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Autumn Statement: missed opportunities



Chancellor of the Exchequer Jeremy Hunt has announced the government's plan to 'get Britain growing,' with tax breaks for businesses permanently extended, and a further 110 growth measures announced.

Focusing on realising the benefits of AI, the government will be launching the first AI Safety Institute, backed by an initial £100 million investment. It will also be investing a further £500 million in compute for AI over the next two financial years, bringing the total planned investment in compute to more than £1.5 billion.

"The government's continued commitment to strengthening the country's position in AI through a further £500 million in funding will enable tech firms to bring cutting-edge products to market faster and ensure that Britain doesn't lose its spot as a leader in Europe for this sector," says Claire Trachet, CEO and founder of Trachet.

Moreover, the statement provides £121 million for the UK's space sector, which will pave the way for new space clusters and infrastructure, delivering new capabilities in low Earth orbit (LEO) satcoms.

Darren Pearce, group CEO, TXO, highlights that while incentives and funding to support the

expansion of connectivity in the UK will always be welcome, "the government must consider policies that ensure our networks are built with sustainability front-of-mind. We're currently undergoing a once-in-a-generation network evolution that is seeing older technologies in both fixed and mobile networks rapidly replaced by future-ready 5G and fibre. As things stand, there is no requirement for operators to do this sustainably. The government must consider a holistic strategy."

Meanwhile, to support innovative businesses to accelerate their growth and scale up, the government is extending the British Business Bank's Future Fund: Breakthrough programme, which will provide at least £50 million additional investment in the UK's most promising R&D intensive companies, as well as reforming R&D tax systems.

"It is too early to celebrate; we need to see what shape the reforms will take, and what types of R&D investment will be eligible," cautions Al Lakhani, CEO of IDEE. "Cybersecurity must be one such area, as it is imperative that companies are encouraged to invest in robust cybersecurity infrastructure. What's more, it would have been positive to see investment in the provision of cybersecurity training, with

the skills gap a major issue for UK businesses. Much more can be done to facilitate progress in cutting-edge cybersecurity, and the statement was a missed opportunity."

The Chancellor also announced the need to reform public services, with an annual target to increase public sector productivity growth by 0.5% per annum. However, given its huge contribution to UK GDP, if the public sector has a chance of fuelling growth, innovation and increasing productivity, Steve Rafferty, VP international, RingCentral, urges the government to commit to its promise on increasing investment for businesses to drive this ambition forward. Currently, 40% of government workers are using at least 6-10 apps per week at work – hampering productivity - but 27% would strongly prefer to have their work communication and collaboration capabilities integrated into a single platform.

"To achieve optimum productivity levels, the government needs to support the public sector to double down on their tech implementation," explains Rafferty. "Of those that would prefer a single solution, a quarter believe they could save 1-2 hours of time each day, positively contributing to increasing productivity goals sector wide." ■



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Renfrewshire Council's WAN undergoes modernisation

Commsworld is set to complete the migration and transformation of Renfrewshire Council's Wide Area Network (WAN) as part of its £15 million contract to upgrade and modernise the council's digital connectivity and services.

The WAN transformation, once finished, means that Commsworld has rolled out a radical upgrade of connectivity across the entire council estate, providing much wider and better bandwidth across all sites. This includes 180 council buildings such as schools, local libraries, and community centres as well as the region's CCTV and traffic control systems.

Commsworld has also secured the contract to upgrade and enhance the council's WiFi infrastructure. This will see a replacement WiFi solution delivered

across the council's corporate buildings, increase and enhance WiFi across all schools to 100% coverage, modernise the current public WiFi service across the towns of Paisley, Johnstone and Renfrew, and extend WiFi into community halls across the region.

Commsworld has also delivered a new telephony platform in partnership with 8x8 that now enables interaction between staff and residents to work more flexibly, while improving its engagement with citizens in the region, as a direct result of the impact brought about by the COVID-19 pandemic.

The modernised service, replacing Renfrewshire Council's predominantly office-based telephony platform, was delivered well within the 12-month timeframe. As a result, around 5,000

council users, including 250 to 300 in its contact centre team, can now take calls with chat, email and Microsoft Teams – as well as secure payment capabilities – either from the office or home.

Commsworld also updated 4,000 mobile phones as part of the contract. Benefits include integration with Microsoft Teams and the ability to synchronise presence between systems.

"We are delighted that we are set to complete Renfrewshire Council's WAN migration as part of the CaaS contract, as well as introducing enhanced Wi-Fi to council sites, community halls and public WiFi, plus enhanced telephony to workers and citizens in Renfrewshire," said Craig Scott, public sector business development director. "As overall strategic partner for

Renfrewshire Council, Commsworld was tasked with providing the best solution, which we delivered quickly and efficiently on time and within budget, and which significantly enhances communications between the council and its citizens."

"Once completed the upgrade will greatly improve digital connectivity for the council and the people, businesses and communities of Renfrewshire," said councillor John Shaw, convenor of Renfrewshire Council's finance, resources & customer services board. "The enhanced fibre availability in Renfrewshire will not only enable faster and more reliable internet services, but will help to tackle digital exclusion, increase access to digital skills training and support future employment opportunities." ■

Kao Data completes second Harlow DC build, KLON-02

The construction of Kao Data's second Harlow data centre, KLON-02, is now fully complete, commissioned, and operational.

The new 10MW, NVIDIA DGX Ready data centre, designed and built to the highest standards of sustainability and efficiency, marks a key step forward in the continued expansion of Kao Data's high performance infrastructure platform, and further underpins its Harlow campus as one of the UK's preeminent locations for advanced computing.

Following significant growth across its customer portfolio, which includes organisations working within AI, financial services, cloud, and life sciences, Kao Data's second Harlow data centre provides a further 3,400m² of high-density, scalable, technical space to its data centre portfolio, with room for up-to 1800 racks of GPU-powered IT equipment (ITE) across four Technology Suites.

The new data centre will continue to follow Kao Data's award-winning, OCP-Ready, and hyperscale-inspired design blueprint, providing customers with a secure, sustainable, and scalable home for their mission critical workloads. Organisations can fully customise their deployments within the data centre, incorporating liquid-cooled hardware where necessary, and taking advantage of the campus's world-class connectivity and rapid on-ramps into all major cloud providers.

Furthermore, KLON-02 has been designed to deliver the highest levels of sustainability, meeting BREEAM 'Excellent' certified criteria and being

powered by both 100% certified renewable energy and hydrotreated vegetable oil (HVO) - an approach which reduces 90% of net CO₂ from its backup power generators and allows the company to play an important role in helping its customers directly reduce the scope 3 emissions associated with their compute.

"Today marks a significant step forward in Kao Data's journey, and it's rewarding to see our vision for the Harlow campus further evolving," said David Bloom, chairman, Kao Data. "As the data centre industry reaches a major inflection point, it's vital that UK government ambitions to become a world-leader in AI and research are matched by world-class infrastructure, capable of supporting advanced workloads. Through the continued development of our high performance data centre portfolio and our ethos for technical excellence, we believe that Kao Data will continue to play an integral role in the future of UK compute."

"Driven by AI, rack and power densities are increasing at an unprecedented rate, so it's critical that the data centres of the future can accommodate the latest breakthroughs in GPU-powered computing and are ready to embrace the benefits of liquid cooling," said Paul Finch, chief technology officer, Kao Data. "By pushing the boundaries of our original design envelope, and embracing a culture of continuous innovation, KLON-02 sets a new standard for industrial-scale data centres, and one which will directly help our customers reduce the environmental impact of their workloads." ■



IT skills gap lies in AI knowledge

Almost one third (29%) of IT decision-makers believe their most substantial IT skills gap lies in AI, according to Telehouse International Corporation of Europe's new 'Ensuring the right skills and people exist in digital infrastructure' report.

A wider skills and talent shortfall in the digital infrastructure industry is also hindering innovation, with nearly two-thirds (63%) citing a lack of diversity and inclusion within their IT teams, including 27% who believe the shortfall is significant. Meanwhile, more than half (51%) believe there's a lack of interest in the digital infrastructure sector as a career.

One-in-three (33%) predict AI and data analytics to be their most substantial infrastructure challenge in the coming decade. While there has been a small improvement of 4% since 2020 to close the AI skills gap, other substantial gaps remain in areas such as cloud technologies (20%) and security (14%). To combat this deficit, businesses are taking proactive measures by initiating internal training (35%) and turning to external training solutions (34%). A further 35% are enlisting external recruitment experts and 29% are investing in sophisticated tools to amplify the productivity of understaffed teams.

To improve diversity and inclusion, 45% say they are launching educational initiatives and a further 43% are rolling out inclusive workplace policies. The era of the 'great resignation' and 'quiet quitting' also underscores the need for innovative strategies to attract and retain top individuals.

Leading the response to this challenge are flexible working arrangements (38%), opportunities for career progression (37%) and a focus on work-life balance (35%). 28% have even had to raise salary offers to attract the most suitable candidates. ■

Net Zero 2050 - enterprises unready

More than half of organisations are unprepared for future energy shortages or disruptions despite more than two-thirds agreeing that demand for back-up power generation is set to rise, according to new data from Critical Power Supplies (CPS).

More than two out of three respondents (68%) to CPS survey said that demand for back-up power solutions will increase, as businesses strive to meet sustainability targets. Moreover, 48% agreed that a comprehensive energy resiliency plan, including back-up power capability, is 'very important.'

However, 57% said they were unprepared to handle future energy shortages and disruptions.

Despite the switch to renewable energy being key factors in energy resiliency, only 13% said they currently have a Net Zero transition plan in place, a factor that will undoubtedly impact their ability to respond to future threats of energy disruption. The biggest barrier to transitioning to renewable energy sources for back-up power is cost. The most cited challenge was 'initial investment costs' (78%), while 33% expect no cost savings and 28% foresee only minimal cost savings. A significant issue is lack of knowledge about government support, with 61% unaware of incentives and grants.

"Most businesses are acutely aware of the crucial dual challenge in responding to climate change: the need to reduce their impact on the environment and meet net zero commitments while building resiliency against the effects of climate change itself. This means switching to renewable energy sources. The good news is that by understanding and leveraging the alternative energy sources available and by preparing backup solutions, UK businesses can ensure that their operations remain uninterrupted while playing a pivotal role in this green revolution. However, as our data shows, a knowledge gap on the solutions is creating a significant obstacle," said Jason Koffler, CEO of CPS. ■

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Enterprises increasing ransomware protection post-MOVEit hack

In the wake of the MOVEit vulnerability, which impacted an estimated 40 million people worldwide, UK business leaders are increasing their investment in ransomware protection solutions, according to new research from Censuswide, commissioned by Veeam Software.

