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DECEMBER 2018

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Wi-Fi based connected cars will "imperil" ability to compete

The Next Generation Mobile Networks (NGMN) Alliance has called upon the EU to re-think its strategy for connected and smart car technology.

In a letter addressed to EC president Jean-Claude Juncker, the alliance's 27 board members say the EU should adopt a "forward-thinking, technology-neutral approach" in developing the Cooperative Intelligent Transport System (C-ITS) initiative. They call upon European legislators to reconsider the current EC Delegated Act by including Cellular-V2X (C-VX) on the list of potential technologies that European stakeholders can pursue, and allow the market to decide which technology prevails.

Founded in 2006, the NGMN advocates for an affordable mobile broadband service geared towards the end user, with a particular focus on 5G. Members include telecom operators, vendors and research institutes from around the world, such as BT, China Mobile, Deutsche Telekom, Sprint, Vodafone, among many others.

The alliance points out that its members have so far provided mobile connectivity to more than 30m vehicles worldwide, which is used for a variety of safety related use cases. It adds that in the near future, every vehicle is expected to be equipped with cellular connectivity.

PHOTO: BMW

Following several years of research, the alliance believes cellular-based C-V2X technology is "superior" to ITS-G5, the Wi-Fi-based technology path that the EU currently favours. Its letter states: "Rather than opting for a C-ITS in which the ageing 802.11p radio technology would become the *de facto* standard, Europe's future C-ITS ecosystem deserves to be built on an optimal technology foundation, in order to remain sustainable over time and maximise the benefits of future investment in 5G. This will make Europe's roads safer and smarter."

According to the NGMN, when it comes to communication range, latency and scalability, C-V2X has better performance than IEEE 802.11p. The alliance says the technology can easily utilise the existing benefits of mobile technology, such as disseminating information using cellular broadcast, and decrease the investment in infrastructure by reusing already deployed networks.

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New partnership set to accelerate data science and AI

The Alan Turing Institute (ATI) and the Science and Technology Facilities Council's Hartree Centre have joined forces in a effort to accelerate data science and AI innovation.

Founded in 2015, the north London-based ATI is the UK's national institute for data science and AI. Under a recently signed collaboration agreement, it will work with the Hartree Centre in the areas of data analytics, machine learning, modelling and simulation. Their agreement will focus on driving real-world impact. It will draw on what's described as the "state-of-the-art" high performance computing facilities at Hartree and the "cutting-edge" research taking place at the ATI to develop trustworthy, scalable AI solutions for large-scale deployment in industry and the public sector.

"In the rapidly evolving landscape of AI technology, there is an emerging need to develop standards and validation that can be used to assess bias, trustworthiness and ethics of an AI system," says Hartree Centre director Alison Kennedy. "We need to be able to identify and explain where the decisions made by AI and big data algorithms come from. The development of trustworthy, explainable and ethical AI is just one area of work where, by combining the strengths of the Hartree Centre and The Alan Turing Institute, we have the potential to make a strong impact on the swift digitisation of UK industry."

ATI director Adrian Smith adds that data science and AI research requires access to large computing facilities in order to enable intensive algorithms to operate and learn. He says: "It is critical that the institute, as a national centre committed to driving impact in these sciences into real-world applications, partners with world-class facilities like the Hartree Centre to ensure we build data science and AI tools and software which match the needs of the UK's industrial future." ■

Connected car technology rethink

continued from page 1

The alliance adds that C-V2X is not only able to enhance safety features for vehicles, but also supports use cases for other traffic participants, like pedestrians and cyclists.

Furthermore, it points out that the technology offers a "natural evolution" path to future advanced applications by updating current networks to 5G.

"Despite the EC's stated commitment to technology neutrality, we are very concerned about the progressing Delegated Act." says the letter. "At the current time, it rules out the most recent technology, C-V2X, favouring a specific and single-purpose Wi-Fi based technology path, ITS-G5. [This] has no relationship to 5G technology and no evolutionary path towards compatibility with future 5G based C-ITS systems generations, as being planned in 5GAA, 5GCAR and other groups, thus precluding the evolution to 5G for connected cars."

The letter warns that limiting C-ITS deployment to ITS-G5 will "imperil" the EU automotive industry's ability to compete. It says: "This places Europe at a technical and economic disadvantage compared with other regions of the world including China and the United States, where C-V2X is emerging as a strong technology candidate for C-ITS."

