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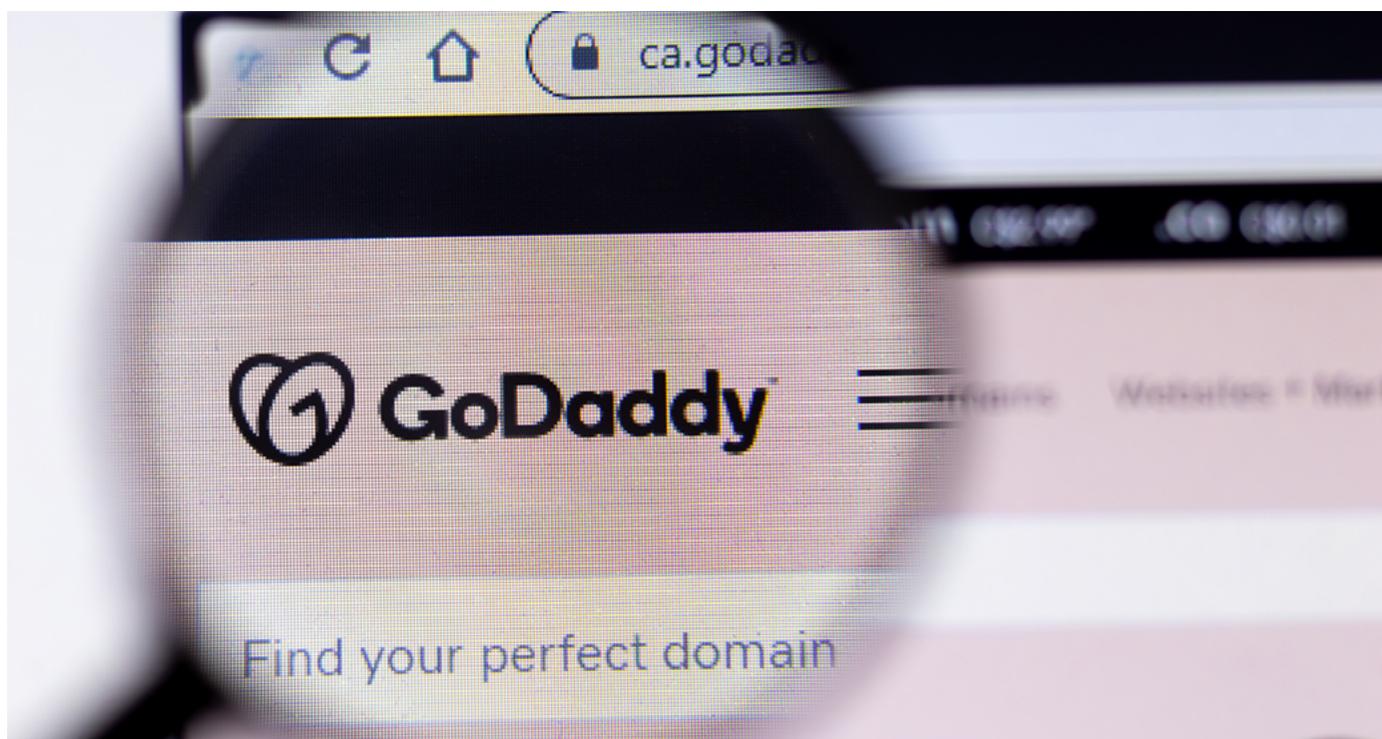
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GoDaddy hack exposes 1.2 million customers



Internet domain and web hosting firm GoDaddy said almost 1.2 million of its customers' accounts were exposed in a recent hack.

The US giant filed an incident report with the Securities and Exchange Commission (SEC), stating it had identified 'suspicious activity' in its Managed WordPress hosting environment.

According to the document, "an unauthorised third party accessed the provisioning system in our legacy code base for Managed WordPress".

GoDaddy admitted that emails and customer numbers were collected during the attack and warns that this could result in phishing attacks, a type of scam where an attacker sends a fraudulent message designed to trick the victim into giving them sensitive information.

"We identified suspicious activity in our Managed WordPress hosting environment and immediately began an investigation with the help of an IT forensics firm and contacted law enforcement," chief information security officer Demetrius Comes said in the filing.

GoDaddy said it had immediately blocked the unauthorised third party and an investigation was still going on. The firm found the unauthorised third party accessed its system on September 6, 2021, but the firm did not identify

the attack until November 17.

For active customers, SSH File Transfer Protocol, which is a network protocol that provides file access, transfer and management over a data stream, and database usernames and passwords were exposed.

However, the filing says GoDaddy has reset both passwords.

"We are sincerely sorry for this incident and the concern it causes for our customers," Comes wrote in the SEC filing. "We, GoDaddy leadership and employees, take our responsibility to protect our customers' data very seriously and never want to let them down. We will learn from this incident and are already taking steps to strengthen our provisioning system with additional layers of protection."

Martin Riley, director of managed security services, Bridewell Consulting told Networking+ that "it's no surprise that the GoDaddy breach took over two months to be identified" though this is "better" than the 270 day average cited by the Ponemon data breach report.

"The breach of 1.2 million customer accounts is going to be expensive in terms of the total cost of ownership from detection to recovery,"

he said. "The report highlights that a managed hosting service operating legacy code was the root cause for the breach, which suggests that there are very technical controls around vulnerabilities and monitoring within these areas of GoDaddy's architecture."

Riley added that once the incident has been addressed, the key learning for GoDaddy is to increase focus on threat detection and response, which increases visibility for the security operations teams. "By leveraging services such as managed detection and response (MDR), technology can be deployed to improve detection, containment and eradication of threats within hours and minutes, not days and weeks," he continued. "The Ponemon report suggests that there is a cost of \$175 for each customer PII record breached, equating to a potential total cost to GoDaddy of \$280m. I think it's safe to say an improved security operations strategy would have a much smaller price tag."

In 2012, a separate incident shut down all websites hosted on GoDaddy's system.

A more recent attack on GoDaddy was confirmed by the company in May 2020, admitting 28,000 customer hosting accounts were compromised in a security breach. ■

TOSHIBA

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'Smart Internet Lab will deliver quantum data centre of the future'

A "pioneering" Smart Internet Lab at the University of Bristol will work with industry partners to develop the first blueprint for a quantum data centre, as part of UKRI's £170M Commercialising Quantum Technologies Challenge.

Quantum technologies in the form of quantum computing and communications promise to deliver solutions to some of the most challenging problems. However, to date, little is understood from a systems perspective about how to integrate existing data centres.

The Quantum Data Centre of the Future project will commence in early 2022, bringing experts in classical data centres and networking together with experts in quantum computing and quantum communications, to develop the first blueprint for a quantum data centre.

The project will leverage the significant research strengths of the University of Bristol's High Performance Networks Group in classical data centre, quantum Internet and quantum networking.

"This is a truly exciting initiative," said professor Reza Nejabati, head of high Performance Networks Research Group in the Smart Internet Lab. "Adapting quantum computing and network systems to work in a data centre setting will require significant acts of invention and creativity. "In collaboration with the project partners, we aim to design, develop and demonstrate a solution for integrating a quantum computer in a classical data centre as well as providing remote quantum secure access to quantum computers at scale and in a data centre setting." ■



Wasabi launches London storage region

Wasabi Technologies has opened a new cloud storage region in London and plans to introduce additional storage regions next year.

Located in the Equinix Data Centre in London, this is Wasabi's first cloud storage region in the UK and second in Europe after it opened a region in Amsterdam in 2019.

