

NETWORKING+



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‘Firms transform networks for competitive edge’, report finds



Enterprises in the UK are treating networks less as a commodity and more as a strategic asset since the Covid-19 pandemic disrupted work modes and most industries, according to a new research report published by a global technology research and advisory firm.

The 2022 ISG Provider Lens Network — Software Defined Solutions and Services report for the UK, by Information Services Group (ISG) finds many companies are adopting software-defined networking (SDN) as part of broader modernisation programs aimed at becoming more agile and competitive under new business conditions. SDN, as a technology or a managed service, allows organisations to address the unique needs of each user, including the access, applications and priority they require.

“It’s increasingly common for British companies to transform their networks as part of a move to software-defined everything,” said Jon Harrod, director, network advisory, for ISG in the UK. “More flexibility and personalization are needed to serve remote workers and customers better.”

Business transformations at most U.K. enterprises are taking place in two phases,

the report says. First, organisations assess and standardise their people, processes and tools, a step that typically includes migrating from traditional networks controlled by command-line interfaces to software-defined services. Then they transform the operations that surround the technology.

The number of enterprises that buy solutions directly to manage and operate on their own is still growing in the UK, but the trend is now moving toward fully managed or co-managed solutions, the report says. Some DIY organisations are moving back to suppliers for a co-managed approach.

Over the last 12 to 18 months, the market has also been shifting from private to public networking, ISG says. This change was triggered by the adoption of distributed networking during the pandemic, which has also led to integration of LAN and WAN domains.

Furthermore, the report examines a wide range of trends and issues around software-defined networking in the UK, which also include the rise of now-standardised secure access service edge (SASE) and the growth of intelligent edge networking.

It also evaluates the capabilities of 53 providers across five quadrants: managed SD-

WAN services, SDN transformation Services (consulting and implementation), enterprise networks technology and service suppliers, edge technologies and services, plus SASE.

Elsewhere, the report names BT, Deutsche Telekom, HCL, Orange Business Services, Tech Mahindra, Vodafone and Wipro as leaders in all five quadrants. It also names Colt, Tata Communications and VMO2B as Leaders in three quadrants each and Aryaka, Cisco and NTT as leaders in two quadrants each. Lumen, Microland, Nokia, TCS, Verizon, Versa and VMware are named as leaders in one quadrant each.

In addition, Microland is named as a Rising Star — a company with a “promising portfolio” and “high future potential” by ISG’s definition — in three quadrants. Computacenter and Tata Communications are named as Rising Stars in one quadrant each.

ISG, based in Stamford, Connecticut, specialises in digital transformation services. These include automation, cloud and data analytics; sourcing advisory; managed governance and risk services; network carrier services; strategy and operations design; change management; market intelligence and technology research and analysis. ■

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'Over a third of businesses fear security risks from incompatible apps'

Over a third (36%) of organisations fear the risk of a security breach or incident due to an incompatible application on the latest version of Windows, according to new research of UK and US CIOs commissioned by Cloudhouse.

In addition, over a quarter (26%) of businesses are also concerned about the risk of breaching regulatory compliance due to the same reason. Despite these fears, more than a third (34%) of businesses only audit their IT assets for security and risk compliance on a quarterly basis or even less often.

Additionally, only 30% perform continual monitoring of the general security of their IT assets, with nearly a quarter (23%) only performing this

quarterly or less often. Complacency in monitoring and ensuring application compatibility could however prove detrimental to businesses, with sophisticated methods such as ransomware and malware among the major security threats facing businesses.

Ransomware is emerging as one of the most prominent cyber risks, with 80% of businesses concerned about the threat it poses. Close behind is the fear of password exploitation (64%), cross-site scripting (63%), and the danger posed by malware, with 61 percent of businesses citing it as a concern to their operations.

"Despite fairly widespread awareness of security threats among a number of organisations, many are failing to take the

appropriate steps to mitigate the risk posed by incompatible applications," said Mat Clothier, CEO and founder of Cloudhouse. "With the cyber landscape increasing in complexity and attacks becoming more sophisticated, it's critical for businesses to not only make the move to an up-to-date and supported version of Windows but also ensure that their applications make the leap successfully with the assistance of supporting tools."

The findings further revealed that there is no one consistent approach among organizations when it comes to assessing the security of their IT assets. Of those that utilise technology, the most popular proved to be active change monitoring and management (37%) and real-time

endpoint security scanning tools (36%), with a variety of other tools being used by approximately a third of organisations. ■



Iron Mountain unveils UK plans

US storage and data management giant Iron Mountain has unveiled plans to take a 312,000sq ft warehouse at Tritax Symmetry's Symmetry Park in Kettering, just days after it announced its first UK campus at Symmetry Park in Rugby, Warwickshire.

The company will take the Kettering unit when it reaches completion in January 2023, the largest unit in the current phase of Tritax's speculative development.

This will be the first building delivered by the latter at Symmetry Park Kettering, which has reserved matters planning permission for further buildings, delivering 2.3 million sq ft of space across the 136-acre site.

The development at Kettering followed a rigorous assessment of the facility's potential for sustainability, which forms part of Iron Mountain's ambitions to achieve Net Zero emissions by 2040.

These leased buildings will achieve net zero carbon construction and come with 20% photovoltaic roof coverings and will also offer charging points for electric vehicles.

"The growth of e-commerce continues to drive huge demand for warehouse and logistics space across the country," said Phil Shepley, vice-president and head of commercial UK, Ireland and South Africa, Iron Mountain. ■

Full-fibre available to 40,000 premises on Isle of Wight

Over 40,000 premises on the Isle of Wight can now receive full-fibre broadband services provided by WightFibre.

This includes availability for the first time in Ventnor, Lake, Nettlestone and Seaview. Most businesses and homes in Sandown and Shanklin are also ready for service. Cables have already been laid to a further 10,000 homes with service to those enterprises and homes scheduled to become available over the summer.

This means WightFibre's Gigabit Island Project is well over the half-way mark with a total of 460km of trenches dug to date. The company expects service to be available to 60,000 premises by the end of the year with an ultimate target of around 80,000 premises. This equates to 96% of all premises.

"We are really pleased to have connected our first full-fibre customers

in Ventnor and Seaview," said John Irvine, CEO of WightFibre. ■

We expect the network build across the Island to be largely complete by the end of 2023. Our new full-fibre, future-proof network is second to none on the planet and this, coupled with our very high levels of customer care, is giving customers what they want – fast reliable broadband that just works."

WightFibre's full-fibre, "ultrafast and future-proof broadband" is live in Cowes, East Cowes, Newport, Wootton, Ryde, Lake, Nettlestone, Seaview, Sandown, Shanklin and Ventnor. It is also expected to go live in Freshwater and Yarmouth – extending the company's reach into the west of the island. Work on WightFibre's Gigabit Island Project is ongoing in St Helens, Bembridge, Brading and numerous other towns and villages across the Isle of Wight. ■

UK military investigating hacks on army social media accounts

British military authorities are trying to identify the criminals who hacked the army's social media accounts in early July, flooding them with cryptocurrency videos and posts related to collectible electronic art.

An investigation was launched after authorised content on the army's YouTube account was substituted with a video feed promoting cryptocurrencies as well as images of billionaire businessman Elon Musk.

As part of the hack, the Army's Twitter account retweeted numerous posts about non-fungible tokens, unique digital images that can be bought and sold but have no physical counterpart.

"Apologies for the temporary interruption to our feed," the army said in a tweet posted after the Twitter account

was restored July 3. "We will conduct a full investigation and learn from this incident. Thanks for following us, and normal service will now resume."

However, the Ministry of Defence later said both breaches had been "resolved".

Jamie Moles, senior technical manager at cybersecurity firm ExtraHop, said nation state attacks are happening constantly, with foreign powers such as Russia, China and North Korea "always testing the boundaries of our networks, just as we are testing theirs". He added: "Attacks can materialise in a number of ways. It could be ever so slightly changing the level of chemicals at water supply plants, or sabotaging electrical grids to turn off the heating. As a member of the public, we don't see behind the scenes, and would only witness the aftermath of attacks." ■



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Leeds signs Allied Telesis to boost network customer experience

Premier League football club Leeds United is improving the customer experience for fans and visitors at its Elland Road stadium as part of an upgrade to its existing Allied Telesis resilient network core.

Designed, installed, maintained and supported by NETprotocol, a platinum-level Allied Telesis partner, the network has been in operation for 15 years with no downtime, according to the enterprise internet-of-things (IoT) and software-defined network systems provider.

