Buttarelli expects WiFi and cellular to continue to complement each other for stadium applications, supporting today's rising demand. Moreover, he expects "to see more automation in the coordination between the two technologies making the offload from cellular to WiFi more transparent to the end user.'

Meanwhile, the use of 5G in the main areas of the stadium is becoming essential with the rise of new technologies like AR/VR and IoT.

"Over time we expect to see both public and private networks become the norm. Where a public network can deliver a great connectivity experience for stadium visitors, a private 5G network is becoming increasingly important and offers complete control for the venue, providing high capacity, broad coverage, and low-latency connectivity for IoT devices, screens, dedicated communication channels for stadium staff," adds Osborne.

Meanwhile, Piers Benjamin, EMEA in building networks (IBN) marketing manager, Corning Optical Communication, consuming rip and replace in future to meet new technology demands."

Fibre to the edge (FTTE) is thus an ideal solution for providing the high capacity, flexibility, and reach.

"Capitalising on the reach of fibre enables multiple devices to connect via a single cable that can reach back to a common central point that can serve multiple floors - no need for remote server rooms or PoE extenders," opines Benjamin. 'Power for an FTTE-based LAN is best supplied using composite cabling which contains both fibre and copper. This leverages the bandwidth capabilities of single mode fibre and the powering capabilities of copper to deliver both data and power to enable devices at the edge of the network. Composite cable can take up much less space and this means more capacity for future upgrades as well and often, reduced maintenance costs. From an environmental perspective, this need for less equipment is also advantageous."

Moreover, with the rise of real-time applications that need processing at the edge, businesses of all kinds are seeing a need to start migrating data workloads deeper into the network: "this is particularly true for stadium infrastructure. IP cameras and security devices, for example, are now increasingly common, but may not be close to existing telecom rooms or a PoE-based switch," adds Benjamin.

The future is now

"In some respects, the future is already here when it comes to stadium technology. We've seen paper tickets replaced by QR codes and scanners, more sophisticated security measures that use enhanced facial

platforms in the PTToC market presents

opportunities for various industries by

allowing interoperability between PTToC

from different

systems

manufacturers. However, challenges like

interoperability issues between Land Mobile

Radio (LMR) systems and PTToC solutions

persist, especially in sectors where instant

creating bridging solutions that ease the

integration between LMR systems and PTToC,

without the need for a physical gateway or

donor devices. This will allow organisations

that still rely on traditional radio systems to

enhance communication capabilities without

the need to replace their existing system or

New features are still being integrated

into PTT platforms and devices regularly,

and a look at the history and development

of the technology shows how far it has come

since the two-way radio. With these new

updates, it is likely that PTT, and specifically

PTToC, will continue to have a cross-industry

impact across critical sectors for the

add any additional hardware.

and reliable communication is crucial. Fortunately, some PTToC management solutions are starting to tackle this problem,

devices

and



Transforming communication across critical sectors

Luke Wilkinson, managing director, Mobile Tornado

walkie talkie has a rich and colourful history; still remaining a renowned technological device even today. However, the push-to-talk (PTT) technology behind it is still not well-known, and even less well-known are the transformations that took the two-way radio and made it the basis for communication across various sectors. Over the last decade, as cellular network infrastructure improved, pushto-talk over cellular (PTToC) became viable and revolutionised long-distance communication as we know it.

PTToC has shifted technology away from land and digital mobile radios to platforms and devices that can connect individuals and groups of people in real time, wherever they are in the world, with the single press of a button. Critical sectors that were previously relying on traditional radio systems can now use PTToC for more efficient communications. This has allowed them to in PTToC as they couldn't afford to risk the

orn in the midst of World War Two, the hardware constraints, which hindered widespread uptake of PTToC, causing many to still opt for conventional two-way radios.

Once cellular network infrastructure was more widely developed, PTToC platforms were able to be incorporated into both smart and rugged devices. By alleviating the need to invest in expensive radio equipment, PTToC became an accessible and cost-effective solution for connected organisations.

Why two-way radios are no longer enough for businesses

Anything that can enhance communication capabilities whilst being cost efficient is going to appeal to businesses. But it is in organisations where rapid real-time communication is vital for public safety or business operations that PTToC really shines. A decade ago, when network coverage

was patchy, few critical services invested

"Anything that can enhance communication capabilities whilst being cost efficient is going to appeal to businesses. But it is in organisations where rapid realtime communication is vital for public safety or business operations that PTToC really shines."

take advantage of the GPS location tracking, lone worker features, and multi-media messaging that many PTToC platforms offer.