Wasabi's European expansion comes on the heels of its distribution partnership with Exclusive Networks. Earlier this year, the company also closed a \$137m funding round, and opened APAC headquarters and another storage region in Japan.

The company said it's planning to open a number of additional cloud storage regions in multiple countries over the next 12 months.

"The UK is in a transformative moment in light of Brexit, where the evolution of data security is leading to a rethink in regulation and country-specific data protection laws," said Richard Czech, VP EMEA, Sales at Wasabi. He added that "Wasabi is equipped to remove

Secure I.T. Environments upgrades Royal Free London NHS Foundation Trust data centre

Secure I.T. Environments, a design and build company for modular, containerised and micro data centres, has been awarded a contract to upgrade the air conditioning units at a Royal Free London NHS Foundation Trust data centre.

The existing air conditioning solution had been in place since the data centre was originally designed and built by Secure I.T. Environments 2009 and 2010. The new contract will form part of the Trust's investment and upgrade programme, and

will bring about substantial energy efficiency improvements, once live before the end of 2021. Four GEA 18D Multi-DENCO down flow close control direct expansion air handling systems and Four DENCO ambient air-cooled condensers will be installed.

"We are thrilled to be continuing our long-standing work on these data

Chris Wellfair



centres, which we originally designed, installed and have maintained for a number of years," said Chris Wellfair, projects director at Secure I.T. Environments. "Cooling technology is always improving, and it will be rewarding to help the trust achieve even greater energy efficiency and cost savings over the lifespan of this upgrade." ■

Kerv acquires Gyrocom to expand its SD-WAN and SASE offerings

Kerv, the next-generation 'customer-first', cloud and digital transformation services provider, has acquired Gyrocom, a fast growing network and security integrator with a specialisation in SD-WAN.

The strategic acquisition also brings skills in managed networks and network security, including Secure Access Service Edge (SASE), the rapidly emerging cybersecurity solution. Gyrocom will operate as Kerv's specialist networking and security division.

The company has existing strategic technology relationships with VMware Velocloud, Dell, Cisco, Palo Alto, Fortinet, Versa and Z-Scaler and boasts a significant and growing presence in the retail market with brands such as

Kingfisher (B&Q and Screwfix), Wickes, and Co-op. Gyrocom has 23 enterprise customers and its recurring revenues are growing at over 20%.

Kerv's strategy is to bring together complementary organisations, team cultures and service capabilities to deliver a customer-first approach to cloud and digital transformation services. The vision is focussed around four strategic pillars – Transformed Infrastructure, Digital Workplace, Customer Experience and Digital Business. Gyrocom services will significantly enhance Kerv's credentials in the Transformed Infrastructure pillar.

Moreover, Kerv is now a £50m revenue company with 400+ employees and 750 public and private sector mid-market

customers including Investec, Kiwi.com, The Driver & Vehicle Standards Agency, The Scouts Association, Harrods, Avarto and The Local Government Ombudsman.

"Gyrocom brings important new and strategic skills to Kerv across SD-WAN and SASE in particular," said Alastair Mills, executive chairman of Kerv. "Their growth trajectory and ability to win major network transformation contracts are testament to their capabilities and their product-market fit."

Headquartered in Surrey, Gyrocom, was founded in 2006 by Graham Brown and Ryan Coombes, who had worked together previously at Nortel Networks. Fellow director Jane Hamlyn joined the company in 2011. ■

Equinix to build fifth Manchester data centre in £61m investment

US data centre giant Equinix is to open its fifth site in Manchester with an investment worth over £60m.

The firm said its new International Business Exchange (IBX) data centre will be based in the Agecroft Commerce Park in Salford.

Furthermore, the California-headquartered business said Manchester occupies a "key strategic location" at the intersection of the UK's highly resilient "figure-of-eight"

fibre-optic network.

The new IBX—called MA5—will be Equinix's fifth data centre in the Greater Manchester area and is scheduled to open in the second quarter of 2022.

Lorraine Wilkinson, vice president, UK, Equinix, said that "with a rich industrial history, Manchester has long been one of the UK's leading cities for business", catering to globally renowned companies and start-ups looking to grow and scale their operations.

"MA5 will provide high-speed connectivity to the North of England, facilitating the next generation of digital transformation within the region," she said. "The new site will bring Equinix's total investment in Manchester to over £130m, and over £1bn in the UK's digital infrastructure as a whole."

Equinix employs around 1,000 people in the UK and said the new £61m MA5 centre will have a headcount of circa 50. ■

Yondr's new 100MW DC campus in Slough

Yondr plans to develop a UK hyperscale data centre campus in Slough, which is expected to be ready by Q1 2023.

The initial phase will see the development of a 30MW facility and will have a total capacity of 100MW when fully developed.

It will be built on the former Uxbridge Road Gas Works and disused Akzo Nobel paint factory. The company received permission to build two data centre buildings on the site in September.

"The M4 Corridor connects London to the heart of Britain and is home to some of

the world's leading organisations," said Paul Hood, managing director of operations, EMEA at Yondr Group. "Being located in Slough will allow us to serve our clients in the most sought-after metro in the United Kingdom."

Slough is one of the main data centre hubs in the UK, and continues to see new developments. Global Technical Realty/ KKR and Iron Mountain are both planning hyperscale facilities in the town. A 1 million sq ft (92,900 sqm) office complex was recently sold to an unnamed data centre developer. ■

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New plans to boost cyber security of UK's digital supply chains

IT service providers could be required to follow new cyber security rules such as the National Cyber Security Centre's Cyber Assessment Framework as part of new proposals to help UK enterprises manage the growing cyber threat.

Other plans to protect the country's digital supply chains include new procurement rules to ensure the public sector buys services from firms with good cyber security and plans for improved advice and guidance campaigns to help businesses manage security risks.

The move follows a consultation by the Department for Digital, Culture, Media and Sport (DCMS) to enhance the security of digital supply chains and third party IT services, which are used by firms for things such as data processing and running software.

It comes as new research of chairs, CEOs and directors of Britain's top companies shows the majority (91% up from 84% in 2020) see cyber threats as a high or very high risk to their business, but nearly a third of leading firms are not taking action on supply chain cyber security, with only 69% saying their organisation actively manages supply chain cyber risks.

The government's National Cyber Security Centre (NCSC) already offers a raft of cyber security support and advice on identifying business-wide risks and vulnerabilities – including the Cyber Assessment Framework – as well as specific Supply Chain Security and Supplier Assurance guidance.

There is also advice on defending against ransomware attacks and the Cyber Essentials scheme offers small and medium-sized firms a cost-effective way of getting basic measures in place to prevent the vast majority of cyberattacks.

"As more and more organisations do business online and use a range of IT services to power their services, we must make sure their networks and technology are secure," said minister for media, data and digital infrastructure, Julia Lopez. "Today we are taking the next steps in our mission to help firms strengthen their cyber security and encouraging firms across the UK to follow the advice and guidance from the NCSC to secure their businesses' digital footprint and protect their sensitive data." ■



Julia Lopez

Amazon pens deal with UK spy agencies to host top-secret data

The UK's three spy agencies have Amazon's cloud service unit AWS to host classified material in a deal designed to boost the use of artificial intelligence for espionage.

According to a report in the *Financial Times*, spy agency GCHQ championed the procurement of a high-security cloud system and it will be used by sister services MI5 and MI6, as well as other government departments such as the Ministry of Defence during joint operations.

The deal was agreed earlier this year and the data will be in Britain. GCHQ and AWS have so far declined to

comment on the report.