Leeds needed round-the-clock no-fail network operations for all its internal businesses within the stadium grounds. These included back-office administration, call centre, hospitality and executive suites, ticketing, merchandise shop, press box, television studio and a CCTV security system

that operates several hundred surveillance cameras throughout the stadium complex.

“There are so many moving parts to the network in this dynamic stadium environment,” said Mark Broadley, head of IT and facilities for Leeds United. “We have to meet so many different objectives under one roof, and we have to know that everything works just the way we need it to, without fail. Having confidence in all that makes my job so much easier.”

With nearly 200 cameras around the stadium, the CCTV is a key part of the infrastructure, designed to protect the almost 38,000 fans and workers in the stadium on game days. NETprotocol installed a dedicated network layer using an Allied Telesis switch that supports power over ethernet (PoE) to each camera around

the campus, further ensuring continuous operation of the security system.

The Elland Road club’s network is based on two high-capacity, diversely routed fibre connections constituting the resilient network core. It covers the stadium as well as its training ground 20km away in Thorp Arch, Wetherby.

One 20GB connection is in the main datacentre in the East Stand and one 20GB connection is in the ticket office in the West Stand. The diversely routed fibres going east to west and west to east around the stadium create a 40GB ring that is completely faultless. Connected to these two cores are several edge cabinets that run the rest of the structure.

A Vista Manager EX network management platform and the Autonomous

Management Framework from Allied Telesis are run from a single pane of glass to allow centralised display of network details, status and event information, automating common tasks such as firmware updates, backups and zero-touch provisioning. ■



NHS suffers cyberattack

The National Health Service (NHS) suffered disruptions in early August as it was revealed that a software outage was caused by a cyberattack.

First detected on Thursday, August 4 by Advanced, the software firm providing digital services to emergency line NHS 111, the attack targeted systems that facilitate patient referrals, ambulance bookings, out-of-hour appointments and emergency prescriptions.

The company’s chief operating officer, Simon Short, told BBC News the loss of service was related to a cyberattack contained to “a small number of servers”.

“We can confirm that the incident is related to a cyberattack and, as a precaution, we immediately isolated all our health and care environments,” Short said.

An NHS spokesperson said that while disruption was “minimal”, it was monitoring the situation “closely” and asked people to call 999 in cases of emergency.

“There is currently minimal disruption, and the NHS will continue to monitor the situation as it works with Advanced to resolve their software system as quickly as possible – tried and tested contingency plans are in place for local areas who use this service,” the official added.

Nic Sarginson, principal solutions engineer at Yubico, said that the UK healthcare sector can effectively mitigate the risks brought on by emerging ransomware attacks and the general cyberthreat landscape:

“The healthcare sector is one of the most heavily targeted industries by cybercriminals,” he added. “Since the start of the Covid-19 pandemic, UK healthcare providers have implemented the use of remote and virtual services to support increased access and wider exchanges of electronic medical data. However, this has led to widening security gaps within their digital infrastructures, making medical providers susceptible to potential cyberattacks.”

In 2017, NHS services were significantly impacted after a large-scale ransomware attack. ■



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You're responsible for the protection of your SaaS Application Data. Did you know that?

SaaS vendors own the cloud infrastructure stack and all primary components that make up the service such as physical infrastructure, network controls, the operating system that hosts the application, controls for the application offered as a service, hardware components, and more.

But data—the critical component that powers your business and is central to the service's relevance—is your organisation's responsibility.

This is because SaaS vendors operate on a shared responsibility model, which means obligations are shared between the vendor and the customer.

Data is your most important asset

In today's digital economy, data has become the currency of enterprises. Losing it will result in potential loss of customers, brand, revenue and ultimately the company.

In a study conducted by ESG, 81% of Microsoft Office 365 users had to recover data, but only 15% were able to recover 100% of their data.¹

Complete Protection for SaaS Data

Cloud data protection is your responsibility. And moving data to the cloud exposes it to risks. Having a comprehensive solution to protect data hosted in SaaS applications is the only right move for any organisation.

Arcserve SaaS Backup offers complete protection for data stored in Microsoft 365, Microsoft 365 Azure AD, Microsoft Dynamics 365, Salesforce, and Google Workspace.

Conclusion

SaaS vendors have made it clear that backups are the organisation's responsibility and not theirs. Arcserve SaaS Backup adds to Arcserve's powerful portfolio, equipping organizations to completely protect their SaaS data, eliminating business interruptions due to unrecoverable data loss.

Download our eBook, "Top 5 reasons why you need SaaS Data Backup", to learn more, and protect you SaaS today!

¹Source: ESG Technical Validation, Keepit: Dedicated Data Protection For SaaS Workloads. Delivering Data Availability, Cost-Efficiency, Simplicity, Instant Recovery, And Total Security by Dolan, Kerry, Sr. IT Validation Analyst. October 2021.

Heatwave forced Google, Oracle shutdowns

American tech giants Google and Oracle suffered outages as cooling systems failed at London data centres as record temperatures hit much of the UK July 19. Oracle, a database software and technology firm, reported overheating problems just before 4pm. "Following unseasonably high temperatures in the UK south (London) region, two cooler units in the data centre experienced

a failure when they were required to operate above their design limits," the company said. The issue was resolved shortly after 10am the following day (July 20). Overheating also hit a Google Cloud data centre. Just after 6pm, the company reported that "there has been a cooling-related failure in one of our buildings". The problem was fixed by 7am, July 20, Google said. ■

UK unveils data reform bill proposes AI regulation

The UK government introduced a pair of post-Brexit data reform initiatives aimed at guiding responsible use of data while promoting innovation in the economy. In the House of Commons, the government released the Data Protection and Digital Information Bill. In a separate statement, minister for media, data and digital infrastructure Matt Warman said the data protection reform bill will help "transform

the UK's independent data laws". The government is also unveiling a set of proposals to regulate the use of artificial intelligence. "The Bill will seize the benefits of Brexit to keep a high standard of protection for people's privacy and personal data while delivering around (1 billion pounds) in savings for businesses," the UK Department for Digital, Culture, Media & Sport press release said. ■

'Industry's first outdoor Wi-Fi 6E access point'

Cloud networking specialist Extreme Networks introduced the Extreme AP5050: apparently the industry's first outdoor Wi-Fi 6E Outdoor Access Point (AP) optimised for deployment across outdoor venues, convention centers, hospital and university campuses and large stadiums, among others. The AP5050 delivers faster speeds, reduced interference and enables large outdoor venues to operate across up to three times as much spectrum

as previous generations of Wi-Fi. "The AP5050 also helps customers future-proof their networks with infrastructure designed to support next-generation, high bandwidth applications and IoT devices to dramatically improve operations and consumer experiences, while creating a foundation to monetise new mobile services," the company said. ■

RingCentral launches wave of updates

RingCentral has launched a raft of new features for its cloud phone and collaboration platforms in an effort to help customers drive greater productivity during turbulent economic times. The updates are designed to give users a way to automate administrative tasks, reduce the need to juggle multiple apps and help develop custom workflows specific to individual businesses. Amongst the changes, RingCentral has rolled out new capabilities for its cloud phone service

that it claims will relieve pressure on IT departments. Upgrades include improvements to self-service on-boarding, a simplification of the call forwarding process and the ability to use various analytics tools to draw insights from call behaviour data. "Core to successfully enabling hybrid work is providing your people with the right communications and collaboration tools when and where they need them," said Kira Makagon, chief innovation officer at RingCentral. ■

Virgin Media O2 Business to provide dark fibre for Proximity

Virgin Media Business Wholesale - the wholesale fixed division of Virgin Media O2 Business - and Proximity Data Centres are now working together to deliver network services including diverse dark fibre and optical high-capacity services up to 100 GB to customers across the latter's portfolio of regional colocation data centres. With nine already open, a total of 20 Proximity sites will be available within the next 12 to 18 months, providing nationwide coverage and reaching 95% of the UK population. ■

Macquarie buys stake in Virtus

Australia's Macquarie Asset Management has bought a minority stake in UK data centre operator Virtus from its owner ST Telemedia. The investment will help Virtus grow its UK data centre operations, but also expand into Europe, according to Macquarie. Virtus currently operates 11 sites with around 180MW of data centre capacity in and around London. "While London's data centre market is expected to continue seeing increased absorption levels, driven by strong demand for hyperscalers, we believe Europe - including core markets such as Germany and France - will present sizeable growth opportunities over the next decade," said Nathan Luckey, senior managing director for Real Estate at Macquarie Asset Management. ■