The full text of the NGMN's open letter to the EC can be seen at *https://tinyurl.com/y6vgjuwl*. ■

KCOM supports calls to ban ISPs from making 'fake fibre' claims

KCOM has backed calls by the Fibre To The Home Council Europe to stop internet providers making misleading fibre broadband claims.

Sean Royce, MD of the Hull-based comms firm, says some ISPs are being allowed to misrepresent their broadband as 'full fibre' despite their services using old copper wiring. He believes comparing FTTH broadband to FTTC is like comparing a "jet plane with a horse and cart".

"We strongly back the FTTH Council Europe's demands to clamp down on misleading advertising which portrays FTTC broadband as full fibre. It must be very confusing for customers who think they're getting a full fibre service when, in reality, their broadband is limping the last leg of its journey to the home on old copper wiring. To be able to advertise this as fibre is frankly wrong."

Earlier in December, telecoms ministers gathered in Brussels to adopt the new European Electronic Communications Code, and they also considered what can and cannot be labelled as fibre. FTTH Council Europe president Ronan Kelly published an open letter urging them to stop "misleading" fibre advertising by UK and EU broadband ISPs.

Citing a survey conducted by CityFibre in the UK in July, the letter says 24 per cent of respondents think they already have fibre cables running all the way to their home, despite this only being currently available to three per cent of UK properties. It states: "A consumer thinking they already have full fibre will never switch to a FTTH connection. Misusing the word fibre in advertisements prevents consumers from making an informed choice about the products which are available to them and risks hindering fibre take-up.

"There is growing evidence that consumers are largely unaware of the form of internet connectivity they have bought, oftentimes due to the associated advertising."

The council says that where consumers know what they can choose from and understand the difference in performance between fibre and copper-based connections, they "consciously" choose fibre.

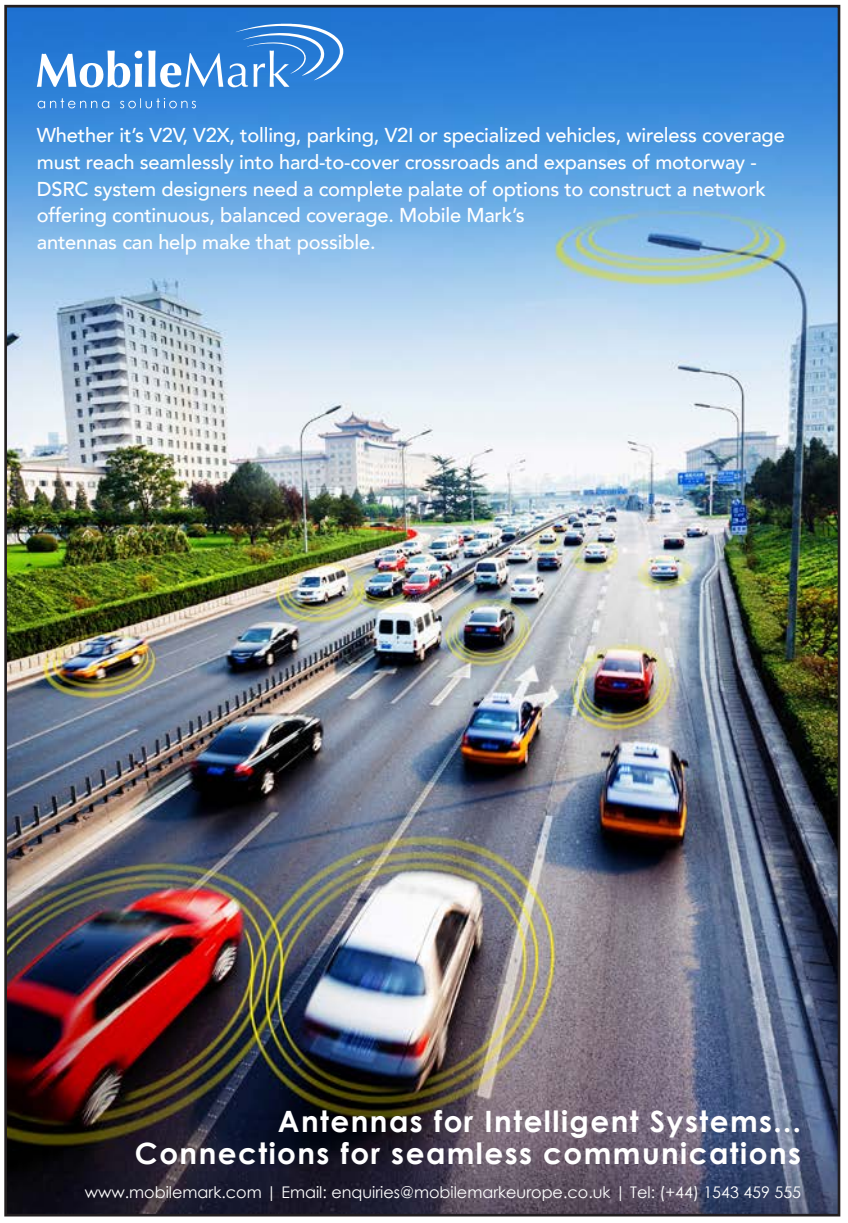
Royce says that when other providers are able to promote their "inferior, half-copper" services as fibre broadband it undermines the value of what investors in FTTH are achieving and the quality of the product.