In February, Britain's cyber spies at GCHQ said they had fully embraced artificial intelligence to uncover patterns in vast amounts of global data to counter hostile disinformation and snare child abusers.

The agency has been using basic forms of AI such as translation technology for years but is now stepping up its use, partly in response to the use of AI by hostile states and partly due to the data explosion that makes it effective.

GCHQ director Jeremy Fleming told a conference the number of ransomware

attacks had doubled across the UK in 2021, compared with last year. ■



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Report says '64% of IT execs prefer simplified path to IoT deployment'

According to a new report by Oracle, 64% of enterprise Internet of Things (IoT) decision-makers would opt for an "off-the-shelf" IoT solution over a custom-built offering, indicating a market shift in the way enterprises are viewing IoT adoption. Meanwhile, 42% of respondents' projects were completed (or expected to be

completed) in under six months and 88% in under one year. Another key highlight from the report is that almost 90% of projects were described by the respondents as "fundamental" or "very important" to their core business, and just over half of all projects are visible to their customers.

Hack leaves fertility clinic's data exposed

Data from a private fertility clinic was put at risk following a ransomware attack on a document management firm. The Lister Fertility Clinic said the firm, which it used for scanning medical records, had been "hacked" by a "cyber-gang", in a letter sent to about 1,700 patients. Stor-a-file Limited said in total 13 organisations had been affected, of which six are healthcare-

related. It said "medical information having been accessed cannot be ruled out" and that it had informed the police and the Information Commissioner's Office. The clinic said its medical records included consent forms, medical history and test results, recommendations for treatment, as well as fertility treatment records. They did not include credit or debit card details.

CityFibre launches first 800 Gbps backbone ring

CityFibre, the independent full fibre platform, has announced the successful deployment of its first 800 Gb/s backbone wavelength in partnership with leading network technology solutions vendor, Ciena. The initial 800 Gb/s wavelength serves 23 cities and towns and connects six 'super core' sites in 2021, with the first ring connecting Leicester, Peterborough,

Cambridge, London, Milton Keynes and Northampton. Swiftly followed with two further rings, providing the same enhanced core capacity between Manchester, Leeds, Leicester, Bristol, Coventry and London. The network will connect CityFibre's own fibre exchanges and ring-based access networks to leading third party datacentres and points of interconnect.

AtlasEdge acquires 12 Colt DCs across Europe

AtlasEdge, the recently formed joint venture between Liberty Global and DigitalBridge, has acquired 12 European sites from Colt Data Centre Services (DCS). The portfolio includes data centres in 11 tier one and tier two markets in London, as well as Amsterdam, Barcelona, Berlin, Brussels, Copenhagen, Hamburg, Madrid, Milan,

Paris, and Zurich. AtlasEdge said it now operates more than 100 data centers across eleven countries in Europe. The financial terms of the deal were not disclosed. Colt has six remaining facilities across Europe; two each in London and Frankfurt, Germany; and one each in Paris, France, and Rotterdam, the Netherlands.

Almost 90% of tech operations to be hosted off-premise

Plans for hybrid working and future tech investment are calling into question the need for businesses to maintain or rely on their on-premise data centres, according to new research from Zen Internet. A survey of 200 business leaders across the UK, the company found that post-Covid, on average,

only 11% of planned tech operations will be hosted on-premise. Off premise tools including SD-WAN (26%), artificial intelligence (25%) automation (24%) and application programming interface (24%) are the top tech investments set to be made in the next 12 months.

Labour members hacked again

The Labour Party has been the victim of another cyberattack, with members being warned their data may have been breached. Supporters have been emailed to warn them that information being stored by a third party may have been compromised during the attack. The scope of the hack is not yet clear but Labour said the breach has likely affected members, affiliated supporters and others who provided it with information. The Information Commissioner's Office and National Cyber Security Centre are both looking into the incident.

London borough gets smart

The London Borough of Croydon will introduce a network of smart bus shelters early next year to provide free public Wi-Fi, traffic sensors and air quality monitoring. US firm VALO Smart City will install, operate and maintain the smart bus shelters located in 185 locations across the district. VALO signed a 10-year deal with Croydon Council following a tender process in what is understood to be a multi-million-pound deal. The smart bus shelters will also offer LED edge lighting, voice announcements and accessibility improvements for people with disabilities, along with noise and traffic sensors.

Custodian to build 10MW data centre in Kent

Custodian Data Centres has announced plans to build a new 10MW facility in Dartford, Kent. Known as DA2, the data centre will be located outside southeast London and is due to open in Q2 2022. Once all three phases of the build are completed, the 2,500 sqm (26,900 sq ft) facility will be designed to host up to 800 racks. "Uptime, digital security and energy efficiency are shaping the business environment," said Rowland Kinch, CEO of Custodian Data Centres. "At Custodian, we believe that our service-first ethos offers a step-change for the data centre market, and that our new DA2 facility offers a competitive choice for organisations looking to step away from the crowded London Docklands. Founded in 2009, Custodian currently operates five data centres across London and southeast England, including one in a former TV studio.



Word on the web...

'Removing the bubble gum and duct...'

By Jenn Markey, VP product marketing, payments & identity, Entrust

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**RAJANT**

Why it's important to think before jumping into the cloud

Tina Howell, cloud practice lead at AND Digital, explains how companies digitise using DevOps tools and cloud platforms that are pushing the boundaries in the industry



Enterprises are under pressure to make transformation happen at pace in order to supercharge business processes. However, when it comes to cloud adoption, jumping in headfirst without a plan can cause headaches further down the line that are difficult to remedy.

Gartner recently suggested that at least 95% of cloud security failures will be the fault of customers who will be starting their cloud journey next year. New customers have the tendency to dive in, but with cloud adoption there are a multitude of aspects to consider including long term costs, pricing models, security, skills discrepancies and more.

This is why looking ahead and assessing common blockers to successful cloud implementation is vital.

Looking ahead: planning and budget

When it comes to cloud adoption, not having a plan... is not a great plan. Often in the rush to introduce new services, companies tend to focus too much on the potential benefits without considering what's required to make them a reality. This is one of the most common obstacles to successful cloud adoption. Planning ahead and breaking down the project into component parts, as well as assigning clear team roles and responsibilities for each step, is crucial.

There is often a lack of understanding around how the costs of cloud contracts work, which can present challenges later on. Consequences depend on the size of the organisation – perhaps, as a small company or a public sector body, large corporate contracts wouldn't work best for your budget. When tasked with scoping out cloud providers, teams risk opting into contracts which won't work for them long term and in some cases fall into the age-old trap of vendor lock-in. Pricing models vary from paying per unit to monthly and yearly retainers – so it's worth considering what the best option for you is. Weighing up the cost efficiencies of different cloud service combinations is also key – now, workloads can be hosted on various combinations of private, public and multi-cloud infrastructure. A lack of understanding around how the money works can be detrimental and end up being very costly if not researched thoroughly.

The 'lift and shift' myth and security doubts

Another key pitfall organisations face is the assumption that you can simply 'lift and shift' data from legacy tech to the cloud. It's far more than a drag and drop situation. Many businesses make this mistake, it's not uncommon when the rhetoric around cloud adoption has the tendency to make it sound like an easy job. Long-established enterprises have their traditional

ways of working, which comes as no surprise.

However, the main problem is that for large organisations especially, current processes and pipelines which were designed for their existing legacy infrastructure wouldn't translate well onto a cloud platform. Instead, businesses should assess their current offering and focus on constructing a new cloud-optimised solution to equip them for the future.