Home Office data incidents nearly double

The Home Office has recorded 9,205 personal data incidents over the past year, almost double the year prior. In its Annual Report and Accounts 2021-22, the lead government department responsible for immigration, security and law and order, reported that over 9,205 personal data incidents occurred from April 2021 to March 2022, with 13 being reported directly to the Information Commissioner's Office (ICO). Of the 13 incidents formally reported to the ICO, seven were reported as an unauthorised disclosure of information, one was reported as a device or paper document lost outside of secured government premises, and the remaining five were listed as "other". ■

Proximity acquires Bristol DC for £13.1m

Proximity Data Centres has acquired a data centre in Bristol currently operated by French-headquartered IT consultancy Capgemini for £13.1m. The site, 1120 Aztec West, is located near Bradley Stoke and Patchway. It is close to the M4 and M5 motorways and the Almondsbury Interchange. Capgemini is leasing the 90,000 sq ft unit until December 2024. Steve Oades, head of the Bristol commercial team at estate agency Knight Frank, which agreed the sale, said: "Data centres of this nature are extremely rare outside of the South East and we are delighted to have represented Delta Properties in the transaction and wish Proximity continued success with the growth of their business." ■

Word on the web...

Why prioritising user experience is vital

Song Toh, VP global network services, Tata Communications

To read this and other opinions from industry luminaries, visit www.networkingplus.co.uk





Five major IT hurdles faced by the healthcare sector

By Abirami A, enterprise evangelist, ManageEngine

The healthcare sector has dramatically transformed in terms of the technology and operations used since the pandemic began. The pandemic has accelerated what would have been years of technological advancements in healthcare. The world witnessed virtual ER and hospital wards sprout up overnight, the rapid adoption of telemedicine, and an increase in the use of health wearables, and now there is no going back.

According to a recent study conducted by Boston Consulting Group, remote monitoring of patients has increased from 12% to 30% since the start of the pandemic, and 60% of patients prefer transitioning away from hospital-confined care. The pandemic has also revealed how integrated care systems (ICSs) enabled hospitals, local councils, and volunteer organisations to collaborate efficiently by sharing resources to locally deliver timely, quality care for all. Many healthcare providers, like the NHS in the United Kingdom, are now in the process of rapidly expanding such ICSs.

Yet, all these advancements open up a myriad of technological and operational challenges. Here are five prominent IT hurdles among those:

For an ICS to work, a solid infrastructure and processes that can accommodate new technological developments and the associated data generation are crucial. Multiple departments will have to collaborate across geographical and organisational boundaries, making interoperability all the more relevant. Going ahead, the lack of a standard technology platform will be a limitation for ICSs.

Without such a platform to facilitate seamless integrations, inconsistencies in patient care will continue to arise between departments, including data duplication and the unavailability of real-time data (such as patient reports, payment statuses, and insurance claims). IT departments need to invest in comprehensive solutions that enable technology consolidation in order to create a more robust IT system. Without implementing this, expecting multiple organisations and their departments to coordinate will not be practical.

The healthcare sector produces one-third of the total data generated across the globe. The number of sources through which medical data is generated and stored is also increasing. At present, there is data streamed live from health wearables, recorded during telemedicine services, measured by connected medical devices, and more. AI systems analyse such data to deliver more personalised health predictions for patients. However, without proper data standardisation, interoperability becomes challenging, and security risks increase.

EHRs are 10 times more valuable than credit card data on the black market. Hospitals often need to coordinate with labs, insurance providers, and other medical centres. Each time a patient visits any of these touch points, it is an added data entry. Most often, the personnel dealing with such vast information are not data scientists; in such cases, there is an increased risk of insider threats like data mishandling.

Implementing the right security solutions and practices to seal all the loopholes is a major struggle that healthcare IT departments face. They need a set of advanced capabilities such as rigid access control, real-time monitoring of on-premises and remote user sessions, firewalls, sound password policies, instant alerts about anomalous activities,

forensic analytics, and data backup and recovery procedures.

Patients are demanding higher levels of personalised care from healthcare divisions as they would for any other industry. This includes self-service portals for appointment booking, downloading reports, and processing payments; having real-time remote medical assistance; and employing AI and robotics to predict health patterns and future risks. Providing all of these is challenging, especially for an ICS as diverse locations and departments are involved. If patient records get mixed up, the results could be

catastrophic. To succeed, the underlying IT infrastructure needs to support centralised storage of EHRs with easy, secure access for only the relevant parties and applications.

In the healthcare business, where patients' lives and finances are at stake, credibility is of utmost importance. One cybersecurity breach is sufficient to take down multiple businesses. As more regions develop their own set of data regulations and industry-based data privacy laws, like HIPAA and HITECH, staying compliant is critical. One of the highest penalties paid for a cybersecurity breach due to non-compliance with HIPAA was \$5.1m.

IT solutions play a major role in meeting the data management, network security, access control, and audit requirements of such regulations. There is high pressure on IT teams to identify and implement the right solutions and best practices to achieve compliance.

Formulating streamlined standards and organising training programs for healthcare professionals and staff can help minimise errors when dealing with healthcare IT technologies. This could reduce the burden on IT teams in their handling of the above concerns. ■

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SSE leaves the network world behind



Nathan Howe, VP of emerging technology at Zscaler

The meteorite impact on Earth millions of years ago ensured that the Earth's surface would never be the same again, leading to the extinction of the dinosaurs. A parallel between how dramatic external events can cause fundamental long-term change in environmental conditions can be observed today in the world of IT.

While IT modernisations had already been initiated with many organisations moving applications to the cloud, the pandemic has proven to be a widespread impetus for change. In a previously unforeseen way, companies worldwide were forced to transform their IT landscapes to adapt to the new and evolving conditions, at an unprecedented speed. But which of the traditional infrastructures will sooner or later be left behind in the post-COVID era?

In recognition of the universal upheaval organisations face, Gartner is helping to set the course for the reorganisation of IT infrastructure with its new security pillar, the Security Service Edge (SSE) of the SASE framework. The new model, with its unifying of safety parameters as a service function, represents the natural evolution of the SASE framework. By eliminating the "A" for access the decreasing importance of the security stack at the network perimeter, which previously regulated the access authorisations to the corporate network and thus ensured IT security within the sealed borders, becomes clear. Today, the network itself is no longer regarded as part of the security control body, but only as a means of transporting data streams towards a new security model.

The traditional network is losing importance

In this way, SSE reflects the circumstances that companies have contended with over the past two years. Employees have left the secure network and access their applications from a variety of new working environments – in many cases, this is due to imposed contact restrictions. For a decade now, applications have found a home in cloud environments, further reducing the importance of the data centre. Driven by the pandemic, however, even those previously reluctant have made their way to the cloud. But if there are neither applications nor employees within the corporate network, what sense does a security stack at the network edge make? The answer to the reorientation of the security infrastructure is the Security Service Edge.

In modern working environments, securing the direct path from users to their applications plays the decisive role—without the intermediate step of a network perimeter. And it is precisely this core idea that a Security Service Edge approach revolves

around, with zero trust being the cornerstone of implementation. If a user needs access to an application or a service, this access must be defined in a role-based manner and continuously monitored. Regardless of where the applications are stored, security must work in line between the user and application. A cloud function provides this control authority and offers the necessary agility and flexibility for a wide variety of application scenarios.

In a Security Service Edge deployment, users are no longer tied to a network for access to applications, but instead gain universal access based on their identity, regardless of location. The least-privileged access concept shows its strengths in all modules of the SSE and also accordingly forms the basis for cloud access security broker (CASB) or data loss prevention (DLP). Crucially, the focus is always on policy-based access rights, whether for access to permitted applications or web services, or at the level of individual documents.

Universal access for future scenarios

To keep up with these changes, IT departments must consistently select the right tool for each task. When it comes to IT security, this means that they must step away from network appliances as gatekeepers for security tasks and follow a new approach with SSE that switches security directly between user and application or service. At the same time, IT departments are paving the way for companies to take the next steps towards digitisation. Zero trust is an ideal architecture not only for user access authorisations, but for devices or workloads as well.