He warns that this may put off other ISPs investing in the much needed technology. "This can only be bad for the UK's businesses which could be left trailing in the slow lane behind other advanced economies and it could damage our reputation as a leading tech nation."

KCOM MD Sean Royce says portraying FTTC as full fibre is "frankly wrong."

According to Royce, KCOM has invested heavily in rolling out true full fibre broadband which is now providing customers with Gigabit speeds. The firm is currently on the final leg of its £85m programme of implementing full fibre broadband across its Hull and East Yorkshire network, and expects to reach 100 per cent of its network – some 200,000 premises – by March 2019.

According to KCOM, just five per cent of premises nationally have access to full fibre broadband at present. ■



World's fastest supercomputer for research and industrial users

The High-Performance Computing Centre of the University of Stuttgart (HLRS) is working with Hewlett Packard Enterprise (HPE) on building and delivering a next-generation supercomputer that will be 3.5 times faster than the centre's current system.

HLRS has named the forthcoming system *Hawk*. Based on the November 2018 list at *www.top500.org*, it's claimed this will be the world's fastest supercomputer for industrial production, powering computational engineering and research across science and industrial fields to advance applications in energy, climate, mobility and health.

HLRS was established in 1996 as the first German national high-performance computing (HPC) centre. As a research institution affiliated with the University of Stuttgart, it provides HPC services to academic users and industry.

The centre's current supercomputer *Hazel Hen* entered operation in October 2015. The Cray XC40 system is based on an Intel *Haswell* processor and Cray's *Aries* network to offer a peak performance of 7.42 petaflops (quadrillion floating point operations per second).

Hawk will use HPE's next-generation HPC platform running a next-generation AMD processor codenamed *Rome*. It will have a theoretical peak performance of 24 petaflops, and consist of a 5,000-node cluster.

The new supercomputer is projected to cost €38m to build. Funding will be provided under the auspices of the Gauss Centre for Supercomputing (GCS), the alliance of Germany's three national supercomputing centres.

The use of AMD's next-generation *EPYC* processors will complement the use of competing processors at the other two GCS facilities and support their goal of offering users a diverse set of computing architectures.

HPE adds that AMD's processors utilise a memory subsystem that makes them particularly well-suited for efficiently running applications used for simulation in fields such as computational fluid dynamics, molecular dynamics and other research areas in which HLRS's users are engaged. It believes providing such a powerful tool will open new opportunities for innovation in these and other fields. ■

HLRS' current supercomputer "Hazel Hen" is based on a Cray XC40 system and offers peak performance of 7.42 petaflops.

PHOTO © BORIS LEHNER FOR HLRS

THE WORLD ACCORDING TO...

Mike Thomas, MD, Innopsis

Can 'Zero Trust' networking work for the public sector?

The concept of Zero Trust is being lauded by the Government Digital Service (GDS) as the way forward for all of the public sector's networking requirements.

Zero Trust originates from a theory that if you know who a person is, what device they are using and where they are, you can set a policy to allow or disallow them access to services and data. If one, or more, of these elements are missing, the user can't be trusted.

The GDS blog 'The Internet is OK' was the forerunner of the government's Zero Trust Networking approach [*editor's note: also see front page news, May 2018 issue*]. The intention was to adopt Zero Trust networking and dismantle networks within the public sector. Innopsis is supportive of the first half of the proposed strategy but urges caution for the latter half.