The journey of PTToC

The premise behind PTT lies in the necessity for instant communication within organisations, whether that's for those working in public safety, hospitality, security, construction or logistics: the use cases are endless. However, due to the lack of network infrastructure up until the early 2000s, users needing instant communication were largely limited to two-way radios.

However, at the turn of the century, as cellular network infrastructure began to develop more significantly, mobile phone manufacturers began incorporating PTT features into their devices, opening up a new dimension to instantaneous communication. However, this didn't come without the challenges of network compatibility and safety of their employees and others, instead relying on legacy radio stations. However, this changed in 2013 when the UK government announced it would use PTToC for its new critical communications system. Via PTToC, the Emergency Services Network would benefit from efficient video and/or voice one-to-many or one-to-one communication without the need for dialling or ringing. PTToC is a cost-effective alternative to two-radios as users can leverage existing smartphones or specialised devices, reducing the need for extra hardware investment. They also require less infrastructure investment compared to traditional radio systems.

For businesses beyond the public sector where real-time communication is crucial, for example in construction companies, the adoption of cloud-based PTToC solutions has bridged communication gaps. World-leading PTToC platforms often facilitate seamless switching between networks, allowing uninterrupted communication between

teams and individuals.

Both PTT-compatible devices and PTToC management solution platforms have driven the market upwards. So much so, that a recent study by Polaris Market Research forecasts that the global push-to-talk market will reach US\$61.28 billion by 2030. With secure communication capabilities, enhanced call management, cost control, and added convenience, PTT has a lot to offer businesses with a sprawling workforce.

The digital revolution and PTToC's impact on critical sectors

The digital revolution and the surge in remote work have amplified the need for instant and reliable communication tools. Specifically, PTToC has proven its indispensability across critical sectors, including in security, logistics, and public safety. The ability to share real-time location information, send SOS alerts, and monitor lone workers has proven invaluable in improving operational efficiency and safety in these critical domains.

The standardisation of infrastructure





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Countrywide Healthcare tackles network visibility

ountrywide Healthcare, a 27-yearold supplier of medical and janitorial equipment to the care sector, faced critical network performance challenges in their new warehouse with a Cisco Meraki network. The IT team struggled to gain comprehensive visibility into its performance, resulting in unresolved downtime incidents like the inability to download web orders and slow ERP system performance.

Supporting expansion

"When we moved to our current 110,000 sq. ft warehouse in 2021, the refurbishment included the installation of a full Meraki network. We chose Meraki because we didn't need to be experts in Cisco networking, since Meraki is almost plug and play with control from anywhere," said Jonathan Price, IT manager at Countrywide Healthcare.

Since moving to the new premises, Countrywide has expanded to around 300 network clients with more being added all the time, including internal sales and field salespeople. With the expansion, the team soon found they needed a greater understanding of how the network was performing. Its online-business direct to consumers was also growing which meant the IT department was busier than ever. "We had a couple of incidents where we couldn't download our web orders," said Price. "We suspected that we were saturating the bandwidth on our internet connection, but we couldn't confirm this suspicion. We could see what was happening right now on the Meraki dashboard but there was no accessible historical reporting and no way of knowing if our 3.00am backups were causing the issue. We simply had no visibility, and it took a considerable effort to find out what was going on. It was quite frustrating."

The IT team knew it needed to monitor internet bandwidth, but also wanted to see the performance of the 40+ WiFi access points installed around the building.

With the warehouse team soon to adopt handheld scanners, the team needed to see both real-time performance information as well as trends and patterns. Further, the warehouse team had complained that the ERP system was slower on the warehouse floor compared to the upstairs offices; it was necessary to check if this was just their perception, or if they were saturating the uplink bandwidth between the warehouse and the core connection. This link between the main office and the warehouse is critical. If it goes down, is saturated or has any issues, it will have an immediate and tangible impact on the business

A seamless solution

Highlight's Service Assurance Platform provided the seamless solution required, offering real-time insights and historical reporting, empowering the team to troubleshoot effectively and optimize network performance for uninterrupted operations. Moreover, it was 94% quicker to setup than previous monitoring tools trialled.