With applications that are outsourced to the edge or internet of things (IoT) and operational technology (OT), the next digital applications that need to be secured are in the starting blocks. Then the cloud will not be the only connective tissue for access, but the internet or, or even the latest wireless standard, 5G, will be included. 5G already enables completely new application scenarios beyond the traditional network, whose data transmission and access authorisations should also be secured.

The traditional network has been completely and permanently transformed. As companies realise the full potential of the cloud to secure users, applications, and devices, SSE provides a forward-looking framework that can help guide them in this journey. Essentially, organisations that consider an SSE solution can ensure that they rely on a future-proof and portable approach that supports the requirements of a cloud-first working environment. ■



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Birmingham 2022, gold winning connectivity

Linda Clark, managing director, Mobile Mark Europe

During the Birmingham 2022 Commonwealth Games, I saw the essential role antenna infrastructure and technology played in providing reliable connectivity and access for visitors as well as underpinning critical communications. The requirement for connectivity was a challenge that had to be achieved between venues and while users were on the move.

The 2022 Commonwealth Games was attended by 1.3 million people, the overwhelming majority of whom wanted to connect their portable devices to the internet. This is a major challenge to all mega events, where people now expect to have access to fast, reliable communications and transmission capability. How this is achieved often must depend on what systems are already available at a venue and its environs. Options can include, Wi-Fi 6 as an enhanced version of the 2.4/5GHz spectrum, 2.4GHz provides the most coverage at slower transmission speed, while 5GHz gives less coverage but higher data transmission speed. It allows multi-user connectivity. LTE and 5G provide good communications with capability for expansion via temporary cell sites. There is also Distributed Antenna Systems (DAS), widely used in stadia, which facilitates multiple-user, high speed connectivity. The network used is often determined by what is already available and resources available to pay for access to a network.

At events such as the games Critical comms are, as it says on the tin, Critical. Police, security, emergency and transportation services rely for data transmission and communications on network accessibility and reliability. Here signal connection is important as is the security of the network provided by the network operator. However, the most secure network is useless, if users can't connect to it or if signals don't get through.

Antenna and system design are critical for ensuring communications from, for instance, first responders being received from all locations at an event. Thus, there is a need for robust systems and if resources permit a degree of redundancy and appropriate back-up systems.

A success of the 2022 games was transport logistics, with columns of buses efficiently and economically, moving a million competitors, fans, officials and volunteers between events. Underpinning this was reliable, wide area communications between vehicles and control centre. The games used bus providers from all over the UK to provide a free transport service.

I used these buses both as a volunteer and spectator and found the communications worked well, given that the different bus operators had different communication, tracking and location systems. GPS/GNSS location solutions with LTE cellular systems for information communication with the control room were used to provide passengers with real time information at smart bus shelters. The buses were also equipped with Wi-Fi for passenger use. Some operators had incorporated my company's 946 series, offering 4x4 MIMO for 5G cellular along with 6 Wi-Fi 6e elements for data distribution, collection and a GNSS element for location or timing.

Modern buses come with an array of technology, electronic ticket validation, passenger counting, CCTV, VHF and UHF communication links. The hardware being concealed within bus ceilings and side panels utilising high performance antennas inside and outside.

Data exchange from bus to control room and back, requires appropriate on-board equipment to give operator and customer what they need. The challenges are cost and installing multi-band high performance, durable antenna systems to deal with film and video streaming by customers and control room communications.

High demand for connectivity and network pressure peaks such as half-time breaks or opening and closing ceremonies, requires robust solutions with deployment of temporary cell sites or the use of Distributed Antenna Systems being available options for organisers.

Looking at the critical comms aspect of the games, it was a complex operation between, police, military, first responders and in house security that was underpinned by cellular and TETRA Two-way radio that proved successful in maintaining communications with all involved in making the games safe, secure and enjoyable.

Looking forward from Birmingham 2022 and at challenges for antenna solutions for super-fast communications at Mega events, the number of elements required for future lightning-fast data transmission rates, alongside increasing frequency ranges, are going to be challenging. 5G mmWave running at high frequency and extremely high data rates pose a challenge as radio waves, at such frequencies, act more like directed light from a bulb, rather than receive anywhere radio waves. The characteristics require both the send and receive antennas to be pointed at each other.

Consequently, a new technology named; Smart Antennas is emerging. This uses automated beam steering, which electronically aims the antenna at users' devices to achieve maximum data rates. The system uses Massive MIMO arrays, which have dozens or even hundreds of individual radiating elements which can be switched and aimed as required.

With the growth of Smart Cities and

the prevalence of IoT, the demand for appropriate antennas is a design challenge, as with 5G using MIMO technology requiring multiple data channels for transmitting data concurrently. In the antenna industry we are working to satisfy the needs of the user

and the technology for connectivity. Be that at an event, on a bus, in a smart building or cheering the winners at the finishing line, innovative developments will remain an essential part of these solutions.





Data centre consolidation: what does it mean for the industry?

Consolidation is inevitable in most sectors, because companies continue looking to make savings. However, that doesn't necessarily mean it's always a good move. Robert Shepherd asks those in the know that they think

Why is there so much consolidation in the data centre space?



John Hall, managing director – colocation, Proximity Data Centres:

The data centre market is undergoing significant changes probably more than in any time in its history. Enterprises that have traditionally owned their own data centres are moving some, but not all, of their IT workloads into Cloud based environments. As a result, they are considering how to re-utilise or sell the considerable assets they have invested heavily into over a number of years. It is important to note that whilst it is true that some applications are easily transferable into the cloud not all, particularly legacy services fit here. Sometimes the pricing models of the cloud providers can make running certain types of services very expensive. Another point is the skills required

to migrate workloads are still scarce and this causes delays and costs. A metaphor could be the pendulum initially swung from enterprise owned data centres to cloud-based services but is now returning to middle ground as new services and applications sit next to legacy.

David Sandars, business development manager, Vantage Data Centers UK: The enterprise needs to focus on its core business. Operating a data centre is not the core business and therefore it should be outsourced to the experts. Legacy data centres no longer fit for purpose, too expensive to maintain/upgrade. More flexibility to add network services and power capacity quickly in colocation for example to enable staff to work from home during lockdown.

Colocation customers can save money on maintenance, support contracts and insurance premiums when data centres are moved to the specialists. Virtualisation can mean much less space and power required at a data centre therefore saving more money. Enterprises are reviewing use of office buildings following Covid and closing buildings which means moving the data centre out.



Matt Edgley, director, Teledata:

Opening a new site takes a huge amount of investment. Not just to build the data centre, but also to build a team and bring in the network providers. Network providers rarely take a speculative view on bringing their networks into a new site and they like an existing customer base to work with.

So not only does it take a lot of investment, but it also takes a lot of time to build and fill a standalone site - time which adds to the potentially long period of time where the new facility makes a loss. Therefore, buying a quality facility with clients, networks and available capacity is highly attractive – particularly if entering a new regional market.

Richard Clifford, head of solutions at Keysource: Data centres have been one of the few industries to have seen growth during the Covid pandemic, in part as the trends shifted to remote working but also against a backdrop of global digitalisation. This makes the market very attractive for investors and we continue to see small, medium and large mergers and acquisitions, as well as

extensive green field deployments. For operators this can be a mixture of access to new markets, growing portfolio, fulfilling a client need or simply taking market share. Pre-Covid the consolidation of data centre operators such as CenturyLink/Lumen and Level 3, or Digital Realty and Interxion, was driven by a need to diversify their approach to the market, with the aim to increase market share and reach. However, oversaturation of Tier 1 cities is now driving a focus on Tier 2 cities and more of an ‘Edge’ regional approach. As a result, we are seeing the acquisition of more ‘independent regional operators with the likes of Proximity and Pulsant building a network of ‘Edge’ facilities to respond to current and future demand.



Eric Herzog, CMO at Infinidat: Consolidation is a natural process when an industry matures and this is happening currently in the data centre service provider space in an attempt to achieve better economies of scale in a global environment. It has implications for enterprise buyers seeking long term partnerships with data centre service providers and companies seeking data centre services need to consider their needs carefully. For instance, they need to look at all the different feature functions offered – availability, performance, integration capabilities and support for legacy applications – when making decision about which provider to select.

Simon Brady, data centre optimisation program manager for Vertiv: It’s the usual circle of life; big fish eat little fish and survival of the fittest. There’s nothing unusual or different to consolidation within any industry. If organisations want to grow, the options are to do so organically or by acquisition. Often in a crowded market, acquisition is the only option and for big organisations its more straight forward to leverage fixed cost bases. As the larger data centre operators grow, and growth is high right now, it’s often an easier and faster route to being operational to acquire an existing facility rather than build a new one from scratch. This is especially true in geographies where the operator needs to be present, for example if a customer requires it.