Censuswide surveyed 100 directors of UK companies with over 500 employees who had suffered a ransomware attack in the past 18 months. Three months on, almost 1 in 4 business leaders (24%) reported that they were significantly more anxious about ransomware attacks as a direct result of the MOVEit breach, while 2

in 3 (66%) said they were slightly more anxious. Just 6% denied being anxious about the threat of ransomware following the MOVEit breach.

As a direct result of MOVEit, 42% of businesses have invested in backup and recovery, and 29% optimised their existing strategy to ensure they have accurate and easily recoverable data to fall back on in the event of a compromise. 41% of businesses increased their spend on wider cybersecurity solutions, and 31% took out a cyber insurance policy. The survey also revealed the value UK business leaders place on equipping their workforce with the skills and

training to manage the ransomware threat: 42% of respondents increased spend on skills development, and 40% upped their investment in training.

A shift in perception can be observed across the UK business landscape; business leaders now expect to fall victim to a ransomware attack, viewing it as an inevitability. 59% of respondents expressed this belief as highly likely, with the same number believing that they are 'highly likely' to suffer more than one attack.

Yet, though this increased awareness of the likelihood and frequency of ransomware attacks is a step in the right direction for

businesses, it is alarming that while most respondents believe attacks are unavoidable, 50% also believe that it is impossible to protect against them. This belief exposes organisations to unnecessary and avoidable risk, as it fails to account for the data protection strategies and solutions which can prevent a ransomware attack from having disastrous consequences. It's a fact of modern business that every organisation will have its data compromised at some point, and so the ability to rapidly recover and control the chaos in the face of business disruption has to be a foundation of their cyber protection strategies. ■

Mobile Tornado brings push-to-talk over cellular to new UK markets

Mobile Tornado plc is expanding its presence in the UK through a reseller partnership with The Barcode Warehouse, making its push-to-talk over cellular and workforce management technologies available to a wide range of sectors including education, healthcare, logistics, manufacturing, retail, and utilities.

Mobile Tornado operates in sectors that depend on fast, robust, and reliable communications between individuals and large groups. The low-cost technologies are deployed in more than 30 countries worldwide with mobile operators, government agencies and private enterprises.

"We are delighted to have joined forces with The Barcode Warehouse, a company committed to exceptional customer service and helping its clients to solve business challenges and make the most of opportunities ahead," said Andrew McNamara, channel sales manager at Mobile Tornado. "This exciting new partnership opens up important new markets for Mobile Tornado in the UK and gives large organisations and SMEs the chance to improve safety, efficiency and productivity through our cutting-edge technologies for instant communications and workforce management. It is another sign of the growing confidence in push-to-talk over cellular services compared to legacy radio systems."

"We are always looking for the latest innovation to support our clients' success and we have been very impressed with Mobile Tornado and its capabilities. We look forward to showcasing its technologies to our customer base," said Liam Reid, director of technology and innovation at The Barcode Warehouse.

Mobile Tornado's solutions deliver seamless switching between 2G, 3G, 4G and 5G mobile and WiFi networks and is available via the latest ruggedised handsets and smartphone application for Android and iOS operating systems. Its push-to-talk over cellular platform is one of the first in the world to offer a fully integrated workforce management solution, meaning employees and organisational assets can be managed seamlessly. ■

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Tech Providers Team Up to Share Best Practice on Supporting Hybrid Workforces

On 24 January, IT solutions provider Daisy Corporate Services and Cisco Meraki will be joining forces to host an exclusive webinar designed to help you make the most of your hybrid workforce.

The pandemic caused an urgent need for remote working and fast-tracked a trend towards hybrid work models. Organisations are still finding the right balance for performance, wellbeing and growth, and new challenges are arising for IT to facilitate and support a long-term strategy that best works for their business. The webinar will shed light on how your organisation can embrace hybrid work environments with the help of reliable connectivity, networking, and security solutions.

Many organisations have outgrown the initial workarounds put in place for the pandemic, demanding a change in the way we connect and work. This is a significant challenge for businesses globally. The webinar will address these challenges and provide insights on how to overcome them with the help of robust and secure networking solutions.

With hybrid workforces, a fundamental requirement is to establish secure and reliable connections while ensuring that data is protected. Cisco security experts will discuss the unique security challenges posed by hybrid workforces and how security features and solutions can keep organisations protected against cyber threats. The webinar is available to all, so come and learn how others are taking these benefits and using them to help facilitate wider outcomes that are transformative to the organisation itself.

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If you'd like to join, you're welcome to take part. The webinar takes place on 24 January, at 15:00 and promises to show you how to enhance productivity, build resilience, and protect your organisation's assets. Register now to secure your spot and embark on your journey towards a more connected and secure future.



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42% of businesses to upgrade connectivity

Neos Networks' 'UK Business Gigabit Connectivity Report' finds that the business appetite for high-capacity connectivity is set to support the next surge of digital investment.

42% of UK businesses regard moving to higher capacity connectivity in the next two years as key to growth plans — rating it either 'integral' or 'greatly important' to their future success.

For those that have invested over the last 24 months, nearly one in eight businesses (11.2%) stated that investing in connectivity had a direct impact on business profitability. 98.3% of businesses said they saw indirect impacts such as productivity, staff retention or client collaboration.

Some of the top reasons businesses are prioritising higher capacity connectivity are increased computer power (22.4%), operational development meaning more data and higher capacity requirements (21.2%), and greater device usage for each employee (11.6%). One in 10 UK

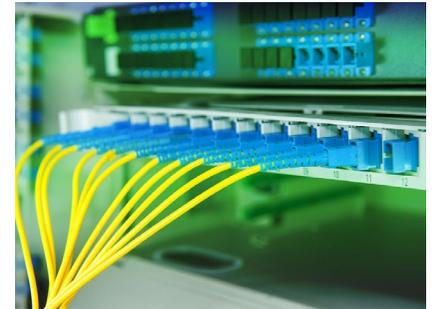
businesses are actively looking to increase their connectivity to better integrate AI into their processes.

The report also points to shortcomings in government incentives for high-capacity network expansion, stifling the ability of AltNets to serve UK business growth. When business leaders were asked if their business had felt a notable impact from the government's Project Gigabit rollout, just 52.5% said yes.

Currently, 1 in 5 businesses state they're receiving 'insufficient' internet speeds for everyday operations. Over half (55.6%) of UK companies have risked losing a client or customer as a consequence of poor internet connectivity, speed or reliability.

"The business appetite for high-capacity connectivity is clear, and this provides a great opportunity for AltNet providers. As businesses strive to keep pace with technology, companies in underserved rural and competitive urban areas will naturally require greater network capacity,"

said Simon Willmott, director of wholesale business development at Neos Networks. "While the UK government has backed network investment with Project Gigabit, they must now go further in making connectivity expansion commercially viable — with grant incentives, access rights and wayleaves. Supporting AltNets to unlock the next stage of network expansion in this way can only be positive for UK business, and solidify the UK's position as a world leader in the digital economy." ■



Google apps most vulnerable to malware

Netskope Threat Labs has released a report warning the retail sector to be vigilant that, unlike other industries where Microsoft OneDrive is both the most popular app used and the most popular app for malware downloads, Google apps are the main conduit for malware in retail.

While OneDrive is the most popular app used in retail, Google Drive and Google Gmail took the top two spots for malware delivery in the sector. Trojans are the primary attack mechanism, tricking retail users into downloading other malware payloads. Many of the malware families aim to steal banking information, credentials, personal information, and credit card information.

The popularity of WhatsApp is also well above the other sectors - on average, WhatsApp use in retail is three times more popular in retail than other verticals, ranking only behind OneDrive in terms of both uploads and downloads. This poses a serious risk not only because WhatsApp is a common delivery channel for malicious content such as malware or phishing pages, but also because these numbers suggest that the retail sector is using a personal instant messaging app as an enterprise collaboration tool, increasing the risk of data theft or data exposure - a WhatsApp message can be easily forwarded for example.

While the frequency of cloud malware delivery in retail generally follows the pattern of other industries over the past 12 months, peak times - such as April, May and June this year - showed a comparatively high number of malware being delivered via cloud apps in retail. In April, for example, 70% of the malware delivered to retail were via cloud apps - 10% more than other industries.

The report finds that Google Drive, Google Gmail, and WhatsApp are among the top five most popular apps for downloads in retail - and all three are significantly more popular than they are in other industries. ■

Phishing top attack technique

Hornetsecurity's Cyber Security Report 2024 highlights the growing threat of cybercriminals using harmful web links in emails.

An analysis of 45 billion emails found a 144% increase in this type of attack compared to last year, rising from 12.5% of all threats in 2022 to 30.5% this year. It is phishing, however, that remains the most common email attack technique. Its use increased by nearly 4 percentage points this year, rising from 39.6% to 43.3% of all email attacks.

Of the 45 billion emails analysed, 36.4% were categorised as unwanted. Within this category, just over 3.6% - or more than 585 million - were identified as malicious. This represents the widespread nature of the risk, with a vast number of emails posing potential threats.

Threat actors are savvy and adaptable. In

the last year, following Microsoft disabling macros by default in Office, there was a significant decline in the use of DOCX files (by 9.5 percentage points) and XLSX files (by 6.7 percentage points). Instead, cyber-criminals opted for HTML files (37.1% of files analysed), PDFs (23.3%) and Archive files (20.8%). HTML file usage is a particularly notable trend: usage rose by 76.6% over the last year.

Brand impersonation continues to target victims, soliciting sensitive information via phishing. Shipping and e-commerce emails are to be regarded with particular caution: DHL accounts for 26.1% of all impersonations, Amazon 7.7% and Fedex 2.3%. All three were in the top 10 most spoofed. Other popular brands, including LinkedIn, Microsoft (both 2.4%), and Netflix (2.2%), also featured in the top 10. ■

Siemens Gamesa opts for containerised DC at Hull factory

Renewable energy company Siemens Gamesa has gone live with a flagship ModCel containerised data centre design at its renewable energy manufacturing facility in Hull, courtesy of Secure I.T. Environments Ltd, (SITE).

The 3.6m cube ModCel data centre will support production systems and communications at the site, which manufactures wind turbines and other products. Designed to withstand the environmental condition

of a dock-based manufacturing facility, the ModCel also includes security features to ensure services and equipment are protected, complying with the LPS1175 standard.

The data centre contains two 48U 1200mm deep cabinets as well as all the power, cooling and safety equipment that would be expected in a typical data centre build. Four PDUs provide controlled power distribution with rackmount UPS in each cabinet. ■

Word on the web...