Security concerns are also holding back successful implementation. Cloud's security protocols are by their very nature stringent. As a rule, projects must be completed in line with the highest security compliance standards such as PCI and ISO 20000-1. Reputable providers understand this and aim to deliver the most secure services.

Additionally, the services available in the cloud really aren't dissimilar to the on-prem offering. The key differentiator is that the cloud security services are continuously subject to optimisation by the best minds in the business, in response to the latest threats, which makes them dynamic and adaptable – another huge positive to consider.

The pace of change and skills deficit

The pace of change can vary between organisations. Your organisation and your technology are likely to be developing at different paces. An army of cloud engineers can be deployed with the intention of speeding up transformation, and while this may get you to the cloud sooner, it's certainly not an effective long-term solution. It's important that every team is on the same page – from DevSecOps to SLT – otherwise there's a strong chance you will end up with a digitally advanced business that no-one internally knows how to navigate.

In order to unlock the true value of cloud, the broader organisation must be kept in the loop. Without the skills and knowledge to use it, cloud can't deliver on its promises. A lack of cloud expertise, both internally and within the market, is another enormous pitfall to the success and implementation of cloud-native products. With this in mind, investment in skills training across the business is a wise long-term strategy for success.

You don't have to go it alone

To make the journey to cloud more manageable, and to achieve the desired outcome, it's best not to embark on this venture alone. There are partners out there with deep knowledge to share and the skills to support businesses when it comes to building sophisticated infrastructure at pace. Finally, investing in your people and empowering them with training opportunities will fundamentally transform your way of working to align with all that future tech has to offer. ■

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Edging IT

John Hall, managing director – colocation, Proximity Data Centres

Performing much of the data processing, control and management of local applications in edge colocation data centres allows latency to be reduced and application responsiveness optimised. At the same time, data transit costs can be significantly reduced by eliminating the need to send everything back to centralised clouds – often hosted in large data centres located hundreds of miles away.

Minimising latency is increasingly essential to enabling almost everything: enterprise productivity, efficiency and competitive advantage; customer experience; 5G mobile network coverage; super-fast streaming video; real-time AI/MLL decision making in industrial automation and medical environments; driverless vehicles and much more.

Moreover, with significantly more of the working population working from home and many moving out of expensive cities to work in semi-rural areas, there is growing pressure on backhauling traffic to the few hyperscale data centres in the UK.

The above is leading to the emergence of a new breed of ‘edge’ colocation data centres. These are the missing links between centralised clouds and users, computers, machines and devices at the network edge. They are highly connected - including links to local internet exchanges - and located in proximity to large conurbations and densely populated cities up and down the UK. Furthermore, edge colos can relieve centralised data centres from becoming data traffic congestion areas, caused by the thousands of households and small businesses now connecting to FTTP at up to 1 Gbps.

Strategically positioned regional colocation facilities are pivotal to the success of edge computing deployments. However, it is important to carefully consider the geographic location of your target users and customer before committing to existing data centre facilities. In the UK, it is worth noting outside of Greater London there are around 40 densely populated urban areas.

In a country the size of the UK, it may sound relatively straightforward. After all, the physical distances involved between regions and large cities are relatively small compared to say, the U.S. or China. However, away from the London metro area, easily the most densely populated area with around 9.4 million, there are some 57 million dispersed somewhat unevenly.

For example, the large conurbations of Greater Manchester and the Birmingham area have around 2.5 million people apiece. But the East Coast and Southwest populations are considerably smaller by comparison - and spread more thinly. Scotland has a much smaller population than England but there are anomalies with very large populations around big cities such as Glasgow - there's no one size fits all data centre solution.

So, choosing the right sites in the right locations will ultimately pay off in terms of your organisation's operational efficiencies, bringing increased agility, competitive advantage and cost reductions. With this, consideration must also be given to the number of hops and where on the network an edge colocation site will be situated - these factors will impact on its suitability to meet specific latency use cases. Access to local internet exchanges and public cloud infrastructure via gateways are further factors.

However, in the rush to get closer still to users and customers, it is important not to overlook a potential edge data centre's overall credentials. Network latency is obviously key, but so too are factors such as uptime service record, physical and cyber security, DR and business continuity contingencies. Carbon credentials and energy efficiency (PUE) are further considerations along with forwards power availability for keeping pace with future requirements.

The level of on-site engineering competence available is also important, especially for

configuring and interconnecting complex hybrid cloud environments. By connecting public and private clouds together, hybrid clouds can optimise available compute, connectivity, bandwidth and storage capabilities which enhances applications responsiveness, user experience and productivity.

This entails hosting private clouds in one or several edge colocation facilities and connecting these to public cloud services hosted by service providers in centralised hyperscale data centres. Mission critical applications are therefore securely contained within the private edge cloud environment with only data that is non-time critical sent back to the public cloud – perhaps for further analysis or archiving. The flexibility to carry out pre-production testing of applications in the

data centre will be a bonus, ensuring everything works prior to launching.

There are also logistical issues to consider, not least installing new servers or moving existing ones from elsewhere. This will need to be done quickly and with minimal downtime and so will most likely require specialist support. Therefore, an operator that provides door-to-door migration services could be a major benefit along with the ability to carry out pre-production testing in the data centre to ensure everything works prior to launching. Straightforward SLAs and single contracts covering all edge colocation sites in an operator's portfolio will save management time and complexity. Dealing with several smaller data centres owned by different suppliers, all with

various terms and conditions, brings hidden costs.

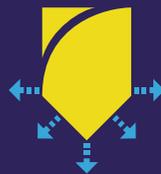
In summary, with the growing demands and concerns from users surrounding latency, network bandwidth congestion and rising backhaul costs, much more strategically positioned ‘edge’ regional colocation facilities are becoming essential to the success of UK edge deployments. In the new edge computing paradigm, many colocation data centres must therefore be repurposed to meet new, more demanding requirements for lower latency and greater agility. They must also be able to rapidly provision and scale compute and storage resources exactly where they're needed – but without risk of compromising IT security and resilience. ■



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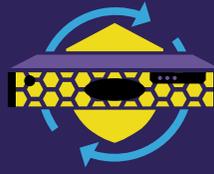
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The great cash injection

Chancellor Rishi Sunak handed the NHS £2.3bn to improve its ageing technology and IT systems. The question is: where is the money needed most? Robert Shepherd asks the questions

If there's one organisation synonymous with underfunding, long-waiting times and being overrun at the worst possible time, then you'd do well to name one more beleaguered – indeed, more important – than the National Health Service (NHS).

The second largest healthcare system in the world and the country's largest employer, successive (mainly Conservative) governments have long stood accused of failing to adequately fund the department.

Press coverage became even less favourable over the past 18 months as the Covid-19 pandemic laid bare the problems facing NHS. For prime minister Boris Johnson and his cabinet, the optics weren't good.

"Public bodies continue to be reliant on outdated legacy systems, emphasising a 'keeping the lights on' approach at the expense of modernisation initiatives and the increased benefits they can bring," says Mike Kiersey, director, global technology, EMEA at Boomi, which specialises in integration platform as a service (iPaaS) and master data management. "A modernisation program needs to look at rationalisation too, the reason why organisations find themselves in this state is due to the layer upon layers of technology debt that accumulates over time through 'projects' that continually add on and not remove. The complexity of middleware, integration, legacy ESB etc. is crippling the pace of which

organisations can move, coupled with the fact they all need to be patched and managed to mitigate security risks."