Companies don't buy networks purely for security. Yes, it's part of the mix, but so is availability, accountability and latency. The internet works because network providers play nicely – there are no SLAs, data packets get through on a best endeavours basis, and there are no rules as to where and how traffic is routed. If it works, it works; if it doesn't it doesn't.

Currently, processes are in place to allow the communications route to be checked and escalated along the entire path. Engineers can re-route to avoid breakdowns and services can be guaranteed. There is no escalation path with the internet. The provider can only resolve from the customer's premises to their internet's hand-off points.

The answer is taking a hybrid approach. Adopt Zero Trust across the network but maintain MPLS based networks for the major offices and data centres. This will allow flexibility for remote and mobile workers. Branch offices can utilise internet connectivity but the main corporate offices can have a robust controlled environment to communicate with the data centres, hyperscalers, and other offices.

Zero Trust networking will give benefits across the public sector, similar to the benefits experienced by local public sector organisations in Yorkshire who have achieved the same with a common authorisation service allowing public sector workers to work from any public sector building. Zero Trust will enable mobile workers to have corporate style working, and will also allow occasional home workers.

But will it increase security? For some users, it will. Is it risky to move all traffic to the internet? Yes. Very. Some traffic will be fine, but not all.

euNetworks and Kao Data team-up for London fibre artery

euNetworks and Kao Data are working together on the delivery of high-density fibre and duct in London.

It's claimed the new infrastructure provides unique routing opportunities, taking advantage of Kao's Harlow-based data centre's "strategic" location between core hyperscale campuses in Dublin and Amsterdam. It is also said to offer fast connection to Slough and Docklands.

Kao Data says its £200m campus offers a "strategic" location to support evolving demand opportunities spanning from Enfield, Waltham Forest, Welwyn Garden City across to Harlow.

euNetworks owns and operates 14 fibre-based metropolitan networks covering 49 cities in 15 countries across Europe. CMO Kevin Dean says the company is focused on the delivery of fibre-based infrastructure to data centres across its pan-European footprint, and continues to invest in its network footprint with high fibre count cable and duct. "This enables the growing bandwidth needs of data centres and data campuses, and the customers needing access into these sites. The region is growing in importance for many of our customers, as they seek alternate routes between key hyperscale hubs."

Situated in the London-Stansted-Cambridge technology corridor, Kao Data says its £200m campus provides around 150,000ft² of technical space and 35MW power for IT equipment. The site comprises four 8.8MW data centres, each divided into four 2.2MW technology suites, and served by a dedicated and redundant 43.5MVA power supply.

Kao Data adds that with its facility's location and evolving demand opportunities spanning from Enfield, Waltham Forest, Welwyn Garden City across to Harlow, this latest partnership and fibre rollout comes at an important time.

"Massive data traffic increase is driving data centre market growth," says Kao Data CEO Jan Daan Luycks. "It is essential that Kao Data is investing in guaranteed access to the most advanced and dense data capability. This attracts customers from the widest base, from hyperscalers, financial, retail, media and enterprise." ■

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KADIUM

BT and Deloitte to support police force digital transformation

Protected against attack: the programme includes the creation of a National Management Centre to help safeguard police forces from cyber threats.

BT and Deloitte have been awarded contracts to help deliver the National Enabling Programmes (NEP) initiative for policing, including the National Management Centre (NMC) for Policing. The programmes aims help police and crime commissioners across England and Wales to buy and use ICT more effectively.

The £100m NEP will modernise and introduce greater consistency across the IT systems used by police forces. This will include the introduction of cloud-based services and improved cyber security technologies. At the same time, forces will maintain autonomy for local IT decision-making and the control of their digital assets, while benefitting from the economies of scale of a national, centrally procured contract.

As the client delivery partner, Deloitte will lead the implementation of the overall programme. It will provide a range of services to assist forces in adopting the cloud platform, improve access management, and enhance their approach to cyber security.

The company will collaborate with BT to create the NMC for Policing which will provide round-the-clock monitoring capability for 43 forces. Through this nationally coordinated and locally delivered service, it's claimed users will have access to a "centre of cyber excellence" that offers the ability to identify, manage and respond to internal and external cyber threats, while enhancing legislative compliance.