The transformative power of network slicing

Ted Curtis, senior sales engineer, NETSCOUT

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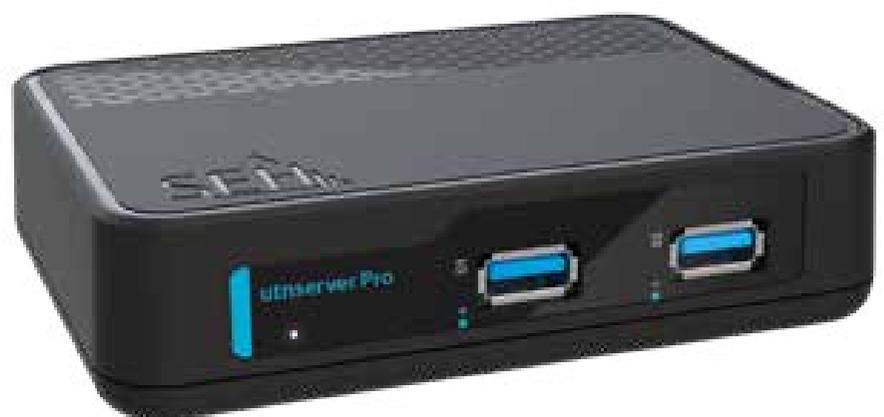
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The business imperative for ruggedised networking to secure modern industry

Chris Derham, business development director – networks, Alcatel-Lucent Enterprise

Rugged mobile phones and laptops are the product of choice in environmentally challenging landscapes, especially when it comes to industrial surroundings such as mines, factories, oil rigs, deserts, and others. After all, durability, ease of use, and longevity matter just as much in harsh environments and extreme temperatures as they do in the comfort of the office.

As our industrial landscape evolves and digitises, so do the challenges faced in ensuring consistent and dependable connectivity for rugged devices. Increasingly diverse operational environments require consideration for more robust equipment that makes up the infrastructure necessary to ensure continuous and reliable network connectivity; enter ruggedised ethernet switches, key building blocks of industrial-level connectivity.

The role of ruggedised networking in a connected world

Whether residential and business metropolitan applications, smart cities and buildings, or public and private transport infrastructure such as railways, downtime can have far more severe implications outside of mere inconvenience, whether potential economic impact or even matters of public safety, for example.

The primary purpose of ruggedised Ethernet switches is to provide robust and dependable network connectivity in environments where standard commercial-grade switches may fail or be unsuitable. Whether it's temperature

extremities, moisture, dust, or electromagnetic interferences, ruggedised switches ensure continuous data transmission and communication, facilitating critical operations and processes without interruptions.

Factors driving the business case for rugged switching

There are a couple of key factors to consider when it comes to the business impact of ruggedised switching.

To start, organisations need to evaluate the operational demands at play. Equipment specifications must resonate with the expected operating environment. To this effect, rugged switch design encompasses reinforced enclosures, which ensures resistance against increased physical wear and tear whether within busy manufacturing facilities, or the hustle and bustle of transportation hubs. Temperature adaptability means they are designed to operate across a range of temperatures, ranging from frigid cold to searing heat, while also being sealed to keep internal components safe against external intrusions like moisture and dust.

In the UK, Alcatel-Lucent Enterprise has delivered numerous projects for customers in the transportation sector, including the implementation of IoT-ready network infrastructure for Liverpool City Region Combined Authority.

The authority's ageing infrastructure meant it was difficult to introduce new, mission-critical technologies to the network. This included CCTV,

traffic management systems, fire and smoke detection, and SCADA (supervisory control and data acquisition control system) in road tunnels, as well as toll services such as automatic number plate recognition (ANPR) and intercom system integration.

ALE designed and implemented a networking solution capable of accommodating the Authority's current requirements, as well as its future aspirations, including business process integration, new cloud application support and smart ticketing expansion for public transport. The implementation enabled increased operational efficiencies from a single management platform, high return on investment (ROI) and lower total cost of ownership (TCO).

These deployments in harsh environments such as the outdoors and underground tunnels can help simplify network management, and at the same time ensure minimal network disruption that could impact worker and passenger safety, while making sure that passengers get to their destinations every day safely and comfortably.

Compliance with the relevant industry certifications is critical. When it comes to defence and military applications, specific military standards must be met to ensure that military vehicles, command centres, communication networks, and surveillance systems are able to operate securely and reliably in challenging battlefield or tactical environments.

Security must be non-negotiable. While the primary design focus of ruggedised switches is to counter physical threats, modern ruggedised

switches have the same security features as commercial-grade equipment, ensuring the confidentiality, integrity, and availability of data. The fundamental difference lies in their resilience to harsh conditions.

Vendor support and credibility are fundamental factors. Businesses must consider vendors that offer extended equipment support, preferably for up to 10 years, to ensure the longevity and continued reliability of the network infrastructure. Vendors with a proven track record as reputable providers of ruggedised networking equipment can directly impact the success and performance of the deployed switches.

Looking ahead, future-proofing your business network with Artificial Intelligence operations (AI Ops) allows for the immediate resolution of operational issues or security threats with a click of a button on a mobile application or laptop. This lets IT administrators improve network efficiency, and potentially reduce maintenance costs by pre-empting issues before they become worse.

Uncompromising reliability that drives business success

The industrial world's pivot to seamless digitisation and automation hinges significantly on robust network backbones. Ruggedised Ethernet switches, with their resilience and adaptability, are an invaluable asset for industries navigating these challenging arenas while delivering benefits to the business as part of their foundational and strategic investments into the industries of tomorrow. ■

Building retail resilience with cellular connectivity solutions

Paul McHugh, Area Director UK, Cradlepoint

In the fiercely competitive retail market, staying connected is a strategic imperative. Network downtime poses challenges that are not only disruptive but can also cause severe financial implications for retailers.

According to recent statistics from Cradlepoint's "State of Connectivity" report, nearly half (44%) of UK retailers face up to two hours of connectivity downtime every week. With Gartner estimating that network downtime can cost businesses an average of £264,700 per hour, this represents a huge cost to retail businesses up and down the country.

Connectivity issues not only disrupt day-to-day business but also result in increased operating costs for nearly half (49%) of UK retailers. Unexpected bills or cost inefficiencies can arise, due to needing to send engineers to fix issues at stores, for example, or not being able to effectively track stock, leading to wasted merchandise. Moreover, 36% report losing potential business due to connectivity problems, and over a fifth (22%) have lost out on talent as a direct result of poor connectivity. Retailers are doing everything they can right now to encourage customers through the door. Facing repeated connectivity issues however, they're being prevented from being able to offer

superior in-store experiences and drumming up business, which in turn, has a knock-on effect on their overall competitiveness.

The good news for merchants is that emerging technologies and new connectivity solutions are available to help them alleviate some of these pressures. Here are some different ways that retailers can improve their connectivity to stay ahead of the competition.

Consider cellular networks as a viable alternative to fibre

Scores of retailers have opted for cellular as a primary or failover connection because of the increased reliability, speed, security and flexibility that it can deliver over fibre broadband. For example, Cradlepoint has been working with Infoprotect to provide connectivity in Nando's stores across South Africa, for its point of sale systems and digital ordering platforms.

Having a standard network across all of its restaurants enables Nando's to support critical applications like online ordering platforms, experiment with new technology (e.g. connected cameras for customer behaviour analysis), and focus on streamlining operations, improving efficiency and customer experience.

Establishing wired connections can also take months, and moving a landline often involves huge expense, time and effort. In

contrast, cellular connections can be deployed in a few short days, and can be as simple to set up as just plugging in a router. What was once considered as just a backup for wired networks, cellular is now an attractive alternative to fibre. Fixed wireless access is a key push for carriers to their enterprises and they are deploying managed services and attractive fixed pricing scenarios to support their enterprise customers.

Improve customer service and security

Cellular technology also supports systems that help eliminate long queues and enable merchants to operate more efficiently.

At GAIL's bakery for example, its equipment such as ovens, fridges, and other appliances used to require huge amounts of energy to operate, and required store managers to constantly monitor them for any defects. However, Cradlepoint and KFP worked with the bakery to change this. Through cellular connectivity, GAIL's stores can now operate smart appliances, significantly reducing the amount of power they require to operate day-to-day, and enabling staff to keep better track

of what items sell quickly and when more stock needs to be ordered.

Cellular technology can also be used to enhance security provision and customer satisfaction through smart video cameras. One modern smart camera equipped with 360-degree vision and 4k resolution may be sufficient to replace three or four traditional cameras — reducing cost while improving coverage.

The bakery has also deployed other apps to analyse this image data to recognise when checkout lines grow too long, and automatically alert staff. In these situations, employees can open new registers and reduce the amount of time that customers have to wait in line — helping to improve overall satisfaction.

Ushering in the new era of retailing

Whether a store is looking to create thrilling new shopping experiences, implement new digital tools to boost operational efficiency, or simply ensure that its primary network connections are secure and reliable, the need for cost-effective and reliable high-speed cellular connections is only set to rise.

When it comes to developing the next generation of killer retail apps, retailers that start adopting emerging technologies like 5G connectivity now will be the ones that steer the course of the industry's future.

For more information and to explore how Cradlepoint's connectivity solutions can grow your business, visit: [Wireless Wan Edge Solutions for Retailers | Cradlepoint](#)



Backup blunders are leading to loss of data

Jon Fielding, managing director EMEA, Apricorn

The ability to quickly restore backed-up company data following an incident such as a network breach or technical failure is pivotal to the ability to continue operating. In the wake of a ransomware attack that involves the theft of information, for example, backups enable the organisation to recover quickly using a clean data set and resume their activities.

Every business should have a comprehensive backup regimen in place. However, almost two thirds of UK companies have lost data due to failed backups, according to a recent survey of security leaders in large enterprises carried out by Apricorn.

The majority of respondents (90%) said that their company had been forced to recover data from a backup in the last year. However, only a quarter (27%) were able to recover everything; a drop from 45% in 2022. It appears we may actually have taken a backwards step in terms of the efficacy of our backup strategies and – as a result – business resilience.

'Head in the sand' isn't the issue

Almost a third of respondents attributed the unsuccessful recovery to inadequate backup processes, while 22% admitted 'we don't have sufficiently robust backups in place to allow rapid recovery from any attack.'

This acknowledgement suggests a healthy level of awareness exists around the limitations of current backup strategies. So,

if denial or lack of understanding is not the problem, why are fewer companies able to successfully restore all their data when they need to? And what are the possible flaws in the approaches that have been put in place?

“Every business should have a comprehensive backup regimen in place. However, almost two thirds of UK companies have lost data due to failed backups.”

Other findings from Apricorn's research point to the impact the increasing decentralisation of IT could be having on the issue.