Last month, the NHS was given hope that its prayers were being answered. Up stepped chancellor of the exchequer Rishi Sunak adorned by his red box at the autumn budget, where he ringfenced north of £5bn for the healthcare system – £2.3bn of which is a cash injection (pardon the pun) for improving IT systems and technology.

You could hear the collective sigh of relief as network managers at trusts across the country, began to spend the money in their heads.

"It is always good to hear about further investment in the NHS," says Matthew Margetts, director at IoT firm Smarter Technologies. "At the same time, however, I would like to hear about how the money is deployed and what changes the health service is introducing to improve outcomes; in particular, I believe there is scope for further investment in technology to manage patient care right through to track and trace for equipment and other assets that roll around hospitals."

Noel O'Kelly, clinical director at health technology vendor Spirit Digital, says that

"as far back as 2017, the government's digital strategy policy paper outlined plans to 'build a stronger, fairer country that works for everyone'".

He argues that within the context of the NHS, this means having the infrastructure, connectivity, access,



Matthew Margetts, Smarter



Noel O'Kelly, Spirit Digital



Russell Tilsed, 8x8

skills and confidence – amongst both those providing services and those receiving them – to make healthcare more equitable. “Indeed, as NHS Digital states, patients who are more likely to be digitally excluded include those who are amongst the more vulnerable: older people; those in lower income groups; people with disabilities; and those whose first language is not English, amongst others,” O’Kelly adds. “These are barriers that may be challenging to overcome, but they are not insurmountable, as the events of the last year and a half have shown.”

Vijay Magon, managing director at CCube Solutions – a supplier of electronic document and records management software to the NHS says that while “new money for NHS IT is of course welcome, the spending should be highly-focused” and that the second Johnson administration should avoid a ‘top down’ approach where IT is foisted upon trusts.”

However, Magon argues that “just doesn’t work” as evidenced by the National Programme of IT debacle during the Tony Blair administration.

“New money should be targeted on obvious problem areas which could provide quick and easy wins for the NHS to boost efficiency, improve patient safety and save money in the long run,” Magon says. “Take patient records - 12 years after St Helens & Knowsley Teaching Hospitals NHS Trust removed paper records from operational practice, around 50% of UK Trusts have still to get rid of their medical records libraries – the running of which wastes millions every year.”

Of course, it doesn’t take a genius to know that the past 20 months have put the NHS under more strain than it had ever experienced in its 73-year existence. If



Simon Townsend, IGEL

you’re not convinced, just try to book a face-to-face appointment with your GP to get an idea.

That’s because pandemic also led to the transitioning of healthcare to the virtual clinic becoming crucial in fighting the pandemic and reducing the strain on the NHS.

Peter Ruffley, CEO, at big data and edge analytics Zizo, tells how IoT has enabled important new advances in remote monitoring through connected devices that can provide healthcare professionals with the ability to monitor on-going patient health and vitals from home.

“In rural and remote areas medical care has been known to fall behind standards elsewhere across the country, but technology can change this,” he says. “Technology and healthcare applications can be used to provide healthcare workers with access to interact with and monitor people in places that have been traditionally harder to reach – and crucially Edge Computing can be used to increase performance and responsiveness for this digitisation.

Cylera, a healthcare IoT (HIoT) cybersecurity and threat intelligence company, along with partner The AbedGraham Group, a physician-led global technology group, were recently commissioned by Dartford and Gravesham (DGT) NHS Trust to safeguard its medical device and IoT infrastructure.

“All NHS hospitals are in a similar situation with the need to accelerate towards the goal of decreasing IoT cyber risk,” says Shaun van Niekerk, head of IT and cybersecurity and joint chair of NHS Cyber Associates Network. “This unique compilation of technology provides the exceptional capabilities needed to reach this goal.”

O’Kelly says Covid-19 has been a catalyst for extraordinary change: but change has, so far, understandably been targeted at the most obviously vulnerable patients. “To achieve true digital inclusion, there is still an infrastructure to be built,” he says. “The priority is to address the technology gaps revealed by the Covid-19 NHS response and to use that knowledge to achieve a wider adoption of a broad, effective community care model within local health economies.”

Nevertheless, it appears there are a number of examples showing how the NHS has been running more economically.

IGEL is a company that provides the next-gen edge OS for cloud workspaces. Simon Townsend, its chief marketing officer, explains: “The NHS has apparently saved around two million hours using Microsoft Teams during the various lock downs as clinicians have been able to engage more effectively with colleagues and patients remotely even with all disruption caused by Covid. It is an excellent example of how IT has made a tangible difference. And just think what could be done with the extra £2bn if channeled effectively.”

Townsend says “putting apps, data and storage in the cloud” is how a modern health service should operate to enable telemedicine and improve patient care. “The cloud as an agile architectural approach has matured sufficiently such that security and performance is top class, roll out is fast, management easier with high availability guaranteed,” he adds.

As far as Kiersey, is concerned, the server landscape is still growing, as most customers have a multi-cloud strategy in place – however, on-premises still outweigh cloud.

“The wave that is gaining momentum

is all about containers, moving monolithic applications, developing net new apps in a container world will outstrip that of ‘virtual machines’, he says. “I would say as ever IT services, application, databases needs to run on something and we are not seeing any slow down on the growth of applications and data. Most enterprise customers will have several overlapping applications to help them manage vast silos of data, compounded with the exponential growth of data, the variety of data, the ever demanding need to have real-time data access and the push from vendors to adopt their technologies is overwhelming for most IT organisations.”

Many trusts have now successfully made the migration, paving the way for others to do likewise. However, Magon argues that over the past 10 years, in excess of £35 million has been saved by three of CCube customers alone through the removal of paper-based processes and libraries. With the acceptance of cloud and subscription payment models, rollout is faster, less complex and easier for time pressed IT departments,” Magon continues. “The time is right to finally grapple with this for the 100+ trusts who have yet to do it.”

Russell Tilsed, senior director, public sector at integrated cloud communications platform provider 8x8, explains how his company “has the privilege of working with numerous NHS Trusts throughout the UK and so this recent decision by Chancellor Rishi Sunak to invest more fully within this market is a confirmation of our customers’ ongoing efforts to invest in digital transformation”. From handling patient inquiries and COVID-19 helplines to conducting virtual surgical training and participating in patient consultations via video, our customers are actively exploring all that’s possible when a traditionally in-person industry adopts cloud-based, collaborative technology. At 8x8, we work alongside our customers to ensure that as they grow, we grow right alongside them to meet any changes in their business needs. As the NHS and technology vendors continue working together, actively communicating requirements and needs will be imperative to meeting the current and future needs of each organisation and its patients.”

As we look to a (hopefully) brighter future for the NHS, O’Kelly believes that “with the right pathway in place, the opportunity presents itself to move from the current model of reactive care, to one where we can start to intervene early and prevent unnecessary exacerbations or avoidable hospital admissions”.

He continues: “With a patient-centric, digital-first approach, the wider health economy will gain from a huge influx of data. Data that can be analysed, using machine learning and artificial intelligence, to help us predict the people who are more at risk, from either physical or psycho-social conditions. Ultimately, it’s about improving pathways, outcomes, access to medicines and reducing the cost of healthcare. The key to digital inclusion is getting the right local stakeholders within a local health economy to work together. It is the cooperation of policymakers, front line clinicians and IT suppliers within a local area that will accelerate digital change and achieve a model of care designed to be truly inclusive.”

Margett adds: “Moreover, clearly the NHS must report on the measures it is taking to cut carbon emissions and reduce environmental impact. Again, it would be interesting to understand what initiatives they are pursuing.”