"We came across Highlight Service Assurance Platform because our internet service provider, Gamma Telecom, also uses Highlight. The main appeal of Highlight was that it works with Meraki," said Price. "When we signed up for a free trial, all we had to do was to add our API key to Highlight and it did everything for us. We didn't have to mess about with it and sink lots of hours into it. It was three clicks maximum, put the API key in, press OK and a couple of minutes later it talked to Meraki and brought across the WiFi access points and firewalls. Highlight did its magic in the background, and it worked. It really was the golden bullet. The switches have since been added, and we can now see the vital uplink metric between the main core network and the warehouse.'

According to Price, all the required

INDUSTRIAL

information was visible on the dashboard. including number of clients per access point, the internet bandwidth, switch port utilisation and the historical reporting.

"We particularly like Highlight's critical ports feature on the switches. This enables us to specify our uplink ports so we can keep a close eye on them. For this we have set email alerts to notify us if it goes down at any time," said Price.

Price reported that Highlight's solution delivered an 80% reduction in time to identify network issues: "for example, the other morning we received alerts that our back-up system had failed. Our first thought is that we had maxed-out our internet use. We immediately went into Highlight and could see that there was plenty of bandwidth available, the switches weren't being used too heavily, everything was within expected parameters, so the issue was elsewhere. We can look at Highlight and know within a couple of minutes if it's the network, if we have done something or if it was an external fault."

With the ability to review trends and understand increases in internet usage. Highlight is enabling Countrywide to future proof its technology and plan their long-term strategies, such as expanding the warehouse and increasing headcount, which all impacts the network.

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Riverford Organic Farmers stays fresh

expanded from a one-man team **N**of founder Guy Singh-Watson delivering homegrown organic vegetables to friends, to a national vegetable box scheme delivering to around 50,000 customers each week. Today, the company employs 1,000 people and has three regional sister farms and a farm in France.

With multiple sites and IT real estate to manage, there are a vast array of devices that are integral to keeping the business functioning at peak performance. It's important for the IT team to have visibility of these devices from both an IT infrastructure and environmental monitoring perspective to ensure that food is kept fresh and at the right temperature and humidity 24/7.

Monitoring the network

To address this challenge, Ollie Kerslake, infrastructure lead at Riverford Organic Farmers, opted for Paessler's PRTG network monitoring solution to get more visibility over the storage of farm produce and meat as well as their whole IT estate.

"There are refrigerators and freezers at various sites that are monitored using PRTG. The warehouse team and the butchery team have screens in key locations so that they can review the dashboard at all times and check everything is operating correctly," said Kerslake.

The potential impact on the business if the fridges or freezers shut down would be £500,000 in terms of the volume of

iverford Organic Farmers Ltd has stock that needs to be kept fresh on any given day, so it is essential that they are monitored 24/7. Apart from the warehouse and butchery teams needing to check the PRTG dashboard, it constantly operates in the background.

There are around 20 people within the business across various departments using PRTG who look at the dashboard, but the beauty of it is that we don't really have to look at it," said Kerslake. "In terms of its day-to-day use, we just let it do its thing, and we just act on alerts when necessary. Occasionally we'll check it if we're doing any kind of road mapping or scoping out of projects, when we will look at trend data to use it for forecasting. But unless we're adding new devices to it, we just leave it to run in the background and alert us when action is required.

Riverford Organic Farmers uses 1,500 sensors across its whole business. The IT team monitors the key components, such as CPU usage, RAM disk space, Windows services, and network connectivity of the server. Switches, firewalls and access points, and WiFi usage are also monitored, so the team can see if it's having any internet spikes or if the access points are being over-utilised.

Around the clock monitoring of the various sites and IT infrastructure is a key priority for the IT team, which is now often alerted to issues and can resolve them before they have impact on the business or customers.

"Two weeks ago, our ISP, who provides our MPLS which connects all our remote sites to our headquarters experienced an issue late in the evening. It was only due to PRTG picking up packet loss from our firewall at our headquarters that we knew that there was an issue. We failed to receive anything from our ISP and we didn't get anything from our users because they'd all gone home for the day," said Kerslake. "So, without the alert from PRTG we would have potentially come in the following day to a complete disaster, and all our remote sites would have been disconnected. So, it was thanks to PRTG alerting us to the fact that there was potentially an issue that we managed to resolve it that same evening and carry out the necessary actions before any of our external suppliers or customers noticed that there was a problem. It also helped us avoid around £10,000 of missed deliveries. Not only does it make our day easier, but it also gives us an element of security, so it helps us to sleep a little bit easier too."