The case for automation

One clue as to the worsening situation is the increase in backups being carried out manually, which has occurred in parallel with a marked drop in automated backups. At the companies surveyed, backups are automated at 50%, with manual backups the chosen policy at 48%. This corresponds with a rise in employees making local backups of the data they create and handle, for example to

personal storage devices.

The drivers for this change are logical: giving users more autonomy and control over routine tasks reduces the workload that falls to already overburdened IT teams. Having a local copy of data also acts as a failsafe, particularly when an employee is working away from the office, allowing them to restore their information fast if something goes wrong. However, this strategy is likely to be exposing organisations to human error.

Implementing automation in addition to requiring local backups will mitigate the risk of people forgetting to execute the process or doing it incorrectly. It's also essential to ensure that all data is backed up to a central repository, in addition to a personal one. This is because depending on any one sole form of backup creates a single point of failure in the system.

Back up the backups

The time-honoured advice is to stick to the '3-2-1 rule': have at least three copies of data, stored on at least two different media, at least one of which should be offsite. A multi-layered solution ensures that if one copy is compromised, lost, damaged or stolen, at least one other will be intact. This enables information to be quickly and fully recovered following any disruption.

Ideally there should be more than one offsite storage location: one online, in the cloud, and one offline. A straightforward

way to fulfil this role is with an encrypted removable hard drive or USB which can be disconnected from the network to create an 'air gap' between the data and the threat.

Crucially, wherever data is being stored, and wherever it flows, it should always be encrypted. While this won't prevent information being accessed or stolen, it will render it unreadable to anyone without the decryption key, keeping it safe and intact.

Don't just 'fit and forget'

Backup processes should be regularly rehearsed and tested to make sure they remain fit for purpose, and continually tweaked and improved where gaps are identified. Testing can easily be incorporated into the organisation's overall incident response testing plans and scenarios; for example through simulated exercises such as those carried out during red teaming.

Process is equally as important as product for businesses that are seeking to bolster their incident response capabilities. When it comes to responding effectively to an incident that disrupts critical data, investing in appropriate technology tools and solutions is only half the battle. These need to be wrapped up in a multi-layered backup plan, which is built on proper procedures and policies that cover all bases, and which are rigorously tested. Failing to pay enough attention to process will lead to more data being lost, and more recoveries being delayed. ■

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Is cloud old news?

Cloud has been a staple in the IT world for quite some time, but as with any established technology – has it seen better days?

Why cloud?

Cloud computing has become an essential part of modern business operations and offers businesses a host of excellent benefits.

“First and foremost, it leads to cost savings by eliminating the need for expensive hardware and software infrastructure, enabling businesses to pay for services on a subscription basis, which proves cost-effective in the long run,” says Nick Poyner, managing director, Rubix VT.

Cloud computing also provides scalability, allowing businesses to easily adjust their operations to meet changing demands without the hassle of investing in new infrastructure.

The best aspect of cloud computing is its ability to be agile, says Stephen Pettitt, sales director, M247: “cloud computing allows enterprise organisations to scale when their requirements change.

Traditional IT infrastructure involves significant maintenance costs. Cloud services instead provide the ability to deploy new applications and services in a cost-efficient way for enterprises, allowing them to focus their efforts on other important operational expenses.”

“Flexibility is crucial in today’s remote work environment and cloud computing enables employees to work from anywhere, at any time,” agrees Poyner. “It fosters improved collaboration among teams, regardless of their location, resulting in increased productivity and better outcomes. And it enhances security by leveraging the investments cloud providers make in security measures, ensuring businesses benefit from enterprise-level security without having to invest in expensive security infrastructure themselves.”

Working in the cloud opens endless possibilities for enterprises, the most

notable being an increase in scalability, efficiency, agility and innovation, and a reduction in cost and risk, asserts James Moore, VP EMEA, DoIT. “Many businesses are tied to the capabilities of their on-premise data centres, but migrating to the public cloud can enable business growth at a rate that wasn’t previously possible. This, in turn, helps companies meet their goals by creating new value propositions and revenue models, opening up new market segments, and more easily developing and launching additional products or services,” he adds.

Indeed, many challenges which the cloud resolves for enterprises relate to the cost, deployment, and maintenance of new technologies. Cutting overheads, maintenance, deployment time, and reliance on internal IT teams, all help enterprise meet their goals earlier and more effectively.

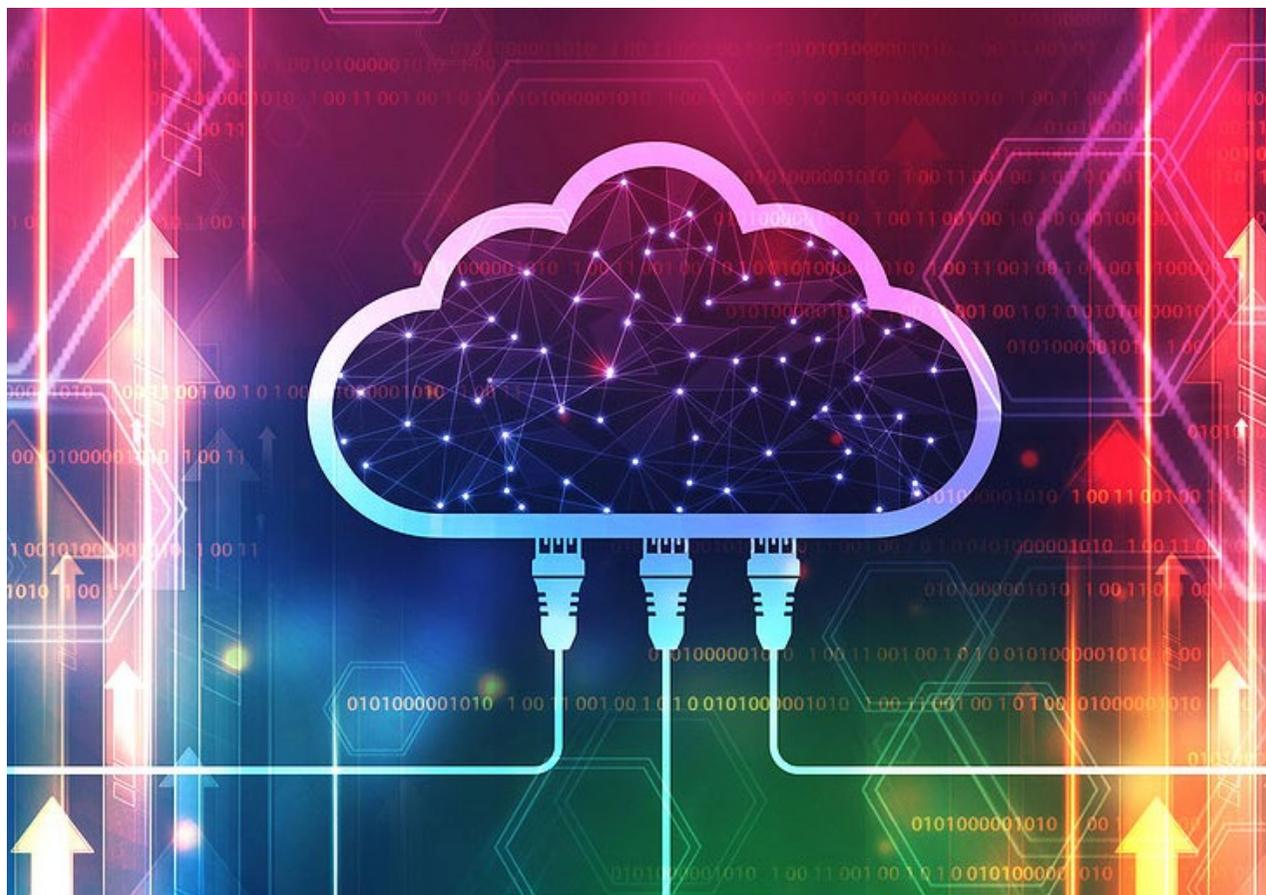
“Because of the relative ease at which

technologies can be implemented, it can be deployed at great scale across the business far quicker than by any other means,” adds Adam Lawrence, VP cloud solutions, SS&C Blue Prism.

Moreover, the cloud can even be utilised to reinforce enterprise businesses’ cybersecurity.

“According to the UK government’s Cyber Security Breaches survey, the last 12 months saw 69% of large businesses impacted by cyber breaches and attacks but with cloud-powered technology, their security and encryption is much stronger than any onsite IT infrastructure,” asserts Pettitt.

“Data stored in data centres and travelling across cloud networks is heavily encrypted, making it much harder for opportunists to target. For enterprises looking to bolster their cyber-defence capabilities, cloud computing plays a vital role.”



More than a 'lift and shift'

Despite the overarching benefits, public cloud is not suitable for every application and every workload. Businesses should host whichever applications they can in the

"Working in the cloud opens endless possibilities for enterprises, the most notable being an increase in scalability, efficiency, agility and innovation, and a reduction in cost and risk"

cloud to reap the benefits, while keeping low-latency workloads on-premise.

"These caveats are why it's so important that businesses set out the strategic objectives of their cloud journey before they begin," says Moore. "Instead of a simple lift and shift, it's an opportunity to move and improve; but to achieve this many careful considerations must be made and it's advisable to call on the support of expert cloud specialists during this process."

Moreover, cloud is not without its vulnerabilities: "one of the primary concerns is the vulnerability to server downtime, which can result in significant losses in productivity and

revenue," says Poyner.

"Technical issues can have knock-on impacts for businesses that rely on the cloud to access important information and applications," adds Lawrence. "The cloud also depends on good connectivity which

can present another issue when needing to access documents, systems, files, or anything else hosted on the cloud. If a business doesn't have a resilient network, it can put a halt to any work relating to the cloud infrastructure."

Gaca agrees that as well as slow data transfers because of bandwidth limitations impacting negatively on the performance of cloud-based applications, moving large volumes of data in and out of the cloud can incur significant data transfer costs, which can be a concern for data-intensive applications.

"Unforeseen costs, such as data transfer fees and additional storage expenses, can catch businesses off guard, despite

the long-term cost effectiveness of cloud computing," agrees Poyner.

Vendor lock-in, too, is another pressing concern as enterprises may find themselves bound to a particular vendor's platform, making a transition to a different provider a complex process.

"Switching from one cloud provider to another can be complex and costly, as different providers may use proprietary technologies and formats, making it challenging to migrate applications and data," says Gaca. Additionally, "ensuring that data and applications can be easily moved between cloud providers or brought back on-premises can be a significant challenge."

Josh Kirkwood, cloud security manager at CyberArk, meanwhile, believes that the main shortcoming is the question of security. With on-premises apps there are clear-cut boundaries between admins and users, making it easy to ensure that regular users can't access sensitive systems and data. For instance, an employee using Outlook could send and receive emails but never perform tasks like changing POP or SMTP settings or adding or deleting users.