Vijay Magon, CCube Solutions

Still, there are those who are of the view that the NHS needs to be prudent about where to splash the cash and Townsend says “being laser focused” about this £2 billion opportunity is fundamentally important. “The extra money shouldn’t be seen as a bonanza for IT suppliers or NHS IT departments to just buy the latest and greatest tech,” he warns. “Projects need to have clear business case returns. For example, NHS trusts that have already made the shift to virtual desktop infrastructure – whether this is in the cloud or still on-premise – are already seeing the benefits from hosting Windows-based desktops and apps somewhere other than actually on the endpoint.”

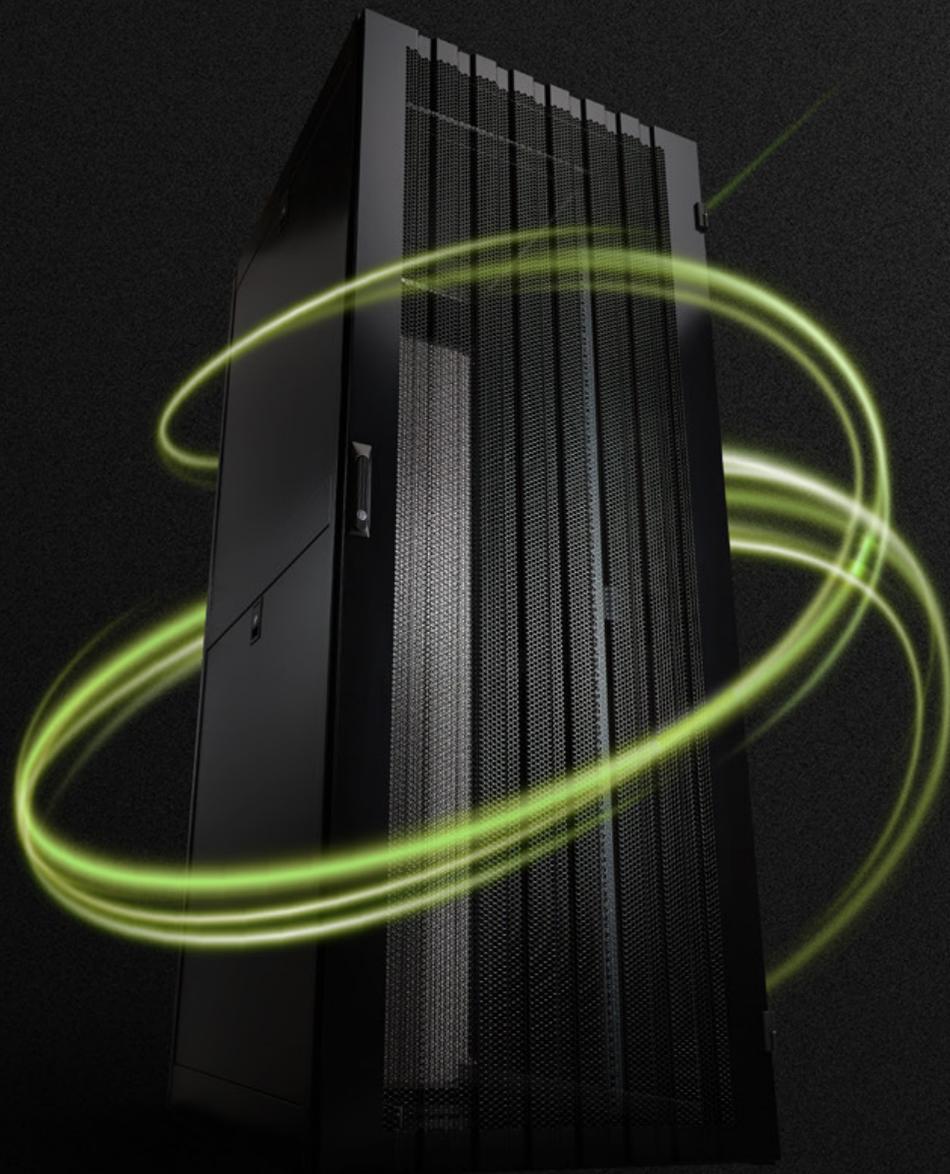
This approach, which enables work from anywhere, is significantly more secure and easier for IT to manage, argues Townsend. He adds that in this model, where Windows no longer sits on every PC, organisations can also utilise technologies like that from IGEL. “Pennine Acute Hospitals NHS Trust is a great example of this,” he continues. “They saved £500,000 as they avoided buying 2,000 new thin client devices for the organisation, with just one person managing the whole estate. To repeat, NHS Trusts don’t need to throw old PCs, laptops or thin clients away which saves a lot of money and meets the green agenda, too. The point is to work smart to use the government’s new budget and apply it across the whole IT stack.”

For Ruffley, “connected devices are the future” and will leverage intuitive data analysis that ultimately saves lives and streamlines operational efficiency for health services across the nation. “By reducing the myths surrounding patient data and ensuring that connected devices are managed as part of one centralised system, healthcare providers can gain endless value and benefits from IoT,” he says.

Kiersey says “in the new world, there is no end state, there is no need for overengineered solutions which run touched for three years”. He concludes: “CTOs need to innovate with flexibility, decouple apps and data with APIs to enable the adoption of new technologies like AI.”

Naturally, each trust and/or hospital will have their own views on where the money can and should be spent, but the good news is two-fold: the money is available and there are vendors ready to help.

Oh, for those of you who didn’t Google “world’s largest healthcare system”, it’s Brazil’s Sistema Único de Saúde (SUS). That’s one for your Christmas quiz. ■



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Experience matters – how data centre providers must be ready to cope with any situation

Darren Watkins, managing director for Virtus Data Centres

Over the last 18 months, organisations all over the world have realised that they can't take any risks with their data centre strategies – they are at the heart of e-commerce and remote working, and have kept businesses operating during lockdown. Finding data centre partners that can be trusted to deliver robust, efficient, scalable facilities and cope with any situation, has never been more important.

When it comes to the explosion of ecommerce and widespread hybrid working, some in the business world aren't in a hurry to revert to office life. And when it comes to e-commerce, the "Amazon generation", who are used to getting goods and services quickly and easily, are unlikely to return to relying solely on in-store shopping.

This extra online traffic puts intense pressure on the infrastructure - security, servers, storage and network - of any organisation. IT departments need to deploy more forward-looking capacity management if they are to proactively meet their current and future needs. This means selecting a data centre partner that can provide enough capacity for the digital world and its demands, and adapt and flex to their customers' continually changing requirements.

Whilst the pandemic thrust a spotlight on the data centre industry, the power demands of the sector are being increasingly scrutinised. But the good news is that the industry is already leading the charge to a more energy efficient world.

Many forward-looking providers are moving away from fossil fuels and harnessing renewable energy. And some are committing to using 100 per cent zero carbon power – benefiting from increased sustainability, reliability and cost effectiveness. Power hungry elements like cooling are fast evolving too.

However, in assessing providers' sustainability promises, experience is once again crucial. The most experienced providers are committed to delivering a "cradle to grave" sustainability strategy, where environmental ambitions are built into every step of data centre construction and operational management.

Traditionally, physical security has been one of the primary reasons that some large risk-averse organisations have preferred to build and manage their own data centres. But today, because on-premise solutions are both financially unviable and difficult to manage, this isn't always an option. As more remote and flexible working styles are embraced by organisations, many businesses are reviewing their existing office spaces. Some may decide to downsize from expensive inner-city locations as these large premises no longer support employee working patterns. This could also impact their in-house data centre, which may well be within these premises, and IT managers will need to consider where to place this critical infrastructure. For organisations who may have once chosen to build and manage their servers and network themselves, rather than outsource data centre space and remote operational expertise, significant reassurance that their provider has excellent security, amongst a host of other operational proficiencies, will be essential.