Is consolidation good or bad for data centres?

Simon Brady, data centre optimisation program manager for Vertiv: Consolidation is both good and bad for the data centre sector. It’s good because it can drive costs and prices down for customers as the larger players work to remain competitive, but also bad as decreased competition is never healthy for any industry. There will always be niche players but the hyperscalers are very effective at optimising their infrastructure, which is potentially also good for the environment. Hyperscale sites and operators tend to operate at near 100% capacity so are as efficient as

“Sometimes the pricing models of the cloud providers can make running certain types of services very expensive”

John Hall, managing director – colocation, Proximity Data Centres

they can be. And, nearly all them use renewable energy sourced from wind, water or solar power and have made bold commitments to achieve Net Zero. Fewer smaller operators have made the same commitment.”

Matt Edgley, director, Teledata: There are positives and negatives. The larger providers will generally invest in existing facilities to beef up infrastructure, but this will often have an impact on price. In the world we are living in today though, larger providers do bring greater security during unprecedented cost increases

due to energy prices hikes and such like. But of course consolidation gives clients less choice due to limited competition. We’re seeing more consolidation between the larger providers as well – such as Equinix/Telecity, where Equinix were actually forced to divest seven facilities by the competition commission.

Isn’t reduced competition detrimental to enterprises and what should be a competitive arena?

David Sandars, business development manager, Vantage Data Centers UK: Reduced competition is bad for any industry but I don’t see that there is reduced competition.

I think there is more competition in the UK market giving much more choice around one of the key factors which is location. A few years ago the industry was focused in and around London, now there are large scale operators in Cardiff, the Midlands, the SW, NE, NW, eastern England and Scotland

Previously private data centres are opening as colocation facilities giving clients much more choice as to the ideal location for their IT estate and with improved network availability, reliability and latencies, location is less of a factor for enterprise businesses.



Simon Brady, data centre optimisation program manager for Vertiv: In general, reduced competition is good for enterprises. Larger data centre operators tend to have better, standardised operating and energy policies which is a benefit to customers.

Matt Edgley, director, Teledata: It depends on their strategy and approach – do they like to diversify their providers for resilience, or do they like to partner with a single provider with multiple sites? - in which case it could definitely be a plus point. One general problem within the industry is that the cost of opening a site really restricts new entrants and makes consolidation more attractive, which is why we’re always hearing about undersupply. The main concern is lack of facilities rather than lack of providers.

Richard Clifford, head of solutions at Keysource: This reduced competition can be good or bad, depending on the situation. On the one hand, it can lead to increased efficiency and economies of scale. But on the other hand, it can also lead to higher prices and less choice. Consolidation of the market can help to connect ‘demand’ with already established real estate that would otherwise be inaccessible due to the size of the operator, or lack of a wider more geographically resilient network of data centres. This has benefits such as speed to market, avoiding long and costly construction times. But also, in a time of climate emergency, leveraging existing data centres is an opportunity to reduce the embodied carbon held in manufacturing and construction of new facilities. There is a significant amount of stranded capacity amongst data centres globally with Enterprise and legacy facilities only operating a fraction of their design capacities, in some cases just 20% to 30%. This is leading to huge inefficiencies and with this stranded capacity going to waste, consolidation of the enterprise estate makes absolute sense.

Eric Herzog, CMO at Infinidat: It completely alters the competitive landscape and if it goes too far, over consolidation can cause problems, because too few providers mean the surviving entity could have greater control of pricing and supply. This is true for every industry. Many cloud service providers are using Infinidat technology for their storage-as-a-service (STaaS), infrastructure-as-a-service (IaaS), and platform-as-a-service (PaaS) offerings and we are highly regarded for our hyperscalar implementations. Several storage industry analysts have noted that Infinidat is setting new standards in the storage industry with the performance of the Infinibox SSA II - we are setting the bar very high for the entire cloud provider industry and enterprises benefit

“Enterprises are reviewing use of office buildings following Covid and closing buildings which means moving the data centre out”

David Sandars, business development manager, Vantage Data Centers UK

from the increased performance, availability, and cyber resilience of the Infinidat enterprise storage solutions.

John Hall, managing director – colocation, Proximity Data Centres: When Proximity buys a data centre typically the existing owner of the facility becomes a tenant. This gives them a far more flexible model as their requirements change but with the advantage that there is still continuity for their IT services. There is not reduced competition as the enterprise has the option to use cloud based services as well as the use of data centres.

Is there a fear that one or two dominant players will create a mono/duopoly?

Simon Brady, data centre optimisation program manager for Vertiv: I wouldn’t say that there is a fear that one or two dominant players will mono / duopolies the sector. However, it is clear that the “big 3”, Google, Amazon and Microsoft, will dominate the industry. There will always be niche players and as big as they are, they rely heavily on the tier 1 operators for much of their facilities and infrastructure. On the other hand, we should also consider that many countries are implementing in country data protection standards. This means there will always be a need for localisation which does suite smaller operators.



David Sandars, business development manager, Vantage Data Centers UK: I don’t see that one or two players will be able to dominate the sector it is too expensive and complex to buy up all the data centre companies. As we’ve seen recently, government regulation will prevent one or two players dominating the sector and will ensure competition.

I believe there will always be competition and choice.

John Hall, managing director – colocation, Proximity Data Centres: The sector is moving to a mixed model of cloud and edge data centres. There are probably 8 to 10 traditional cloud operators who use hyperscale data centres so plenty of choice. Many enterprises have adopted a multi-cloud approach to avoid over reliance on 1 provider.

At the edge the choice is probably more difficult as the enterprise needs to partner with an organisation who has a proven track record in supporting them in the move to a hybrid model. The new application providers which require low latency delivered from local data centres need a partner who is flexible and experienced in helping them take their services to market.



Richard Clifford, head of solutions at Keysource: Not currently. Consolidation has if anything driven more competition, with rapid growth and acquisition creating new competing entities that were not there previously. This trend will continue, but the threat of a monopoly is not there for the next three to five years.

Matt Edgley, director, Teledata: Yes, this is a realistic issue – again due to the cost of opening new facilities and therefore the emergence of new players. The more dominant providers are more likely to be in a position to open new facilities, so their market share will grow by default. ■



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Liverpool Charity takes back control of its data protection

Scott Davis who heads up Nugent's ICT Team, explains why they decided to invest in new security defences after becoming a victim to a cyberattack

Nugent is a charity started by Father Nugent in 1881, today it is the oldest and largest education, health and social care charity in Liverpool. Nugent offers a diverse range of support to children, young people, families and adults who are vulnerable or at risk within the northwest of England, through its schools, care homes, community and social work services. Nugent's Community Services include support for Deaf people and those who are hard of hearing or have learning disabilities, the charity also runs a registered and approved voluntary adoption agency, Nugent Adoption

For some 10 years Nugent had relied on an MPLS solution with co-located firewalls in a data centre to support around 20 different services. When I arrived at Nugent, I set about linking these services together via two co-located data centres, protected by hardware firewalls. But in 2019, Nugent suffered a cyber attack that wiped out pretty much the entire infrastructure. It was every IT professional's worst nightmare, but we worked long hours to restore the network and systems. It took several weeks to get critical services back up and running, after which prioritisation was to audit current IS and look to build a five-year strategy.

It was also the opportunity to make a step change. We decided to take back in-house control of our network and firewall infrastructure and move away from expensive leased lines by moving to cloud services, with segregation and full visibility of the data traffic and what is going on across our networks in real time - and importantly, secure our data from future cyber attacks. We also wanted to have multiple internet connections to segregate voice and data services and be able to implement SDWAN policies, for example.



Our experience of the cyber-attack was a tipping point and provided the opportunity to turn a negative into a positive. After extensive review and due diligence, we made the decision to go down the WatchGuard route and invested in a range of its Firebox devices managed via WatchGuard Cloud. This provides the essential single pane of glass and visibility that we wanted and helps to shape traffic

and do quality service analysis and management. As I split my time between working at home or visiting sites, having 24x7, anywhere access is a major bonus.