Going green

The possibilities that PRTG offers Riverford Organic Farmers are exciting when it comes to making the company more innovative and sustainable in the future, too.

"My vision for the future in terms of using PRTG in new ways is to measure our environmental impact from an IT perspective, as we're already futuristic and agile, we can be even more efficient. When it comes to developing the IoT side of the business we have started looking at monitoring some of our current

infrastructure," said Kerslake. "For example, when we pick and pack products for our boxes, we're running an initial trial with our facilities and maintenance team to spot potential problems with hardware if the boxes are packed by machines rather than humans. We're going through a first trial of what that looks like, the software required and how we could monitor equipment."

PRTG can also help the IT team measure the potential environmental impact of the use of AI and automation. Every AI request generates power, so Riverford Organic Farmers is cautious on its use. The organisation has hybrid environments at its HQ - half of its IT is on site and half is in a cloud – which draws a lot of power. With careful monitoring and mindful use, Riverford Organic Farmers continues to consider future energy efficiency.

"We are a farming and food and beverage business, and we pride ourselves on being pretty high-tech in that space,' said Kerslake. "Our five-year vision is to leverage more AI and automation. We're heavily investing in AI just to help us forecast how some day-to-day tasks can be better performed by using robotics. A lot of Riverford is still very manual even though we have put some automation in our warehouses in place. When it comes to AI and the way that the company will evolve in the next few years, we see Paessler PRTG as a partner on our journey to become smarter and better optimised. PRTG will always have a place at Riverford and my team will fight very hard on that point."









Infrastructure must keep pace

Tim Sherbak, enterprise products and solutions, Quantum

influence is pervasive and ľs undeniable. It is weaving its way into every industry sector and reshaping the fabric of our daily lives. From chatbots that can solve customer queries within minutes to autonomous vehicles and facial recognition, this ever-advancing technology is helping propel society towards a new future.

Yet, for its full potential to shine, robust infrastructure to support high-performance Al workloads and computing is paramount. Al requires high-calibre systems designed to bear the weight of intense workloads and store the vast amounts of data required for Al model training. A computer can only ever learn from the data you give it - the more data, the 'smarter' the machine. One of the biggest challenges is storing and managing this expanding volume of data. Deleting data is simply no longer an option because organisations never know when it will be useful in the future. Before widespread Al usage, this level of retained massive data sets for analysis primarily existed in high-performance computing (HPC) environments. However, the advancement of AI has now brought this infrastructure challenge to any organisation wanting to capitalise on the potential of AI, essentially turning every kind of organisation into a HPC environment.

juggling multiple complex storage needs. While high performance storage is essential to power AI workloads and deliver real-time analytics and processing using what is known as 'hot' data, organisations also must retain massive data sets for extended periods of time. Therefore, they need to find a way to retain that 'cold' data in a cost-effective way. With data growth and analytics not slowing down any time soon, organisations need to find that solution sooner rather than later.

New data for a new world

The dialogue is shifting: organisations are transitioning from asking "what data do I have?" to a more discerning "what data do I need?" Analysis, repurposing, and Al model training are all now front and centre in an organisation's data priorities. It's critical therefore to find a storage solution that can make the process of searching massive data stores simple, giving organisations the ability to index, tag, and catalogue data, making it easy to find, enrich, and repurpose the data they need to drive business forward and power Al applications. Tagging, cataloguing, and indexing data enables organisations to easily search and find a clip they need in their archives to repurpose for Organisations now find themselves a highlight reel, watching game film, or ranging from high-speed data retrieval

any other new purpose.

Many are struggling to work at this level. In response, they should adopt data storage and data management capabilities that scale along with their different and ever-changing needs in a cost-effective, efficient way. It's critical that organisations employ an end-to-end solution that can deliver the performance required for AI workloads and immediate analysis along with an effective way to move that data easily to a lower-cost, secure solution. In doing so they can retain that data for years or even decades, where it can be accessed for repurposing and analysing once again across the data lifecycle.

Prepare for the unknown

Data is currently evolving at an equal rate to the organisations which are producing it - nothing stands still in today's tech landscape. Recent advancements in technology and the proliferation of AI have underscored the importance of readiness for the unknown. It has become imperative for enterprises to contemplate innovative storage and infrastructure strategies that align with the diverse facets of dynamic data.