This is where a proven track record and solid experience really matters.

Experienced colocation providers offer a full suite of benefits, including service level guarantees that offer 100 per cent availability of power and cooling, 24/7 physical security and compliance with all the latest ISO certifications for managing critical infrastructure.

When looking to the future, the data centre industry is fast evolving. Data centre providers are looking at areas like the ongoing innovations with adiabatic cooling, the growing use of renewables and alternative sources of back-up power to help them keep up with our insatiable

demand for information. But, again, it is only the most experienced data centre providers, many of which were pioneers and early adopters of these technologies, that are now in a position to take the learnings of every design, build and operations project they have undertaken and develop best practice and new strategies.

Finally, experience really shows its value when things go wrong. When disaster strikes, it will be the monitoring, reacting and operating procedures - evolved over years - that ensure customer experience isn't negatively impacted.

Only with experience and longevity can providers build robust processes, tried and tested in live scenarios, to ensure the best possible levels of service.

If there is one certainty in today's uncertain world, it is that our increasing reliance on data will continue to grow. And this reliance means that selecting the right data centre partner with experience and a proven track record is key to success. Get it right and you'll be ready for the future and able to respond to market challenges, deliver on customer demands, scale and grow. ■

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Cellular and non-cellular networks for enterprise IoT

Shahzad Nadeem, head of smart cities business at Plextek



	LoRa	NB-IoT
Link Budget	157dB	164dB
Spectrum	Unlicensed ISM	Licensed LTE
Modulation	CSS	QPSK
Bandwidth	125 kHz, 250 kHz	200 kHz
Maximum data rate	50 kbps	250 kbps
Duty Cycle restrictions	Yes	No
Max Output power	14 dBm	23 dBm
Battery life	10+ years	5+ years
Bidirectional	Yes / Half-duplex	Yes / Half-duplex
Maximum messages/day	Unlimited	Unlimited
Maximum payload length	243 bytes	1600 bytes
Range	*5 km - rural and 1 km – urban (at 14dBm and 868MHz)	*10 km - rural and 1.5km – urban (at 23dBm and 1840MHz)
Authentication/Encryption	AES 128b	LTE encryption
Security	Good	Very high

its reliance on the LTE network means NB-IoT may have limited coverage in rural areas. LoRa however, with low infrastructure costs, can be readily deployed to get coverage where no LTE infrastructure exists.

Data rate: Applications requiring higher than 50Kbps need NB-IoT deployment which runs at 250Kbps peak data rate. LoRa, however, offers rate adaptation thus reducing the channel use and interference.

Mobility: IoT applications requiring mobility prefer LoRa over NB-IoT as the latter works on cell reselection in idle mode, which does not offer optimum mobility support. LoRa networks, however, allow transmission to multiple base stations with no need for handover.

Cellular and non-cellular NB technologies have strengths and weaknesses that make them ideal for specific enterprise applications and market segments. Whilst LoRa is more suited to low cost, low bandwidth, local area and private network deployments, NB-IoT will be adopted for more sensitive applications requiring higher bandwidth, low latency and guaranteed QoS. It can be said with confidence that although seen as competing technologies, they will develop their own niche markets and co-exist for a long time. ■

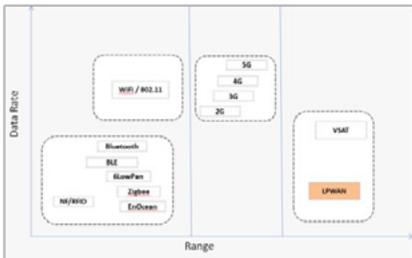
The rapidly growing number of IoT devices and applications usually have specific communications requirements such as low cost, low power, long range and low data rates, while base stations may need to cater for many thousands of devices. As technologies such as Zigbee, Wi-Fi and conventional cellular don't always meet these demands, the foundations have been laid for Low Power Wide Area Network (LPWAN) non-cellular standards like LoRa and SigFox along with cellular standards like NB-IoT and LTE-M.

NB-IoT is a cellular technology based on the LTE network architecture but later adopted for 5G. It works in licensed bands and piggybacks on deployed cellular infrastructure. NB-IoT works for 4G and 5G bands, which means that a separate frequency band is not required. While LoRa networks need deployment from scratch, the long-term operational costs are lower because they use unlicensed ISM (Industrial, Scientific and Medical) bands, which makes LoRa ideal for low-budget, small-scale enterprise applications.

usually the deciding factor and applications requiring low latency and guaranteed QoS will prefer NB-IoT, whereas applications requiring low cost deployment and free use will incline towards LoRa.

Longevity: The QoS, low latency, synchronous communication and higher device current, require higher energy use and render a shorter battery life to NB-IoT devices compared to LoRa. The applications that do not need low latency would prefer LoRa if battery life is the main concern.

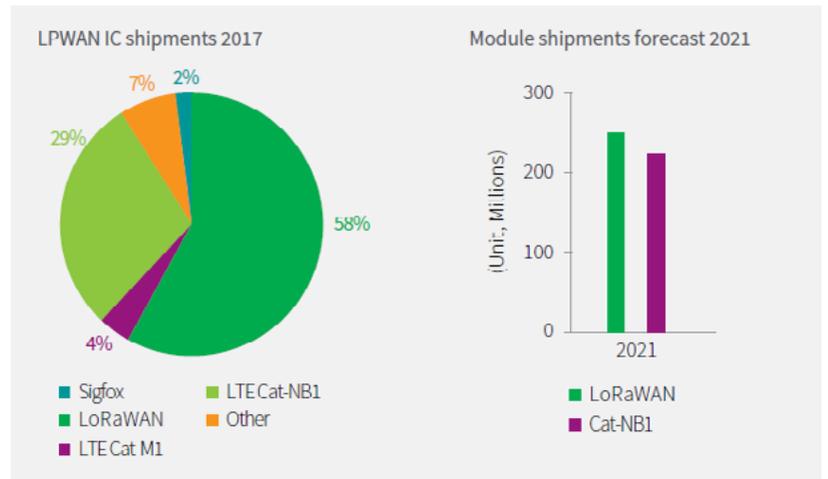
Coverage: Better link budget gives a coverage edge to NB-IoT over LoRa, although



Sigfox and LoRa were developed by French companies around 2010. Since then, the LoRa Alliance has standardised LoRa protocols and Sigfox is in discussions with 3GPP for standardisation, while the development of NB-IoT and LTE-M standards are being led by 3GPP. But it is the backing from major market players that is making LoRa and NB-IoT more attractive for IoT use cases compared to Sigfox.

LoRa is the technology of choice for low cost private IoT enterprise networks, supported by the LoRa Alliance - a non-profit and open source association of 500+ members promoting the free use of LoRa protocols.

Cost vs Quality: LoRa took an early lead in private network deployments due to free band use, cheaper infrastructure and low device cost. The cost vs quality trade-off is



(Courtesy – IHS Market: An in-depth view into the competition, applications and influencers driving the foundation of IoT)

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Working from home for the foreseeable?

Working from home is no longer the 'new normal' – it's firmly established. However, that means investing in the best technology, say the experts

Working from home was considered the “new normal” this time last year. The world was plunged into chaos when businesses were forced to close their offices and tell staff to work from home as the coronavirus pandemic gripped countries around the globe. Working from home, once a privilege, was suddenly the immediate future.