"Cloud changes this game in this respect: anyone with cloud access may be provisioned with entitlements to tap into - across the three major CSPs - 1,400 native services. These include ML engines and a

Preparing for AI

Cloud computing and AI are two of the most significant technological advancements of the 21st century. While cloud computing is ready for the boom in AI, enterprise must be prepared for the challenges.

"The acceleration of AI has been the biggest technological development this year and we've seen businesses worldwide following the trend and adopting generative AI tools," says Pettitt.

This has led some IT decision makers to question whether their existing cloud-powered infrastructure is ready.

"Enterprises must be aware of the challenges and take steps to overcome them," highlights Poyner. "Stumbling blocks with cloud adoption for AI could include data privacy and security concerns, latency issues and vendor lock-in."

The scalability and cost efficiency of the cloud means it is flexible to adjustments, which will allow businesses to manage new AI infrastructure more effectively. In fact, according to Poyner, AI integration and cloud computing will bring many benefits, including allowing enterprises to optimise their operations, improve customer experience, and drive innovation.

"Cloud will also provide the computing resources and infrastructure needed to train and deploy AI models at scale and mean that businesses can take advantage of the benefits of AI without having to invest in expensive hardware and software infrastructure," he adds.

Moore agrees that the cloud is the best place to be during the AI revolution: "the main thing that businesses need to be aware of when using AI in the cloud is spiralling cost, as AI cloud workloads are GPU-heavy," says Moore.

"AI is the use case that cloud service providers have been waiting for; it is very compute-intensive and often requires bespoke hardware," concurs Kirkwood. "At the moment it seems the cloud service providers are the one place you can go to get all this with minimal effort. CSPs are racing to offer the best AI services to their customers, and this can only be good when it comes to pushing innovation."

Gaca agrees that cloud is ready for the boom in AI - "BUT the market is not there yet so that readiness is not converted directly into business value."

"It is important to note that the capabilities of AI are rapidly expanding and changing and so its partnership with cloud services will also have to adapt," adds Lawrence. "However, as it currently stands, the flexibility and scalability of the cloud mean it is well-prepared for the advancements of AI."

Pettitt says that, in the years to come, "it's likely we'll see increased collaboration between AI applications and cloud-computing, where AI can help automate the provision and configuration of cloud resources as well as monitoring performance and security checks."



Nick Poyner



James Moore



Adam Garca

range of SaaS services. Anyone that has the right to purchase and use these native services should be considered an admin," warns Kirkwood. "Our own 2023 identity security research shows that 77% of security professionals say developers have too many privileges, making them high-value targets for attackers. The traditional notion of a small number of admin roles with static privileges does not apply in a dynamic cloud environment, so identity security needs to change with it."

Cloud – the be all and end all?

As cloud becomes the default option across the developed world, some are beginning to ask – is there a viable alternative that meets business needs and budgets?

"As well as looking at both the workforce and business capabilities of cloud alternatives, it's essential to consider which can fulfil your availability, disaster recovery and business continuity requirements," says Lawrence.

Other options for businesses include on-premises/data centres, hybrid cloud, private cloud, mesh computing, edge computing, containerisation, and serverless computing.

Moreover, fog computing should be on the radar looking for a viable alternative to cloud, reports Poyner. "This decentralised infrastructure performs a portion of computing somewhere between the data source and the origin server (or the cloud). It reduces bandwidth needs by sending less data to the cloud and performing short-term analytics at specific network access points."

However, the near-unlimited scale, massive agility, and ease of doing business with the big cloud service providers is 'addictive to enterprises.'

"Software development teams will revolt at the idea of having to 'request' a database or a server from another internal team," says Kirkwood. "Add in delays, vendor limitations and capacity planning, and you suddenly are having to staff much larger teams to help build and run the platforms. There isn't a viable alternative to everything cloud represents these days.

It is possible, of course, to build entirely on-premises services at a lower price point. But can you spin up a data centre in a region you have no presence in, in a matter of minutes? No. Data centres take years to build, staff months to train and hardware weeks to arrive."

Is cloud old news?

"The cloud is now 'home' for many businesses, especially given the remote working boom, and it is here to stay," asserts Moore.

As digital transformation continues to be a priority for businesses, forecasts suggest that European spending on public cloud services will total \$142 billion this year and \$291 billion by 2027, while globally, public cloud end-user spending looks set to reach nearly \$600 billion this year, as per Gartner.

"In fact, Gartner predicts that by 2026, 75% of organisations will utilise a cloud-driven digital transformation model! And as economies around the world fluctuate and business' budgets remain under enhanced scrutiny, the affordability of the cloud and its flexible nature to scale with demand makes it a vital tool for enterprise businesses to maintain their place in the marketplace," says Pettitt.

"That's not a drop in the ocean, but a force to be reckoned with that promises staying power," adds Poyner.

Indeed, the scalability of cloud and the accessibility it brings to new technologies means it should be expected to be around for a long time according to our experts - and it won't always remain in its current form.

"As technology continues to advance, the cloud will evolve to meet the changing needs of businesses, making it a fundamental component of modern IT strategies. However, the specific use cases, providers, and technologies within the cloud ecosystem may evolve over time," adds Gaca.

"Far from the cloud becoming 'old news,' we're going to see the technology expand in new directions over years to come, and in turn, unlock new capabilities for businesses," agrees Moore. ■

Back to the future: bringing the cloud back on-premise

Mark Grindey, CEO, Zeus Cloud UKBSS



New model gaining ground

So how can businesses achieve the required level of security at an affordable cost, without having to revert to large and unaffordable capital expenditure? The answer is to retake control and bring equipment back on premise – while also retaining the benefits of cloud technology, including remote support and flexible finance and usage models to meet operational requirements.

A growing number of Service Integration and Management (SIAM) companies have recognised the fundamental issues associated with public cloud services and are offering this 'back to the future' on-premise model with the essential flexibility. Servers can be spun up on-premise as required, with costs linked to usage. Support is included and, by moving back on-premise, the security risks are allayed.

For any business concerned about the need to rebuild a server room or employ dedicated tech experts, neither is an issue. The latest generation of servers can be run at higher temperatures, which means there is no need to recreate the air-conditioned server rooms of the past. The servers can simply be located within existing network rooms or offices. Or, if the business lacks space, the entire system can be securely co-located within a dedicated and locked rack. Tech support is included as part of the service, with providers leveraging the remote, open source technology used to deliver cloud services to cost effectively ensure the on-premise systems are working effectively.

Future proofing

Bringing this vital infrastructure back into the business is not just cheaper but inherently more secure. Rather than the open, public access model required by the large hyperscalers, an on-premise set up takes the opposite approach: everything is locked down first, with access opened up only as required using highly secure tunnels to safeguard the business. Further, because the entire private cloud set-up is owned by the company, any required security changes can be made immediately. There is none of the interconnected public cloud risk that has led to devastating, extended attacks across key public services in recent years.

The ability to regain this level of control is encouraging growing numbers of organisations across both the public and private sectors to actively bring data and systems back in house. These organisations have serious concerns regarding data security. They are unhappy about the growing latency issues associated with the additional layers of security the hyperscalers are having to implement, a problem that vanishes when systems are on-premise. In addition, there is a recognition that a reliance on the public cloud adds operational risk: any interruption to the internet connection leaves an entire organisation unable to operate.

The tide is turning. The public cloud has its place. It is an ideal location for hosting a web site or public facing apps. But with growing recognition that every single IT deployment would be both cheaper and more secure with an on-premise set up, attitudes are changing. It's time to regain control, go back to the future and implement an on-premise private cloud. ■

Buying the myth

Organisations of every size, across private and public sector, have bought into the idea that a shared IT infrastructure offers better value for money than a dedicated, on-premise set up. As a result, the UK cloud computing market is now worth £7.5 billion, dominated by just three vendors, and with a big problem: the cost of public cloud services is typically double the equivalent on-premise set up, and significantly less secure and well supported than an on-premise alternative.

Security is becoming a very real concern for business reliant on the public cloud. The dominance of the big three hyperscalers makes them a prime target for hackers. Distributed Denial of Service (DDoS) attacks on these organisations are occurring almost continuously, creating huge security vulnerability. Not only can a DDoS attack prevent access to key services, causing serious operational issues; but, more dangerously, expose vulnerabilities in the security posture that can be used to access critical data.

So why are organisations still opting to pay through the nose for a service that is less secure and less flexible than on-premise alternatives?

Hidden costs

At first glance, the cloud model is appealing, especially the shift from capital expenditure (capex) to operational expenditure (opex). The idea that costs are known, with a set monthly subscription, is compelling. The option to scale up and down in line with demand is appealing, especially when compared to the challenges of spinning up new servers within traditional on-premise models. However, it is the hidden costs of the cloud that have caught so many companies by surprise.

The hyperscalers' financial calculators look simple; but buried in the small print is the information that every additional slice of service and support costs more. The extra – and much needed – security, costs more. Storage cost models are also disturbingly opaque: the promised price per terabyte looks great, until a company discovers it is being charged not just to store data but also to delete it. That uploads are free, but the business is then charged for every object downloaded. The monthly bill can often be two, even three times the expected amount. And that creates a huge hole in the planned budget.

Add in the limitations on bandwidth, the additional charges for CPU or RAM, plus the fact that if the business is using VMware, it will be paying again based on those same usage factors, and it is little wonder that the cost of the public cloud has far exceeded any CTO's original expectations.



How local government and the telecoms industry can collectively improve the citizen experience

Bob Driver, lead for adoption, UKTIN

Innovation has always been split into two parts: the shiny new thing, and the practical considerations of how to deploy it effectively. When it comes to smart cities and smart communities, the concept is not new, but the reality of delivering connectivity for citizens is challenging.

With technologies and standards constantly evolving, local government must make sure they are effectively navigating the complexities surrounding the deployment of advanced communication technologies. Whether this is how they partner with the private sector, understanding the role they can play in developing commercial models, or complying with regulations around data privacy.

Local government can play a critical role in delivering connectivity

To be truly effective, smart communities need to be seen as part of a wider strategy for UK connectedness. Both the public and private sectors have a part to play in achieving a successful and connected future.

Advanced connectivity solutions such as 5G, coupled with an increasing demand for data, means a densification of networks is often needed to meet demand – for example, a larger deployment of small cells. Implementing small cells requires access to suitable infrastructure, much of which will be local authority managed, such as street columns.

Evolving the delivery of smart infrastructure

For both the public and private sectors, knowing that citizens need connectivity and a willingness to grant access to publicly owned assets is a vital first step, but the practicalities can often be overwhelming.