Like any charity, Nugent holds a lot of sensitive information, so data protection and GDPR compliance are paramount. With separate firewalls, we can make sure all the services and traffic are segregated. After going through the

experience of being the victim of a cyber attack, Nugent is now in a far stronger position to face future threats and we are benefiting from taking back control with complete visibility into what is going on in our networks.

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A robust digital lifeline for people in crisis

Samaritans is one of the UK's leading charities, providing 24-hour emotional support for people who are distressed or struggling to cope. Suicide prevention is a priority. Samaritans volunteers offer a sympathetic, non-judgemental ear via phone, email and in person at 201 branches around the UK and the Republic of Ireland and they work with prisons, the military, schools and some large workplaces. There is also Samaritans Self-Help, an app to help people manage their emotional state and find strategies to improve their mental wellbeing. Samaritans volunteers are always available "for anyone who needs someone".

Until recently the organisation's core

digital infrastructure was in the Surrey HQ and managed day to day by the in-house IT team.

Samaritans scoped the project with an existing supplier but it was a relatively small business with limited experience of public cloud and insufficient understanding of non-profits, so the charity decided to look around.

Jisc cloud services is an AWS Consulting Partner with a dedicated AWS delivery team. The team's specialist expertise and Samaritans' commitment to the project enabled the migration to happen in just six weeks, helped by the fact that Samaritans trusted Jisc to engage directly with its suppliers.

A key deliverable was to keep downtime to a minimum to avoid

disrupting contact with vulnerable members of the public.

Phase two of the programme, in the first half of 2021, was to re-architect the charity's systems to take full advantage of a range of benefits offered by AWS, including scalability, resilience and better security.

A regular, weekly call formed the cornerstone of this four-month programme, providing an opportunity to review the past week's work and plan the next. Any necessary supplier meetings were set up in these calls, sometimes with participation from Samaritans but often without.

In between, Samaritans' project managers had near real-time updates and they could always chat with Jisc about

progress via a ticketing system. This approach ensured a continuous flow of information and speedy progress. Even Covid-19 didn't slow things down.

Jisc's cloud team also supported Samaritans to migrate SharePoint into cloud, giving them security benefits and the freedom to scale up or down so they only pay for the storage they need.

At the time of writing the project was nearing completion. The organisation expects it will help it give service users a more responsive, resilient service with less unscheduled downtime. And staff were already enjoying more flexible working. The charity's 250 employees can now work from home and at times that suit their own lives and the needs of the business. ■

Does NHS connectivity require intensive care?



**Chris Berry,
The Networking
People**

Digital advancement and transformation has been an absolute necessity across the public sector as it adapts to different customer needs.

A study from the Centre for Economics and Business Research suggests that, since March 2020, the NHS has made the equivalent of four years' progress on digitisation in less than 2 years. But is this rate of change sufficient to deliver true 21st century medical care?

Sophisticated scanning and imaging equipment produces hugely detailed results, which require a massive bandwidth to access and transfer online.

High performing clinical teams are improving patient outcomes by having immediate access to information through the digitisation of patient records. For years patient notes including scans and x-rays had to be transferred in paper form to the relevant specialist and then sent to the next person dealing with the case. That is still happening in some areas, with specialist medical staff spending hours travelling to consultations or meetings when a fit-for-purpose digital network could enable many of those discussions to take place remotely.

Forward-looking health trusts are upgrading their connectivity to ensure that consultants, surgeons, and other staff can gain easy access to all of the information they need and have live online discussions with patients or health professions while reviewing scans and other vital information and images. If NHS network and connectivity infrastructure is not fit for purpose, either through lack of bandwidth or resilience, the entire system can fail, and the organisation is worse off than they were with paper records.

It is therefore imperative that healthcare organisations have a resilient network with high-speed connectivity. Engaging a network provider, that provides resilient engineered connectivity, will ensure that should any issues occur, continuity of service is maintained, avoiding any substantial impact on patient care and outcomes.

The last two years have placed particularly exceptional pressure on the public sector, with many network solutions implemented quickly as stop gap measures. These stop-gap solutions have introduced increased risk to many networks that lack reliability and resilience. In addition to this many patient-facing solutions have been introduced that put pressure on the underlying infrastructure, with high levels of customer service level expectations being applied.

A high-performance car goes nowhere without decent roads. Having a network in place that is fit for purpose in our intensely digital age ensures health professionals can deliver the care their patients need, at the speed needed to create better outcomes for all. ■

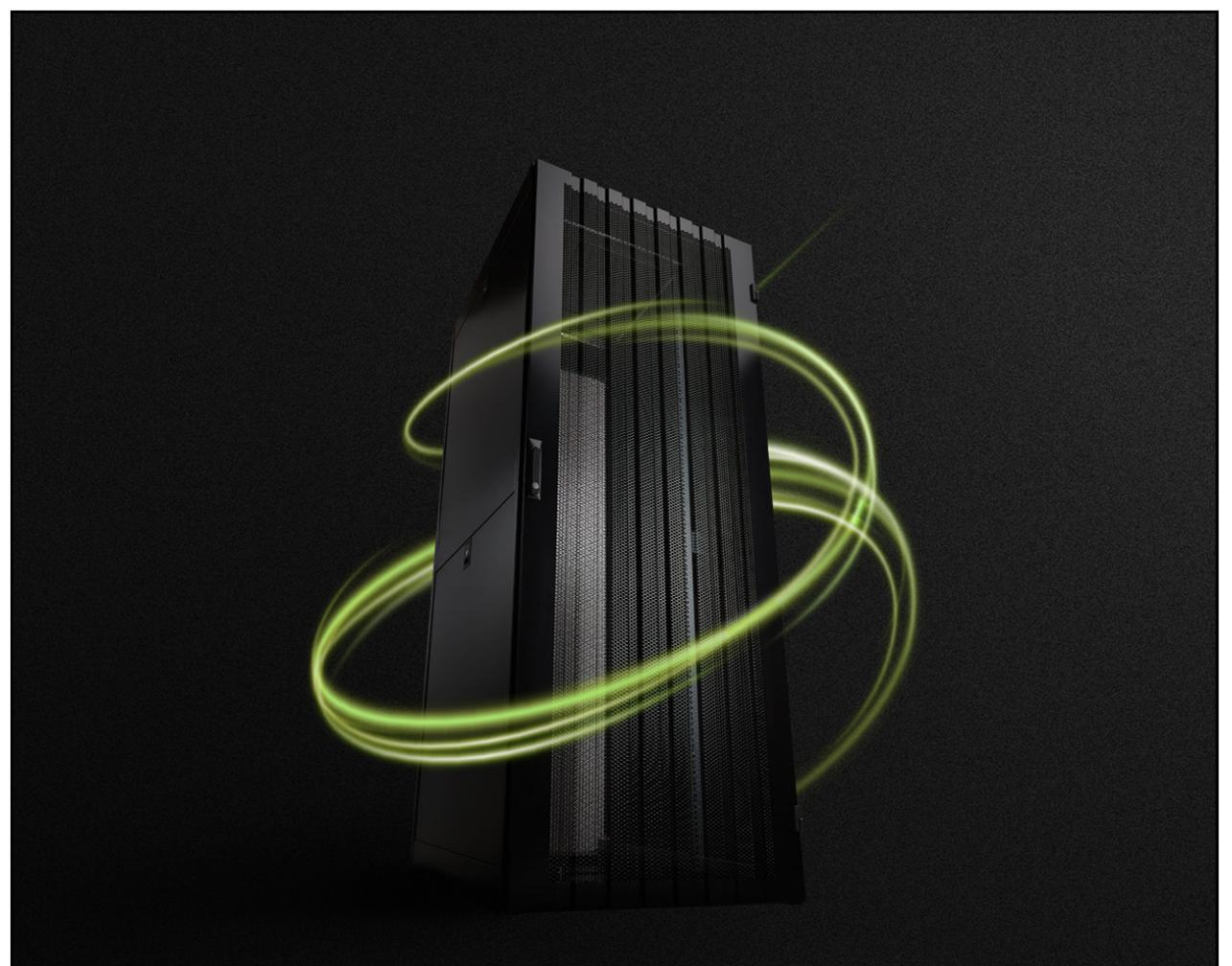
A solution fit for King's

King's College Hospital Charity is an independent charity dedicated to supporting life-changing care for patients at King's College Hospital NHS Foundation Trust.

Working in 2021 with the Charity and Trust, Wi-Fi SPARK facilitated an upgrade of the Wi-Fi and patient engagement platform running across four of King's College's sites. Creating an entirely charity-branded UX, all WiFi users are introduced to the charity upon connection and can be kept up to date with the charity's activities at the touch of a button.