These strategies must encompass the entire spectrum of necessities,

to the enduring safekeeping of archival information. which demands approach that not only caters to present organisational requirements but also possesses the scalability and flexibility to accommodate the unpredictable demands of the future.

With the changes that organisations are experiencing, it's crucial that the ways in which data is being used and stored adapt to provide the best experience to match. If the past year of tech and public Al development has taught us anything, it's to be prepared for whatever may come next. Organisations must be considering storage and infrastructure solutions that store, manage, protect, enrich, and archive that data across a continuum of needs, from high-performance storage to longterm archiving in the most seamless, cost-effective way.

For this, organisations need a solution that has endless potential. It must be able to deliver the storage needs of today, as well as have inbuilt capabilities to adapt as required for changing needs in the coming years and decades.

As we continue to see AI develop in ways that, right now, seem unimaginable, organisations will rely on flexible, scalable infrastructure solutions that can enable them to utilise their data to its full potential and drive their business forward.

The easiest to use **Enterprise Monitoring tool** according to G2 reviewers. Ease of Admin Ease of Use Meets Requirements Other Factors Score (i) Entuity 8.66 VMware Aria 8.54 8.47 IBM Turb Splunk Enterprise 8.47 8.21 PRTG NETWORK PRTG LogicMonitor 8.05 **DOWNLOAD REPORT**



Securing the network in the face of modern challenges

Paul McHugh, area director UK, Cradlepoint

The cybersecurity landscape is no stranger to change. With the onslaught of new threats and the increasing sophistication of cyber-attacks, security strategies must adapt. The emergence of 5G as a primary WAN technology creates new opportunities and corresponding security challenges requiring comprehensive, customisable security.

A major area that 5G technology will affect is the expansion of IoT devices as many of these devices will be added to 5G networks. Ericsson predicts the number of IoT-connected devices will reach 34.7 billion by 2028, up from 13.2 billion in 2022. As the number of IoT devices continues to grow, the attack surface also grows, increasing the risk of attack from bad actors. This is why we have seen a rise in cyber-attacks targeting IoT devices, with some reporting an increase of 400% of IoT malware in 2023 alone.

There are a few considerations for enterprises as they work to secure their IoT environment. First, many of today's network security solutions require an agent on a user device, such as a laptop, phone, tablet, or desktop. This model does not work with IoT devices. Also, most IoT devices have limited processing power to run onboard security. It is also common for default passwords to remain at factory settings, making them easy to hack.

In response to these challenges, enterprises typically take one of two approaches to secure their environment. They may opt to leave security predominantly in the hands of their cellular provider, which comes in the form of private access point nodes (APNs). Unlike public APNs, to which most cellular devices (smartphones, tablets, etc.) are connected, private APNs are a secure environment in which enterprises' devices, including IoT devices, can operate. There are benefits to this approach, such as the cellular provider setting up and managing the network. However, this option provides enterprises less control over their security and connectivity, can take several weeks to establish, and can be costly.

The other, more traditional option is a virtual private network (VPN) which the enterprises' IT department controls. However, VPNs allow broad network access, leaving the responsibility on the IT department to restrict access. Also, VPNs have the potential for lateral movement once they are in the network, making it easier for cyber-attacks to move through the network.

Enterprises need a new approach to security where the network plays an active role in security and encompasses the unique characteristics of 5G. The best option for today's enterprises is a converged network and security solution that is optimised for 5G. This solution includes secure access services edge (SASE) principles including SD-WAN.

To defend against the growing number of hackers and bad actors within the growing 5G landscape, Gartner's SASE framework is an attractive option. While many of its principles are for protecting users — secure web gateways, cloud access security brokers, and remote browser isolation the zero-trust network access principle in SASE also provides a great foundation where the network plays a major role in protecting IoT devices.

Unlike VPNs, ZTNA totally restricts access by default, leaving network access decisions up to the IT department. IT personnel can create security policies specific to each device before connectivity begins. Also, zero trust hides public IPs from discovery and hides IoT resources from discovery if they aren't defined in the network.

A security solution with a foundation in zero trust, managed through a cloud-based management platform, also removes the configuration complexities associated with VPN. You don't have to configure routing protocols or assign an IP address for every router. Using cloud-based management allows an easier approach to network configuration, identifying resources, and setting up access policies for each device. This is especially important on networks with both IoT devices and users. With a cloud-based management system, it becomes easier to create and deploy role-based security policies.