New standards are constantly needed across the technology sector to ensure solutions are being effectively regulated and consumers are being kept safe. For local authorities, keeping up to speed can often be a daunting task.

Increasing connectivity is not as simple as solely deploying small cells on street columns. Organisations leading the tech strategy need to consider factors such as how much

weight existing columns can support; how to adequately protect critical infrastructure from both physical and cyber risks; and if they are investing in new columns, how they can balance the need for small cells against necessities such as charging points for electric vehicles (EVs).

Initiatives such as the Smart Infrastructure Pilots Programme (SIPP) can play a vital role in delivering greater connectivity. Through SIPP, six areas across the UK have been awarded funding to test smart streetlamps that can house EV charging hubs and boost wireless coverage including 5G.

This is all part of the government's aim to level-up digital connectivity and test next-generation digital technologies. The pilot programmes will be testing a variety of functions, ranging from charging EVs, and implementing Internet of Things (IoT) sensors to measure things like air quality, to displaying public information and saving energy with street lighting.

“To be truly effective, smart communities need to be seen as part of a wider strategy for UK connectedness. Both the public and private sectors have a part to play in achieving a successful and connected future. Advanced connectivity solutions such as 5G, coupled with an increasing demand for data, means a densification of networks is often needed to meet demand.”

SIPP has been created to support the UK's Wireless Infrastructure Strategy, building on the earlier Digital Connectivity Infrastructure Accelerator (DCIA) programme which generated a data toolkit for local authorities to use. DCIA was a collective effort involving local authorities, organisations, and industry from across the country.

It's certainly positive to see the government's commitment to ensuring connectivity is being delivered with local authorities and the telecoms sector working together. There is a clear vision in place for how advanced wireless infrastructure can become part of the UK's economy and society by 2030 – now it's time to deliver!

Improving connectivity by partnering with the telecoms sector

A core part of the UK's Wireless Infrastructure Strategy centres around the need for regions and communities across the UK to become truly smart. However, this is where the public sector needs the support of forums such as the UK Telecoms Innovation Network (UKTIN), which offers a front door into the telecoms ecosystem.

The aim is to provide guidance and transferable learnings about projects such as SIPP, so organisations and sectors can learn from another. This helps ensure each region does not have to learn everything for themselves but can instead benefit from shared knowledge. For example, UKTIN's Place hub shares practical insights and best practice around how local authorities approach digital infrastructure and connectivity programmes,



Regions funding programme, which aims to bring together public and private sectors to harness the transformative capabilities of 5G. Delivering advanced connectivity through a smart city in one isolated region would have local impact, but innovation only works if it's meaningful and people are able to rely on it everywhere.

The establishing of 5G Innovation Regions creates the kind of joined up approach that will be critical in delivering tangible innovation nationwide. UKTIN is playing a vital role in supporting the programme by collaborating with the successful local and regional authorities to understand and disseminate their learnings to all regions and devolved nations, ensuring the whole of the UK has access to actionable insights.

Smart communities certainly have the potential to positively change our everyday experience through improving the way we connect across how we live and work.

However, the right sectors and organisations must be brought along on the journey. The telecoms sector needs to work with local government to help take innovation and turn it into greater connectivity, tangibly improving the way we live and work. The hard work is in the practical deployment. It's not the most exciting or glamorous part of innovation – but it's where the real magic happens. ■

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HMCTS modernises with cloud migration

HM Courts & Tribunals Service (HMCTS) is responsible for the administration of criminal, civil and family courts and tribunals in England and Wales and for non-devolved tribunals in Scotland and Northern Ireland. It administers the work of magistrates' courts and the County Court, Family Court, Crown Court, and Royal Courts of Justice, employing around 17,000 staff and operate from locations in England, Wales, Scotland, and Northern Ireland.

HMCTS is an executive agency, sponsored by the Ministry of Justice, which follows the Ministry of Justice's strategic vision for reform, to create a more effective, less costly, and more responsive justice system.

"We're building a modern system for administering justice which will benefit everyone who uses it. By designing systems around the public who need and use our services, we can create a more effective system for them and generate efficiencies for the taxpayer," said HM Courts & Tribunals Service.

Citizens, judges, witnesses, and victims were often finding the justice system confusing, inefficient, and difficult to navigate. Accordingly, the Ministry of Justice and the senior judiciary, HM Courts and Tribunal Service (HMCTS) launched a £1 billion reform programme to address outdated administrative processes

supporting the justice system.

The program has been phased, with initial improvements to infrastructure and basic services followed by a wider range of online and 'enabling' services, to replace paper-based or antiquated digital systems. HMCTS planned to expand on these initial phases to build a complete end-to-end experience for its users. A crucial aspect of these reforms was to design and build common capabilities, the foundational building blocks that allow new services to be deployed rapidly. Networking and security was one of these key elements.

Connecting legacy infrastructure

To deliver the latest phase of technology reforms, HMCTS needed to connect its legacy infrastructure to Azure, to support the deployment of Windows Virtual Desktop (WVD), delivering considerable cost savings and improvements.

As a cloud-built solution, WVD would give HMCTS the flexibility to adapt working practices on-demand, something that would not only improve operational efficiency in general but would prove crucial in a post-COVID-19 working world. Connecting the Azure tenancy back to physical sites with a traditional telco provider could have taken up to 12 months

to provision, incurring massive costs.

In addition, HMCTS needed connectivity to Google Cloud Platform to upgrade its 'virtual stenographer' solution. This resource securely stores and optimises court audio recordings, making them available to authorised staff and administrators quickly and easily. Due to the sensitive nature of this data, it was crucial to maintain consistent security policy across the network.

Further to these two specific needs, the networking solution needed to be intelligent, flexible, and resilient enough to deliver on potential future requirements. It was imperative that the solution supported connections to multiple cloud environments and legacy infrastructures, with the scope to rapidly change the network landscape, as the reform programme gathered pace.

Securing traffic flows

While work had already begun to build new services in Azure, HMCTS engaged with Cloud Gateway and found that there were teething problems in establishing secure traffic flows between the new front end and legacy back end.

Cloud Gateway quickly worked to understand the networking requirements before creating a hybrid cloud connectivity platform instance, PRISM. With an existing presence in ARK government data centres, the first task for Cloud Gateway was to link the new PRISM instance with HMCTS's environment on campus, and then to the Azure tenancy. As PRISM is a cloud-native solution, with an established ARK presence, this process took only a matter of minutes.

Following a series of tests, the Cloud Gateway platform evolved and grew alongside the HMCTS reform programme in the following months. Additional connections were made to AWS, the Public Services Network (PSN) and to third party data centre providers. Thanks to the close working relationship between HMCTS and Cloud Gateway, and the responsive nature of the PRISM platform, provisioning times were reduced from 90 days to 90 minutes, and in some cases even faster.

All traffic crossing the platform is sanitised by Cloud Gateway's secure

enforcement core, regardless of its source. Whether from a Ministry of Justice cloud environment, a physical site belonging to another government agency, or a remote user using the internet at home, the platform imposes consistent security policy across the ecosystem. PRISM is both PSN accredited and NCSC compliant, and Cloud Gateway itself meets ISO 27001 and Cyber Essentials PLUS credentials.

Eliminating costly IT processes

With Cloud Gateway eliminating connectivity issues that had begun to plague the project, HMCTS can now focus on building citizen facing applications, in multiple cloud environments, safe in the knowledge that there are established secure links to legacy systems. Creative reforms can now be deployed in a fraction of the time, leveraging a full ecosystem of cloud service providers, to boost both efficiency and value for the citizens that rely on them.

HMCTS has been able to move, or in some cases eliminate, costly IT processes, reducing the amount of taxpayer money spent on maintaining these old systems. When the time is right, remaining back end functions can also be migrated to cloud if required, ultimately delivering on the promises made in the HMCTS reform programme, to completely modernise the administration of justice.

Most importantly, the ability to adapt and change has made it easier to get services into the hands of citizens faster than ever before, without compromising on security, or the safeguarding of sensitive data. HMCTS reforms will allow users to resolve civil and criminal court proceedings online, supported by digital tools. Through use of these new innovative applications, unnecessary court dates can be reduced, processes can be streamlined, and the ultimate cost to the taxpayer can be brought down.

"Our vision for reform is to modernise and upgrade the justice system so that it works better for everyone, from judges and legal professionals, to witnesses, litigants, and the vulnerable victims of crime," reported HM Courts & Tribunals Service. ■

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Town Legal unifies communications with 24/7 managed services and support

Town Legal is a boutique planning law firm with a diverse team comprising lawyers, former local government town planners and heritage consultants, which allows it to provide unique insight, understanding and perspective in relation to the challenges and issues that may arise from complex development proposals.

As the contract with Town Legal's incumbent supplier came to an end, the firm reviewed its business objectives and began to reassess what was required – and expected – from a Managed Service Provider.

Having grown from six to 50 employees in just five years, the firm recognised a need to implement a new desktop solution that provided increased mobility and flexibility, enabling fee earners to work more efficiently, no matter the time or location, to provide a superior service to their clients.

Town Legal decided to partner with a legal sector specialist with the knowledge and expertise to fully support business objectives of continued growth and improved user experience.

Managed unified communications

Town Legal selected CTS, which proposed a Microsoft Managed Desktop solution, legal specialist 24/7/365 support, and strategy consultancy service.

CTS' Microsoft Managed Desktop solution removed the reliance on a hosted desktop environment, and all IT was managed through Town Legal's existing laptop estate. This allowed the firm to cut licensing and infrastructure costs, reducing platform complexity, and resulting in a better user experience. The legacy phone system was migrated into the Microsoft Teams platform resulting in a unified communication system for smooth and efficient collaboration across the entire firm, including the NEAT video conferencing system.

Town Legal was also able to consolidate and optimise its existing Microsoft investments, such as Microsoft 365 licenses, as well as take advantage CTS' Managed 365 security solution, which

ensured its ability to continue providing a secure, high-quality client service.

"From the get-go, CTS worked closely with us to gain a real understanding of what we were wanting to achieve throughout our partnership, demonstrating that we were in the good hands of true legal experts," said Gavin Curtis, head of Information Technology at Town Legal.

CTS additionally proposed 24/7/365 managed support, delivered by teams located in the UK and New Zealand, which was specifically shaped to the individual needs of the firm. This seamless solution gives end-users access to the support that they require, anytime, anywhere, 365 days a year. Town Legal also chose CTS' strategic consultancy services to optimise the IT environment to improve efficiency, productivity and accessibility both now and in the future.