Of course, we connected to our company networks using routers, extenders and other technology previously used solely for leisure and entertainment. However, now that the UK faces a future of working from

home and/or hybrid working, we thought it a good idea to speak to some industry luminaries to find and find out what sort of technology network managers will require so it's a case of “business as usual”.

Let's get the catalyst out of the way. “More of us are working from home than ever,” says Melanie Charles channel marketing manager for DrayTek. “Earlier this year, the UK's Office for National Statistics (ONS) found that 25.9% of the working population, or 8.4 million people, had worked from home for at least part of their week in 2020, up from 12.4% in 2019.

Yet finding space to work isn't always easy, particularly when more than one of you is working, or once the school holidays roll around. It's no wonder, then, that so many people are now setting up an outside workspace, transforming an existing shed or garden room into an office, or adding a new purpose-built outbuilding.

For Charles, setting up a ‘shoffice’ involves a range of practical considerations, from staying within planning regulations to heating, light and power. “However, one challenge many of us overlook is how to connect the office to the home network and,

from there, the wider internet,” she adds. “After all, the home working revolution has been built on cloud-based tools and the ability to communicate with a team and use corporate resources. Having a reliable internet connection in place allows you to focus on getting stuff done rather than trying to troubleshoot your Wi-Fi.”

Now we have the background to this new approach to working life in the UK, it's time to go through the tech options. Let's start with the obvious ones.

“The ideal solution is a simple wired ethernet connection,” Charles says. “Most

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The R850 is our highest capacity dual-band, dual-concurrent Wi-Fi 6 (802.11ax) access point (AP) that supports 12 spatial streams (8x8:8 in 5GHz, 4x4:4 in 2.4GHz). The R850, with OFDMA and MU-MIMO capabilities, efficiently manages up to 1,024 client connections with increased capacity, improved



coverage and performance in ultra-high dense environments. ruckusworks.co.uk

The **Linksys EA6350** dual band smart Wi-Fi gigabit router is, apparently, up to 2.8 times faster than Wireless-N technology; simultaneous dual-band speed up to N300 Mbps (2.4 GHz) + AC867 Mbps (5 GHz) for intense applications. The USB 3.0 port; USB 3.0 and Gigabit Ethernet ports ensure high streaming and fast data transfer of photos, video, data files or connecting devices across your network, according to

Linksys. USB 3.0 is 10 times faster than USB 2.0. What’s more, Linksys smart Wi-Fi; monitor and control a home network from anywhere and at any time; smart Wi-Fi allows users to prioritise devices or websites, gain parental control over inappropriate content, monitor network activity, turn Wi-Fi access on or off and create select password-protected guest networks. linksys.com



In an era where business professionals and students are working and learning from home, network congestion and security are real issues. The **Orbi Pro WiFi 6 Mini Mesh** system provides the capability to maintain secure and separate WiFi channels, Netgear says.

Featuring the latest WiFi data security protocol, WPA3, along with support for up to 4 separate SSIDs and VLANs, the Orbi Pro WiFi 6 Mini Mesh System enables network streams to be securely separated from each other, for example by creating a work-from-home network stream, a learn-from-home network stream, an entertainment network stream, and a guest/customer network stream.

With a WiFi 6 (802.11ax) multi-node mesh system, the base configuration of an Orbi Pro WiFi 6 Mini system (SXX30) comprises a router and a satellite. Each router and satellite also include an integrated NETGEAR Ethernet switch and delivers aggregate WiFi speeds of up to 1.8Gbps. The base configuration of the Orbi Pro WiFi 6 Mini Mesh System (SXX30) provides up to 4000 sq. ft. of coverage. Up to three (3) additional satellites (sold separately), expand the

WiFi coverage of the system to up to 10,000 sq. ft. Orbi Pro WiFi 6 Mini “is built for small business professionals who demand easy and intuitive installation and management”. Easy setup is enabled via a browser version or a downloadable mobile device App version of the Insight App

To enable a business-friendly network environment, Orbi Pro WiFi 6 Mini has four gigabit ethernet LAN ports in each satellite unit and three such LAN ports in the router unit. netgear.com



The **Billion BiPAC 8800NL R2** from Zcomax is an all-in-one small footprint VDSL2/ADSL2+ Broadband router with high-speed 802.11n wireless technology. It supports all UK networks regardless of connection type, working with ADSL2+, VDSL2 (FTTC), Fibre and Cable technology making it an ideal device for customers with BT Infinity, Sky Fibre, TalkTalk, Virgin Media, Plusnet etc. With this Billion BiPAC 8800NL R2, users can enjoy ADSL2+ and VDSL2 services and broadband multimedia applications such as interactive gaming, video streaming

and real-time audio much easier and faster than ever before with the renowned Broadcom chipset. zcomax.co.uk



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Please meet...

Matan Liberman, general manager, Semperis

What was your big career break?

When Mickey, Guy and I founded Semperis everyone said that Active Directory, the Microsoft product that manages the identities of 90% of global organisations – which we provide the protection for – will vanish from the world. We believed it wouldn't. Investors, customers and experts said that in 5 years no one will use it. But we believed that cloud adoption by organisations will only increase the importance of Active Directory. Around 2018 we finally started seeing a huge increase in our product's demand. Gartner, the globally recognised research and advisory firm providing information to organisations, also changed their report saying that Active Directory is not only here to stay but it would be critical for organisations. It was then that we knew we are doing something right.

Who was your hero when you were growing up?

That is a difficult question because I had several people that I looked up to, so I have to go with two answers. First are my parents who always made sure I had everything I needed, often putting my needs first by sparing themselves. They gave me the education, love and confidence to chase my dreams so they were a huge inspiration.

The second one is Michael Jordan. Growing up, I would have classed myself as a below-average basketball player. Like any other kid I wanted to be like Michael but around the age of 16 I understood that there is no way that this would happen for me. But following Michael Jordan's career, I learned several important things. Michael wasn't always the most talented guy but he was always the one who worked hardest. He would practice twice as much as the other players on his team, he found motivation in any place he could, even when someone told him this can't be done. When Michael became a star he knew how to push his teammates to do the same. Jordan made so many concessions to get to his end goal and for me this is dedication. All the above are values that I aim to live by.

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

At the beginning of Semperis one of our mentors told me that working for a start-up is like a rollercoaster; "You will have ups and you will have downs" he said, "always remember to celebrate your wins because you will be down at your losses". A start-up is a marathon and you simply won't get far if you only wait for the big break. You must enjoy the ride.

What's the strangest question you've been asked?

I was once asked if a pickle is originally a cucumber.

The Beatles or the Rolling Stones?

The Beatles.

What would you do with £1m?

I don't think that I would do anything different with £1m. I would maybe invest in Happel Tel Aviv youth group, the soccer team I'm a fan of and they might get a little less terrible with a nice investment.

If you could live anywhere, where would you choose?

My job took me all around the world for short and long trips, I really feel like I've seen so many places, but I can certainly say

there's no other place like Tel Aviv. This is the best city in the world, open 24/7. Great restaurants, bars, beaches and the nicest people everywhere. No matter how old are you or what are your interests and hobbies Tel Aviv will have what you want and need.

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

If I had to choose a different industry, I think I would go with non-formal education.

Growing up where the scouts were a very significant part of my life, I know the huge impact it can have on your education. If not in start-ups I would happily give back.

What's the one thing you must do before it's too late?

I've never had the chance to visit Australia and I've heard it's amazing. I would really like the opportunity to surf in Sydney and while I'm already there take a quick trip to New Zealand as well.

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