Since the establishment of the new solution in September of 2021, the Trust has seen 55% of all patient engagement

platform (PEP) visits interact with an aspect of King's College Hospital Charity's content with the most popular link taking users to volunteering information. ■

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Opportunities and obstacles for blockchain IoT in business

By Knud Kegel, VP product, EMnify

IoT is a big deal for business. It has put down roots in a wide range of verticals, with companies reaping the many rewards. IoT deployments are growing revenues, improving service and optimising workflows.

From supply chain management to real-time insights into buyer behaviours, from intelligent automation to predictive maintenance, IoT is carving a path for better corporate strategies. According to McKinsey Global Institute, 127 new IoT devices get connected to the internet every second and Statista forecasts that around \$1tn will be spent on IoT technologies worldwide this year.

When IoT is combined with blockchain, the opportunity gathers even more momentum. Decentralisation is improved, security is heightened and connected devices are easier to track and control. This all stems from blockchain's immutability. No block can be edited and nothing can be deleted. Data is secure, decentralized and tamper-proof, acting as an unassailable publicly distributed ledger.

An opportunity for data legitimacy

Blockchain IoT can prove the legitimacy of data, verifying its origins and preventing malicious manipulation. For controlled substances, blockchain IoT could produce a distributed ledger that highlights any suspicious changes in condition, such as unscheduled stops, container movement or weight differences. In another scenario, a cold chain monitoring system could use blockchain IoT to record, monitor and distribute IoT data. This allows businesses to pinpoint where a temperature spike occurred, and which party was responsible.

An opportunity for error capture

Blockchain can also track an IoT device's history, identifying errors with one device among a deployment of hundreds of thousands. Without blockchain, it would be easy for a faulty IoT device to go unnoticed,

and multiple connected errors could be incorrectly treated as isolated incidents. Harnessing blockchain can give each IoT device a unique key and enable it to send encrypted challenge and response messages, identifying a pattern of defective behaviour by a specific device.

An opportunity for smoother automation

IoT technologies enable automation, but when a device detects something that needs manual intervention, everything stops. And that could be highly damaging for an organisation. With smart contracts, blockchain can authorise responses through the IoT network. A factory could use predictive maintenance, monitoring machinery and triggering replacement parts before they fail. Or if perishable goods have spoiled in transit, a smart contract can automate the replacement process to reduce delays and protect customer relationships.

An opportunity for enhanced security

Data security is an issue for every business, and IoT can have its set of vulnerabilities. IoT devices can be hacked to use in botnets, steal valuable data, breach private networks and commit identity theft. Yet blockchain could significantly enhance IoT security. Its decentralisation ensures malicious third parties can't simply hack a single server and corrupt its data. Additionally, any attempt to access that data and any changes to it, or a device, gets documented.

The challenge of limited battery life

Most IoT devices have a single battery that has to continue to operate for the lifetime

of the device. These batteries can last for 10 years or more, but blockchain IoT adds data-intensive processes and consumes more power. This shortens battery life. While gateways and other network entities can help support the additional strain, blockchain IoT or the underlying battery technology will have to evolve.

The challenge of data privacy

Blockchain's ability to automatically share data between multiple parties and store it in several locations is valuable for IoT, but it's important to consider who will automatically have access to what. Some worry that the oversight and transparency blockchain provides could give too much

visibility to third parties. However, this concern ultimately hinges on the level of access each party has and how clear the parameters are around sharing.

The future of blockchain IoT

Blockchain IoT is just one of a whole host of exciting innovations coming into play as the future of networking technologies unfolds. And there are so many ways that IoT and blockchain can be used in collaboration to solve the challenges of commerce. Over the next few years, we're going to continue to see this sector take off in lucrative new directions, with fresh and original opportunities emerging onto the market all the time. ■



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Top tips on choosing racks for demanding IT environments

Marc Garner, VP Secure Power UK and Ireland, Schneider Electric

As more businesses embrace digital transformation initiatives, we have seen a fundamental shift from larger on-premise data centres towards hosted, colocation or cloud-based applications - those capable of delivering fast, scalable, and resilient technological foundations, which enables customers to quickly address new markets and scale into new regions.

Often overlooked as one of the most basic IT requirements, rack systems provide foundational infrastructure on which this scalable architecture is built. In fact, rack systems provide the building blocks of many businesses' future IT environments.

New environments

Today choices around, racks, cabinets and physical infrastructure need to be made according to the critical environment in which they're being hosted. This can range from a small server room or branch office to an edge data centre or a colocation facility. The systems design is, therefore, essential to achieving a specific outcome for the user, and resilience is often the main priority.

Today most data centres support standardised rack configurations to host a variety of IT equipment (ITE) densities and form factors that may require additional accessories. Increasingly, 48U, 52U and even 58U racks are being installed to increase the volume of IT equipment in the same rack footprint.

Outside of enterprise facilities, which have adequate cooling and environmental control, small server rooms and branch offices can often play host to mission-critical IT. These environments are typically unsecured, unmonitored, and space constrained which can lead to system downtime or "close calls" that require immediate attention.

The networks edge

As the demand for infrastructure at the edge increases, preconfigured micro data centres are often selected to reduce complexity and

increase speed of deployment. Gartner, for example, estimates that by 2025, 75% of enterprise data is expected to be created and processed at the edge, and recent research from IDC has found that when organisations were asked why they were investing in edge computing, 50% of respondents cited to "improve cybersecurity", and that systems resiliency and reliability also remained key factors in decision-making.

There are several factors driving the proliferation of data and its consumption at the edge. First among them is the demand for low-latency applications, including digital streaming from film, TV and music platforms. Secondly, the rise in IoT connected devices, artificial intelligence (AI), and machine learning are driving digital transformation in almost every industry. Nevertheless, having a standardised system built on pre-integrated hardware is essential to increase reliability at the edge.

Data centre modernisation is also a hot topic, and in both on premises and legacy data centres, row-based architectures utilising hot or cold aisle cooling configurations can offer rapid deployment, greater resilience, and increased energy efficiency benefits.

A simple approach

A rack is often the very foundation of digital transformation, but choosing the right system is essential. To simplify the selection process, we recommended a four-stage approach:

1. Identify the attributes of all IT and non-IT equipment to be mounted, and establish some basic parameters, such as dimensions and load capacity. The attributes of non-IT equipment such as rack power distribution units (PDUs), automatic transfer switches (ATS), rack-mounted uninterruptible power supply (UPS) and so on, should also be considered.
2. Select IT rack dimensions and load capacity based on the

attributes of equipment - there are three key factors to consider:

- i. The growth plan of the equipment.
 - ii. Higher rack densities generally equate to greater rack weight.
 - iii. Specify vendor-neutral racks, which often means the widest range of equipment can be accommodated from the largest number of manufacturers.
3. Select your rack preferences, which might include colour, door style (curved or angled), the type of door lock or physical security and seismic bracing. Regardless of preferences chosen, design criteria and system uptime should remain the key priority. For example, any change to the front or rear rack door should not restrict airflow to the critical IT equipment.
 4. Finally, select your IT rack accessories to improve operational efficiency. Accessories can, therefore, be utilised in one of several ways. For example, to improve cooling performance through airflow containment, to reduce the risk of downtime through power capacity and cable management, or to reduce physical threats and human error through remote monitoring and Data Centre Infrastructure Management (DCIM) software.

Conclusion

Rack systems offer complete flexibility for customers looking to embrace digital transformation. Whether incorporated within a prefabricated data centre, a row-based system or a micro data centre at the edge, rack technology provides the building blocks for rapid scalability and can enable greater energy efficiency, with predictable cost savings for the user.

Vertiv VRC-S is a micro data centre solution, fully assembled at the factory and designed specifically for IT edge applications. Available in various configurations, the Vertiv VRC-S is delivered in days and installed in hours. Choose from four different cabinet sizes with two separate cooling methods (split and self-contained) with back-up, and the option to integrate a UPS. Plus, an intelligent switched PDU, including monitoring of all components, and a comprehensive software package completes the offer.