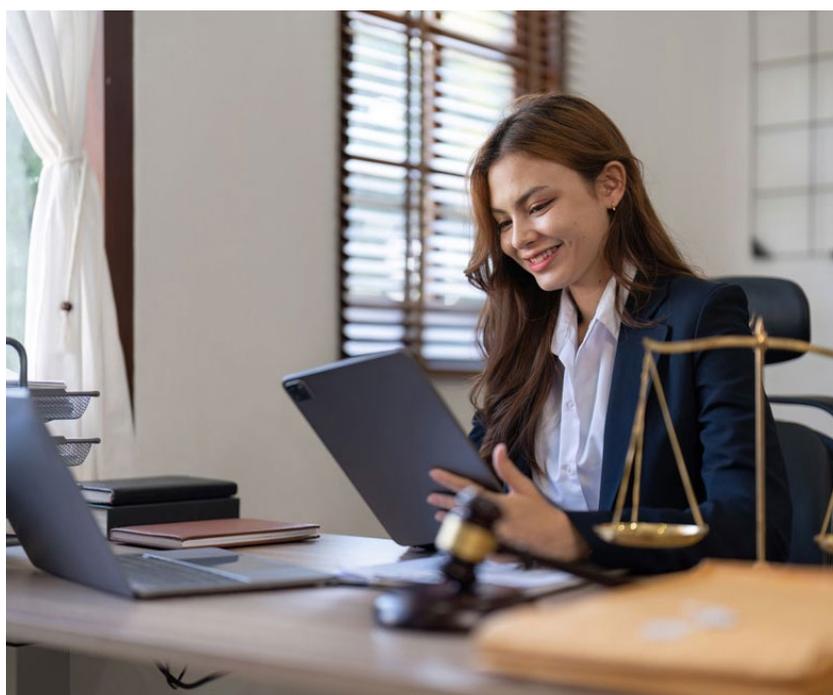
"Our confidence was boosted further during our onboarding process, particularly during our migration to the new laptop-centric model, which was carefully planned and executed seamlessly, retaining total functionality and encouraging user adoption," said Curtis.

Exceeding client expectations

With the support of CTS' 24/7 legal specialist service desk, which delivers regular maintenance, monitoring, remediation, helpdesk and emergency support, Town Legal's internal IT team has been freed up to work on more value-added projects, placing particular focus on solutions that help to underpin strong client relationships.

The optimisation of NetDocuments as a user-friendly dataroom and client portal has enabled it to not only meet but exceed client expectations, giving the firm a strong competitive advantage. Additionally, the adoption of Printix, a cloud-based printing solution, has further strengthened the agility of the ever-growing team by allowing end-users to print to the office, no matter their location.

"We chose CTS because they were able to demonstrate significant forward-thinking around IT solutions in the legal



sector, including the ability to maintain a discipline in their service delivery that we require. CTS are much more than a provider but are a partner – an extension of our in-house IT team – and we are very excited to see the fruits of our collaboration over the next few years," said Curtis. ■

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A call for help - the need for MAIT

Duncan Swan, chief operating officer, British APCO

A call for help is received by an emergency agency and the key details are recorded; they need to alert another agency to support the response; so, they pick up the phone and make a call. This happens hundreds of times every day and is both time consuming and prone to human error. It has been a long road within UK emergency agencies to reach a point where the network tools are available to facilitate digital incident transfer between agencies.

In May 2012, the Coroner's Inquests into the London bombings of 7 July 2005 reviewed progress into recommendations made and observed:

'In addition, Cabinet Office is working with the support of the Welsh Government and the Association of Chief Police Officers to pilot 'Direct Electronic Incident Transfer' (DEIT). DEIT enables the electronic exchange of incident logs between frontline (Category 1) responders with compatible command and control systems. The pilot, which facilitates information sharing using a central hub... removes the need for information on incidents to be passed verbally and, using a common gazetteer (list of locations), ensures all partners are aware of the exact location of an incident... The pilot is progressing to plan, and evaluation will take place in summer 2012. Results from the pilot will be used to assess the value of further roll out.'

In 2016, this initial work metamorphosed from 'Direct Electronic Incident Transfer' (DEIT), which was less a hub and more of a one-to-one networking relationship, to 'Multi Agency Incident Transfer' (MAIT). At this point, British APCO had oversight of the requirements that met the need to share accurate information, at speed, often with many partners, during an emergency incident. Work took place with the Cabinet Office, emergency services and commercial organisations to develop a common standard for the sharing of incident information between control rooms. The outcome was development of the MAIT schema, supporting the concept of a hub networking relationship connecting many-to-many, which was approved in 2016. This is now an adopted open standard for UK government. That said, as we approach the end of 2023, the adoption to date of MAIT remains sparse - but is about to turn a very important corner.

'On June 14th, 2017, a high-rise fire broke out in the 24-storey Grenfell Tower block of flats in North Kensington, West London,

at 00:54 BST and burned for 60 hours. 72 people died, two later in hospital, with more than 70 injured and 223 escaping.

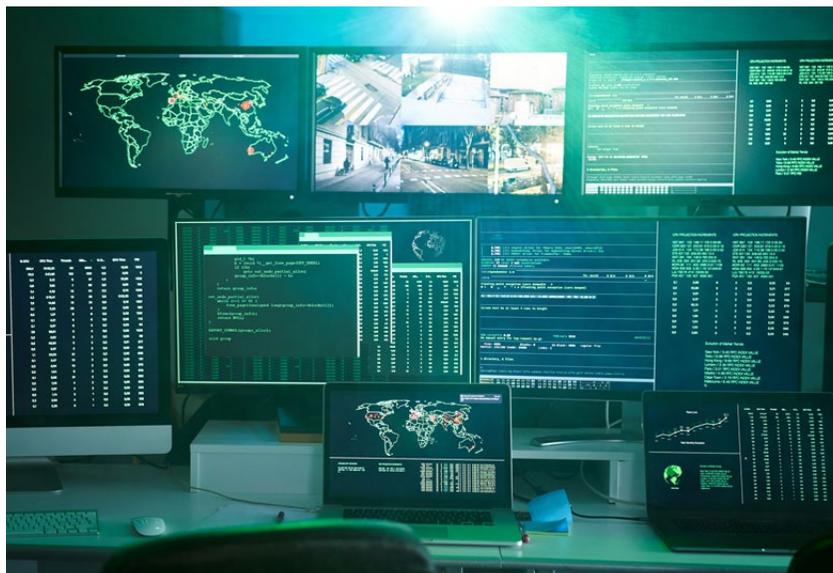
In 2020, a Home Office grant was made available to address recommendations from the Grenfell Tower Inquiry, specifically in relation to the numbers of 999 emergency calls that were received by the London Fire Brigade and the limited way in which other fire control rooms were able to provide assistance - especially given the extremely limited situation awareness the supporting control rooms had. It was noted that delays in critical information being passed between fire control rooms in fast time can have a negative outcome to the overall successful resolution of an incident.'

Three specific initiatives were identified from the findings of the Grenfell Tower Inquiry by the UK Home Office and English Fire & Rescue Services to enable better, more accurate, information sharing and general awareness:

1. Creation of a communications facility that allowed fire control operators to broadcast situational awareness to all fire control rooms via the digital Airwave Radio network. This was completed in 2021.
2. A national 999 emergency call redistribution scheme for fire and rescue services. A National Call Distribution Scheme known as 'Operation Willow Beck' was introduced in 2022 and has proven itself on multiple occasions since its implementation.
3. The ability to share information digitally between agencies using MAIT, the final piece of the jigsaw - and one that will bring MAIT to the fore across all emergency agencies in the UK.

Pilot MAIT implementations have evidenced that what can be a 4-5-minute average telephone call between agencies to transfer incident details can be achieved in around 15 seconds using MAIT - a key saving for a specific incident, that ensures significantly increased accuracy of information being transferred along with an action log of what happened when.

The Home Office procurement focussing on the delivery of MAIT capability recently awarded a contract for the 43 English FRS



- which work through separate 33 fire control rooms - that will see every English FRS able to share incident data with other MAIT enabled agencies. Implementation will be phased - but it is being slowed down by the perceived high integration costs being quoted by Command & Control/Computer Aided Dispatch suppliers that enable a fully integrated outcome.

National Highways has a significant network of roads in England to manage and monitor - this is carried out from one National Traffic Operations Centre and seven Regional Operations Centres. To understand the scale of their operation, then in the past 12 months they have dealt with:

- 608,287 incidents
- 134,093 incidents were then transferred to the Police
 - Transfer is digital using a version of DEIT to 31 police forces; by email to the other forces
 - Average of 360 transfers per day
- 1,670 incidents transferred to Fire
 - Transfer is by telephone call
- 1,247 to the Ambulance Service
 - Transfer is by telephone call

The ability to transfer data on a one-to-one basis has provided operational benefits - but as the numbers of connections grows, it is inefficient. Adoption of MAIT has the potential to unlock several benefits including a more efficient process for adding new

connections/emergency agencies - key as 33 Fire 7 Rescue Control Rooms become MAIT enabled; reduction in telephone calls to other agencies saving time to respond - and freeing up operator time; enhance speed and quality of incident transfer; improve on the road Traffic Officer response time to incidents; and ability to work smarter with more agencies to achieve common goal of public safety - which could include contractors, utilities and local authorities, as MAIT need not be confined to just emergency agencies.

There are currently two suppliers supporting MAIT services connectivity. Evident, part of ATOS, have been delivering MAIT to multiple agencies for around 3 years; in that time, they have provided 24/7 support; ~500,000 messages have been transferred; with no downtime or failures. Their solution is based upon a National Emergency Hub - which they see as key to their MAIT solution concept - and connect individual agencies to the Hub using VPN tunnels for security. It is a simple, yet very effective networking solution.

We are finally at a tipping point where emergency agencies can digitally share time critical information. The goal moving forward must be significantly more widespread adoption of MAIT - and for it to be mandatory for all control room system suppliers. This will ensure that emergency agencies can deal more effectively and efficiently with emergency incidents involving multiple agencies, providing potentially lifesaving benefits. ■

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Managing a retail network

Craig Smith, technical account manager, Highlight

Retailers have undergone a huge technology shift where there is now a constant need for connectivity and the management of these networks is more critical than ever.

There are three fundamental components for a retailer's network: a functioning Local Area Network, an efficient WiFi system, and, most importantly, a router to provide store connectivity. Whilst a service provider will embellish this with lots of additional features, it's these key services that hold the greatest significance.

Understanding how these components are functioning will enable a retailer to build their own intelligence into how their network and applications perform on a day-to-day basis, helping them to plan accurately and work more closely with their network service provider to minimise issues.