SD-WAN is a critical element of SASE, secure connectivity providina over inexpensive direct internet connections and enabling traffic steering and prioritisation. An SD-WAN solution that is optimised for 5G provides additional functions. For example, traffic steering and prioritisation can be based on 5G parameters such as signal strength and data plan usage, in addition to latency and jitter typically included with wired SD-WAN. Additionally, decisions can be made based on these parameters to switch from one modem to another for greatest efficiency. With new 5G technologies emerging such as network slicing, a 5G optimised SD-WAN will provide enterprises with better performance and end-to-end service level agreements.

As more businesses move to wireless WANs as part of their infrastructure, it becomes more important than ever to provide a robust security and networking solution. 5G SASE takes the basic functionality of SASE and takes it up a notch with 5G optimisation. This gives today's enterprises a converged solution that is fit to truly leverage 5G technology.

PRODUCTS ------

I Barracuda SecureEdge is a SASE platform that cuts complexity and provides anytime/anywhere security and access to data and applications hosted anywhere. SecureEdge is affordable, easy to deploy, and easy to manage.

Barracuda's cloud-first SASE platform enables businesses to control access to data from any device, anytime, anywhere, and allows security inspection and policy enforcement in the cloud, at the branch, or on the device. The solution delivers enterprise-grade security including Zero Trust Network Access (ZTNA), Firewall-as-a-Service, web security, and fully integrated office connectivity with Secure SD-WAN.

Barracuda SecureEdge is a cloud-Firewall-as-a-Service native with integrated next-generation tightly technologies, including application profiling, intrusion prevention, and advanced threat malware protection, antispam, and fullfledged network access control. Cloud-based web security and Zero Trust Network Access (ZTNA) are integral components.

As workloads increasingly move to the cloud and SaaS applications, it is critical to ensure reliable, fast, and secure connectivity for all your sites and remote users. Barracuda SecureEdge uses application steering to automatically choose the most suitable physical path and makes dynamic, on-the-fly adjustments to QoS and application usage policies depending on real-time bandwidth and latency measurements, ensuring that users get the performance they need to be productive.

Enterprises need Zero Trust Network Access (ZTNA) to verify every access attempt to data and resources. Barracuda's solution grants least-privileged access to authorised apps without exposing your private network and helps enforce granular policy controls. I Cloudflare's SASE simplifies network infrastructure by merging networking and security services into a unified architecture, delivered on the cloud edge.

With the rise of distributed workforces, users need to be able to connect to resources from anywhere in the world, challenging enterprises to provide network access and a secure, straightline path to the Internet without adopting complex workarounds or increasing latency.

SASE implementation simplifies traditional network architecture by merging network and security services on one global network. Instead of bottlenecking all traffic and users through a single, on-premise access point, SASE allows enterprises to route,

I Versa SASE integrates security, networking, SD-WAN, and analytics within a single software operating system delivered via the cloud, on-premises, or as a blended combination of both.

It provides secure, scalable, and



I Palo Alto's Managed Campus Networks with Prisma SASE solutions are designed to help organisations overcome modern networking challenges to enable fast-paced digital transformation and more flexible ways of working.

Managed Campus Networks with Prisma SASE is a state-of-the-art platform and service that integrates LAN/WAN (SD-WAN) functionality with cloud security features that include zero trust, identity-level security to strengthen the

inspect, and secure traffic in a single pass at the Internet edge.

Cloudflare is built on cloud-native infrastructure. Its globally distributed edge locations create a network fabric that brings security and performance capabilities as close to end users as possible, helping enterprises reduce latency, mitigate attacks close to the source, and seamlessly apply security controls to user connections.

SASE consolidates and delivers network security services — cloud access security brokers (CASB), secure web gateways (SWG), Firewall-as-a-Service (FWaaS), and more — from a unified and large-scale cloud network. Instead of patching together disparate security services from multiple vendors, enterprises can adopt a single SASE

reliable enterprise-wide networking and security while increasing multicloud application performance and dramatically driving down costs. Versa SASE is built as a complete integration of best-of-breed security, advanced networking, industryleading SD-WAN, genuine multitenancy, and sophisticated analytics in a single Enterprise-class carrier-grade operating system (VOS) that operates at exceptional scale.

Versa's fully multi-tenant system separation betwee delivers separation at the management, can be deployed controller, data, and analytics level, variety of models.

protection of enterprise digital resources and IT applications.