You have everything you need to rapidly upgrade any space with a micro data centre to host IT edge equipment. With space to support your IT equipment and up to 3.5kW of integrated IT cooling, around a single phase 16A connection, the Vertiv VRC-S lets you quickly, easily, and confidently put IT wherever you need it. Piecing together the various components of an IT solution, for your edge applications, can be a major challenge for today's busy IT managers. From specifying the right components to waiting for a custom solution to be built, or integrating the appropriate cooling, UPS, PDU, and monitoring, the process consumes time and resources that you don't always have to spare.

The new Vertiv VRC-S takes the legwork and wait time out of the equation. It offers a factory-integrated, micro data centre solution that ships in days and can be installed within hours. You get a plug-and-play IT solution that reliably and efficiently satisfies your edge IT requirements, and comes with the added peace of mind of a three-year warranty, covering every component of the system. vertiv.com



PRODUCTS

The flagship product of the Excel Environ range, the Environ SR racks "are perfect for applications that require a large number of servers and equipment," the company says. With a load bearing capacity of 1500kg and split side panels, together with mesh design front and rear doors providing maximum air flow within the rack, they can house high density server and equipment installations, particularly in data centre

environments. Excel says its server racks can be delivered assembled or flat packed. When installed by an Excel partner as part of a total Excel installation, they are covered by the 25-year warranty. The Environ SR racks have a full range of compatible accessories including the Environ Locking Solutions which provides a



choice of RFID and Biometric Locks. What's more, Excel's specialist support services, include pre-configured cabinets and on-site rack assembly "to offer customers a flexible service which is proven to reduce installation cost and time whilst providing a fully tested, fully traceable, 100% inspected product". excel-networking.com

Rittal's new VX IT is one of the most versatile rack systems in the world and is designed to be adapted for the smallest to the largest IT installations.

Refined from the TS IT rack system, Rittal's VX IT has been designed to offer ultimate flexibility, security and efficiency, thanks to customisable design features such as horizontally and vertically divided side panels that have been developed for faster installation and servicing. An improved frame design, capable of increased load capacity verified by underwriters laboratories (UL) supporting loads up to 1,500 KG.

The VX IT's vast array of accessories increases the functionality of the rack which enables it to exceed the requirements of today's industry. Rittal's accessories include options for doors, side panels, base, roof and cable management, as well as other innovations such as the LED strip to indicate rack status. Also available are advanced options such as PDUs, UPS systems, electronic security systems and climate control solutions to ensure that the IT system is kept secure and is at optimal performance.

Rittal's VX IT can be customised to meet your specification requirements with the Rittal online configurator. This enables the rack system to be conveniently planned in 3D, configured to meet your specification requirements, and optimised logistics mean it can be delivered within 48 hours.

With that in mind, whether it's a network rack to house patch panels and a switch or a hyperscale data centre, Rittal is setting the tone for rapidly emerging new and future-proofed IT and OT infrastructures. www.rittal.co.uk



Eaton's RA Series IT racks are designed to deliver advanced protection for critical IT equipment in network closets, small server rooms and data centre applications, the company says.

"Designed for fast and easy set-up, the RA Series rack has features IT specialists need in an affordable ready-to-go rack system," according to Eaton's marketing material. Standard builds include load bearing castors (500kg dynamic load), jacking feet, locking front and rear doors, locking side panels, U-markings front and rear, 2 x 100mm cable trays in rear, 2 brush cable access points at top, baying kit and earth kit. eaton.com



Orion is a UK manufacturer and supplier of 19-inch racking and bespoke DC solutions for the IT, data, telecom and DC industries. "Orion Datacentre Racks are now the preferred choice of data centre managers across Europe," the company claims rather confidently on its website. Now, let's take a look at the specifications: manufactured in 900mm, 1000mm, 1100mm and 1200mm depths as standard, the company says it tailors the main features of its data centre product range to suit customer requirements and project specifications. Orion says specialty features include Airtech 85 Hex Mesh angular doors and various standard or custom options for security and cable management. There is also a wide range of bespoke colours,



Schneider Electric's Easy Rack Series are designed to be quick and easy to install, while simple to scale, and customise. "They deliver a high-quality, reliable and cost-effective rack system for a broad range of mission-critical applications, including network closets, edge computing and industrial environments, cloud and colocation data centres," the company says. Easy Racks are fully customisable and available in a number of heights, widths and depths, ranging from 24U

to 48U units, to 600mm and 800mm widths, and 800mm to 1200mm depth variations. The range also includes rack systems with or without sides, and a flat packed option for easy delivery to sites with space or height constraints. "Additional key benefits include fast deployment with a feature-rich, economic rack platform, offering up to 81% ventilation rate on front and rear



doors with static and dynamic load ratings respectively of 1200kg and 600kg." Schneider says. Its standardised configuration allows users to standardise server and network requirements on one platform, delivering easy installation within row-based data centres, wiring closets and remote edge environments. apc.com

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“ Please meet...

Mark Wharton, co-inventor at IOTICS

Who was your hero when you were growing up?

I was obsessed with big-band/jazz music as a teenager so Count Basie, Charlie Parker, John Coltrane, Duke Ellington, Glen Miller. There's important life-lessons to be learned from improvisational music. Practise hard so that when you're on the band-stand you can react to what happens. This has always helped me in business situations. Prepare for the big presentation so you can throw it away at the last minute and speak off the cuff

I was also tennis-mad as a kid, so Stan Smith - he of sneaker fame, Bjorn Borg and Ilie Nastase. Tennis is ultimately a game of split-second decisions built on top of technique and fitness. It's taught me to deal with winning and losing and how to adjust your strategy to avoid the latter... You can play to win or you can play not-to-lose - they both work.

What was your big career break?

Being made redundant from a job I hated. It forced me to go out on my own, find my own work, set my own goals, etc. Working on your own is a great teacher as you have to do everything yourself, but it's also a bit lonely. Working alone makes you appreciate the two meanings of the word "company".

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

No question these days, it would have to be sustainable engineering and environmental protection. In my spare time, I'm just starting a Repair Cafe as part of <https://www.repaircafe.org/en/> to help people maintain the stuff they have and to reduce the amount of waste from consumer products that have built-in obsolescence.

What would you do with £1m?

I'd start to build a sustainable resource management system (energy, water and food) for my local community. I have solar panels and it's quite windy where I live. I'd spend the money on small-scale generation projects such as wind turbines, water turbines in rivers and possibly ground-source heat pumps. There are ridiculous barriers to these small-scale projects. A friend was quoted a fee of £10,000 to licence a small water turbine in a mill-stream on his own property.

I've been a vegetarian for all of my adult life. I'd like to start projects to help people grow their own food and teach cookery skills to young people - as I think we've grown too far away from knowing what goes into the food we eat.

Where would you live if money was no object?

I love the west coast of Scotland and the Western Isles. Unspoilt wilderness, mountains and sea. If money was no object, I could have a helicopter to get there from places with good jazz clubs... (Oh, that's not very sustainable is it? Maybe I'd have to sail from the Outer Hebrides to Ronny Scotts.)

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

My dad used to say "Don't eat yellow snow" - but a better piece of advice from him that I've applied many times in my life was: If you can't choose between two life choices, choose the path with the least regret. That's helped me be brave about trying to do something new as I know I'd regret not trying

more than trying - even if I failed.

On a similar theme, the early Zen philosopher Basho said: Do not seek to follow in the footsteps of the men of old; seek what they sought. There's a lot of parallels between that and the advice of our chairman, Ian Orrock: "Don't do things differently, do different things."

The Beatles or the Rolling Stones?

Beatles, duh. Far more harmonically interesting and their Indian influences chime with some of my favourite jazz from the

sixties. But, in reality, my answer would be neither. I'd rather listen to John Coltrane or Debussy.

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

I studied physics so obviously Albert Einstein. Or Basho - see above. I'd love to meet Jane Austen as "Pride and Prejudice" is my favourite book. Or perhaps a feminist campaigner like Simone de Beauvoir. (I wonder what she would make about the progress (or lack of it) since she wrote the Second Sex.)

Which law would you most like to change?

It's not really a law, but I think the USA should pass the Equal Rights Amendment to absolutely codify women's equality. That would set a beacon for the rest of the world to follow.

I'd also repeal all blasphemy laws across the world. No-one should be punished for disagreeing with an idea. In seven countries around the world it's punishable by death. What constitutes blasphemy is also highly subjective - I'd like to have some more objective criteria if I'm going to be executed. ■



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From basic power distribution to sophisticated power monitoring with switched and outlet monitoring capabilities; the **Vertiv™ Geist™ Rack Transfer Switch** adapts well into the future.

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What's Their Edge?