Identifying issues

The process of pinpointing the root cause of an issue can be overly time consuming. It may involve a retail outlet manager reaching out to the head office, which, in turn, initiates multiple support requests, possibly involving the service provider and vendors up the chain, resulting in a prolonged wait for responses before determining the best course of action.

This can be disastrous for retailers where every minute a network is down directly blocks sales. By possessing visibility into the services underpinning vital applications, a network manager can identify the source of the problem themselves, speeding up the resolution of an issue.

Who is responsible?

With full visibility, the network manager can respond knowledgeably to any internal inquiries without having to rely on the third party. They are also able to convey to management and stakeholders that, even though external providers are delivering the services, they retain full visibility and can hold the provider accountable.

Visibility of service

When looking for a new provider to support the network, seek one that can clearly demonstrate their ability to deliver what they promise whilst also keeping you informed about ongoing developments. This may sound obvious, but most service providers will work with other external providers or vendors and may not have full transparency themselves on how they are going to manage a proposed solution.

Several of Highlight's current users had this

specific requirement for greater visibility. One was a bed retailer with a series of regional depots supporting dozens of outlets around the UK. By providing their regional depot teams with visibility of the services being delivered, the retailer was able to understand the impact of any network issues and provide proactive support before it had an impact on store performance and revenues. It also enabled the central management team to communicate more quickly and effectively with their service provider facilitating a more open and collaborative relationship with them as well as their own depots and outlets.

End the service provider merry-go-round with rightsizing

Some retailers feel forced to chop and change network providers as soon as a contract expires. This is mainly due to having service level agreements that are either too restrictive or inappropriate for the needs of the customer.

The key is to seek a provider that suits the organisation's specific needs over the longer term. This can sometimes mean finding a provider that is 'rightsized' to their organisation's requirements. There are different tiers of service provider, from the first tier of very large providers right down to the second and third tier of smaller and more

agile providers. If the overall goal is large scale and replicability for the lowest price, then the larger first tier providers have the economies of scale to succeed.

For bespoke or smaller scale operations, there are agile providers that can offer more flexible contracts so that both the provider and retailer can adapt to unforeseen circumstances. The ideal relationship is based on having shared visibility across all services to encourage ongoing and constructive conversations.

What do you need to know?

When negotiating new contracts, the retailer must ensure visibility isn't sacrificed, otherwise they will never know where and why things are succeeding or failing. No service provider will be able to guess at requirements or solutions if the retailer is unable to coherently tell them what is required to optimise the network service.

Technology is never static, so it is important that the right decisions are taken for both sides, built on constructive conversations. These constructive conversations can only happen if both provider and retailer are speaking the same language, so any visibility solution, such as a service assurance platform, needs to provide a shared view of the network service, ideally with multi-tenant and multi-vendor views built in. ■

PRODUCTS

Server Room Environments' AKCP sensorProbe+ SP1+ is a compact environmental monitoring solution and comes with a temperature sensor (TMP01) connected.

The SP1+ provides an additional intelligent sensor port for monitoring other environmental conditions (including humidity, water leakage, power and cabinet thermal maps), and a dry signal contact I/O interface. It can be remotely monitored and controlled using AKCPro Server software (cloud or on-site) and is ideal for a single server cabinet or multiple racks within a server room or data centre.



Email alerts can be setup for distribution when monitored levels go outside threshold levels. All SP1+ devices also feature SNMPv3 support. Additional security features can be unlocked via code and include IPV6, Radius and TACACS.

The SP1+ is PoE powered as standard or can be powered from a suitable Vdc source including a USB power plug. A USB power cord is supplied as part of the SP1+ kit. In the absence of PoE dual inputs are available through an AKCP external DC-DC conversion box.

The SP1+ is supplied as standard in the Basic model form (SP1+B-PoE) or with additional features in the SP1+PRO (unlocked via a license). The basic SP1+B-PoE includes notifications, event log, graphs and MQTTs, while the PRO Model SP1+PRO adds five virtual Sensors, maps, third party modbus, IPV6, SNMPv3, VPN, access control user, radius, heartbeats, modbus, cloud, and authentication.

Datadog's Network Performance Monitoring provides full visibility into every network component that makes up the on-prem, cloud, and hybrid environments, with little to no overhead. By monitoring the performance of connections among hosts, services, virtual private clouds (VPCs), and other elements, users can quickly determine when the network is the root cause of any issue.

With Datadog's solution, enterprise can use visualizations of network traffic across applications, containers, availability zones, and data centers to help optimize migrations; track key network metrics, such as TCP retransmits, latency, and connection churn; and monitor the health of traffic between any two endpoints at the app, IP address, port, or process

ID (PID) layers.

The user can view communication between services, pods, cloud regions, and cloud resources, isolate network issues in the Envoy-powered service mesh and troubleshoot inefficient load balancing, and manage cloud networking costs by pinpointing the services and teams responsible for large traffic spikes.

Datadog's solution delivers the possibility to analyze system-wide DNS performance without having to SSH into individual machines; assess DNS server health with request-volume, response-time, and error-code metrics; and distinguish between client-side errors and server-side failures.

Monitoring connections to cloud services, the Datadog Network Performance Monitoring observes and analyzes traffic



to Amazon S3, Amazon Elastic Load Balancing (ELB), GCP BigQuery, and other managed cloud services. It also filters down into subcomponents such as specific S3 buckets or RDS databases for more granular insights, and pivots to integration metrics to determine if an issue lies with a cloud provider or originates from the systems.

Paessler PRTG Hosted Monitor provides an instant overview of the IT, OT and IoT infrastructure without the need for dedicated hardware.

It is agentless and highly customisable, which means it can work in almost every environment, allowing the enterprise to focus on optimising the health, performance, and availability of your IT systems.

With PRTG the complex IT environment becomes manageable from a single pane of glass, and the user can rely on notifications warning of unusual activity that threatens business operations. PRTG Hosted Monitor keeps the lights on, so the business stays operational.

PRTG Hosted Monitor runs on AWS and is hosted in the region of your choice.



LogicMonitor's Simplify & Scale empowers ITOps and CloudOps teams to optimize and scale IT environments, deliver high service availability, and control costs with LM Envision's hybrid multi-cloud observability platform.

The latest LM Envision's new UIv4 offers a modern and intelligent new platform design built to maximize user productivity, offer intuitive platform administration, and provide a smarter, cohesive, and accessible experience. With LM Envision's new UI, LogicMonitor customers can visualize their entire environment to improve uptime and

drive business-critical initiatives at speed and scale.

As cloud environments explode in complexity, customers will benefit from a single unified view that streamlines visibility across on-prem infrastructure, multiple cloud resources, and cloud service providers. LogicMonitor's Resource Explorer helps teams quickly organize and visualize their entire hybrid multi-cloud deployments to clearly see overall resource and application health. Teams gain comprehensive visibility across thousands of resources and can easily isolate high priority issues to accelerate resolutions.

Progress WhatsUp Gold provides complete visibility to everything that's connected to the network. The unique interactive map lets the enterprise see network devices, servers, virtual machines, cloud and wireless environments in context so that issues can be diagnosed with pinpoint accuracy.

Servers, routers, storage, wireless, virtual, cloud devices and more can all be monitored for performance, response times and an array of other metrics. Bandwidth hogs can be identified, as well as suspicious

connections. Configuration backups and restores can be automated to reduce errors and support compliance requirements.

With WhatsUp Gold, businesses can gain an instant view of what's up and what's down in all of environments — in the cloud or on-premises. They can know the status of network devices, systems and applications at-a-glance. With smarter alerting from topology-aware monitoring that understands network dependencies, the enterprise can receive important alerts, not worthless alert storms, via SMS, email, web or Slack.



Please meet...

Matt Seaton, director, Netwise

Which law would you most like to change?

It's a little morbid, but I think there's a lot of progress and improvement to be made around end-of-life legislation, in terms of having more control over this element of your life and wellbeing. But it's a very tricky area, and highly politicised as these things naturally are, so not something I'd be keen to involve myself in too deeply! Perhaps safer to stay on the tech side of things, and to ensure that the future of privacy remains a protected right for all.

What was your big career break?

I was still in high school when the early stages of Netwise began to take shape. It became a fully-fledged business while still studying at university, so it's all I've ever done really. I suppose the biggest single break would have been the deployment of our first set of servers back in 2005, in a loft in Surrey! This would set in motion the series of events that would ultimately lead us to operating two bespoke data centres today, so it'd be a tough one to beat in terms of significant career milestones, even if it wasn't really a true 'career' for me at that point (being 15 at the time).

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

It's difficult to single this down to just one person, but it'd probably have to be someone like Brian Cox. I'm referring to the physicist, Brian Cox, rather than the man behind Succession's infamous Logan Roy, although

“For a long time, I saw myself working in graphic design. But my true calling was always technology.”

in fairness he'd also be brilliant. Dinner with Brian Cox would be unbeatable for interesting chat about the universe and our place within it, although perhaps a little boring from his perspective, going over the same topics as usual at a layman level!

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

That nothing is ever as bad as it seems, nor as good as it seems. Which really means to not revel too much in your success, and not to languish too much in your failures, as most of these things are transient and can often be the result of luck or misfortune over and above direct input. It serves as a great reminder to stay grounded in the moment, and to maintain forward momentum and focus.

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

This would most likely tie back to my interests growing up; I think I'd enjoy working in a creative sector such as design, or perhaps even film making. That's an area which has always been of interest to me, and something I'd have been intrigued to see take shape if I'd taken alternative path in life. I've always loved good design, which has certainly helped guide things from an aesthetic perspective at Netwise. Building data centres which not only function flawlessly, but look beautiful as well, is a real joy, and serves as a functional creative outlet for me.

Where would you live if money was no object?

I've always found it very difficult to imagine myself living anywhere outside of the UK. I love living in London, which makes answering this quite tricky. So I think London will always be my true home, but having the funds to spend lots of time in places like Europe, the US and Asia would be nice! I like to move around a lot when I do travel, so not being tied down to any one place in particular – wherever that may be – would be fantastic.

What's the greatest technological advancement in your lifetime?

It's probably poised to be the recent advancements in AI, but given the infancy and lack of widespread, real-world applications for this group of technologies as of yet, it'd really have to go to the ubiquitous uptake of smart phones and mobile technology since circa 2007. This change revolutionised the way in which people interact with data and the internet in general, and forced positive change on all fronts of web technology. It's also something I've been able to see evolve from early concept to absolute universality in just a decade or so.

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

For a long time, I saw myself working in graphic design. But my true calling was always technology. I still scratch the design itch frequently enough at Netwise, heading up most of the photography and design work for the organisation, which is a great way to stay connected to that passion of mine. I still very much enjoy seeing how well executed our brand is, from our website right through to the application of physical branding inside of our facilities. ■



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