The fully managed end-to-end service enhanced control provides and automation for better cloud application performance, enhanced agility, and improved operational efficiency to ensure the best user experience. Clients also benefit from the flexibility of this Network-as-a-Service solution. Leveraging the consumption-based model that underlies the solution,

architecture to help streamline complex and costly configurations and gain more visibility and control across their entire network infrastructure.



simultaneously supporting up to 256 tenants per system. It applies consistent policy across the entire network and automate workflows to create network slices and implement security remediation steps.

The solution is delivered via the cloud, on-premises, or as a blended combination of both and is a centrally managed solution. Management is a true multi-tenanted system with role based access control (RBAC) to provide separation between the tenants and can be deployed and consumed in a variety of models.

clients can optimise the cost of hardware, software, maintenance, and management, as well as reduce the number of vendors, tools and technology stacks that have to be managed.



Please meet.

Simon Harris, head of critical infrastructure, Business Critical Solutions (BCS)

Which law would you most like to change?

There isn't an existing law that I would like changed but the world quickly needs effective global legislation around the use of Al covering critical national security, safety and societal risks. The European Union's Artificial Intelligence Act will deal with some issues inside the EU but global controls are required to try and contain not only bad actors and governments but careless use by commercial organisations and individuals.

What was your big career break?

My real career break came whilst I was an associate director in the cost management team at Sweett Group. In the teeth of the financial crisis, I landed two prestigious client appointments that acted as a spring-board for where I have been able to subsequently take my career in the technology driven mission critical arena. One appointment was for the UK financial services regulator and was consequently the subject of a great deal of scrutiny - particularly in the climate that prevailed at the time. The other was the beginning of a relationship that endures to this day, over fifteen years later. I quickly learned the value of surrounding yourself with great people and whilst it's vital that as a leader you provide a vision of what success looks like, you need to empower your teams to operate using their initiative and experience.

What's the best piece of advice you've been given?

I have had too much good advice to only think of a single winner, so I'll go for the three most useful. I have subsequently discovered that these originally came from notable sportsmen and politicians but here goes:

Firstly; don't count the days, make the days count. This reminds me that time is finite and precious.

Secondly; control the controllable. Don't worry about the stuff you cannot influence.

Words matter. The choice of words effects how people feel. Inspiring the heart is a fundamental part of leadership

If you had to work in a different industry, which would you choose?

I would follow one of my passions and immerse myself in the world of quality classic cars. It is probably a quick way of losing your money if you don't know what you are doing but I could easily see myself owning a business dealing and looking after expensive machinery, enjoying the design, engineering and being part of the story. It would also provide an opportunity to meet some really interesting people and do some networking.

Where would you live if money was no object?

A Caribbean Island sounds like a great idea but, in reality, I would soon get bored and sell up. Whilst the climate cannot compare to the Caribbean, I would jump at an opportunity to live in Bath. Great pubs and restaurants, beautiful countryside, a topflight rugby club, magnificent architecture and good travel connections to London. It's got the lot, what's not to like.

What did you want to be when you were growing up?

I desperately wanted to be a fighter pilot. I spent years in the Air Training Corps and had an awesome experience but when the time came to make a decision about this it was becoming clear that my eyesight was probably not going to be good enough. I decided that if that road was closed then I wouldn't do anything else and started looking at other alternatives. Probably a bit narrow minded in hindsight but I was pretty focussed. Like a lot of people in construction consultancy we cannot adequately explain how we ended up in it. Going forward we need to be able to communicate why a career in it is an attractive one for young talent leaving schools and universities.

What's the greatest technological advancement in your lifetime?

The portfolio of technologies that make up the internet and world wide web have changed society, the world of business and the way we communicate with each other. From an historic perspective the changes have been at least as consequential as the Industrial Revolution, opening up new types of enterprise and lowering the barriers to entry in existing markets. These platforms are the underlying enabler of further revolutionary changes brought about by AI so we have not experienced the full extent of what is possible yet and we need to harness the good whilst containing the possibility of harm.

If you could dine with any famous person, past or present, who would you choose?

If I am going to enjoy going to dinner then I need to be with people who will be lively, have a sense of fun, wisdom and a whiff of danger. For that reason, I would take three guests: Peter Cook, Oliver Reed and Barack Obama. The drinks bill could be terrifying though!



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