BT adds that the NMC will be based in one of its existing security operations centres. As well as protecting all forces from cyber attacks, the company says that it will keep sensitive data safe as applications are migrated to *Microsoft Azure*. ■

County Durham joins Urban Air Mobility initiative

Some of the projects planned under the initiative include the development of drones for use as taxis or aerial observation platforms for police and fire services.

County Durham has joined a network of cities and regions across Europe in an initiative to nurture the development of airborne smart mobility.

The Urban Air Mobility (UAM) initiative is part of the European Innovation Partnership on Smart Cities and Communities (EIP-SCC). It is led by Airbus with institutional partners including Eurocontrol and the European Aviation Safety Agency. In the UK, the initiative is overseen by Nesta, the global innovation foundation that has worked with cities across England to investigate potential ways that drones can be used to provide social benefit and public services. Other European participants include Geneva, Ghent, Brussels, Toulouse, Antwerp, Hamburg and Le Nouvelle Aquitaine.

Airborne smart mobility will use flying vehicles that harness new technologies, such as AI, to improve the movement of people and goods, and reduce traffic congestion. UAM projects include the planned development of drones for use as taxis, ambulances, to perform observation roles for police and fire services, provide feeder freight traffic between airports, among other applications.

As a Fellow Region of the UAM initiative, County Durham will engage with public and private sector organisations to promote the development of innovative solutions for urban mobility challenges. The North East is said to be home to a growing number of drone technology and mobility companies, as well as universities that have been at the vanguard of drone usage in academic disciplines.

Catherine Johns, innovation director of Business Durham, says joining the UAM initiative "fits perfectly" with the recently launched Situational Awareness Information National Technology Service (SAINTS). This brings together experts from business, universities and the public sector who will use AI to combine travel, business and satellite data to come up with ways to solve some of the country's most pressing challenges (*see News, Nov 2018 issue*). ■

BT secures NI public sector contract

The Department of Finance has awarded £50m contract to provide telecoms services to all public sector bodies across Northern Ireland. As part of the nine-year deal, the firm will deliver network and unified communication services including new hardware, software and network security services across eleven government departments and other public sector bodies. The first core network services will be available for use by summer 2019. BT will manage the core telecoms infrastructure, including business continuity plans. It adds that the contract could grow to a maximum of £400m as other customers join the network. ■

Vertiv acquires MEMS maintenance business

Vertiv has completed the purchase of MEMS Power Generation's maintenance business. The Gillingham headquartered firm specialises in temporary power solutions, and will now focus entirely on its generator rentals business. MEMS' 160 contract customers in the UK include data centres, hospitals, universities, utilities, etc. All their service and maintenance contracts have now transferred to Vertiv's UK support team. "By strengthening our capability in generator maintenance, and expanding our service offerings in critical infrastructure in EMEA, we're well positioned to offer customers an unmatched suite of services," says Vertiv CEO Rob Johnson. ■

Maintel joins the SD-WAN clan

Maintel is hoping to enhance the performance of its managed network service and make it more agile with the launch of ICON Connect, its new SD-WAN platform. The firm has partnered with Cisco to power its offering which it claims is then "further enhanced" with Maintel's managed service. CTO Rufus Grig claims: "Customers will have the benefit of [the] ICON Connect service – with the best choice of access technologies in the UK, on-net access to cloud providers, secured and protected internet peering and best-of-class monitoring and management – with the added capabilities of SD-WAN." ■

Vodafone 'manhole cover antennas' to improve network coverage

Vodafone is installing small antennas below street level to help improve 4G mobile coverage in busy urban areas.

According to the company, the manhole cover antennas can be installed with "minimal" disruption to local people. No street or construction works are required, and because all the kit is below ground, the look of the area remains unaffected.

Vodafone has installed two types of mobile-enabled manhole covers at its Newbury office and technology centre. One of these is a purpose-built, reinforced unit similar in size to a water butt sunk into the ground. The other uses an existing cast iron manhole cover.

The antennas are connected using Vodafone's all-fibre high-speed converged network across the UK. The operator says they can carry calls and provide fast internet access over a 200 metre radius without consuming much power.

The move is part of what Vodafone describes as "inventive" ways to expand and strengthen its network. The company says it is already fitting the roofs of traditional phone boxes with small 4G antennas, starting in Princes Street, Edinburgh. It says using phone boxes to house antennas offers another way of increasing the speed and capacity of a 4G signal at street level, as well as for extending LTE in rural areas where a mobile mast is difficult to install as they rely on a power supply and fibre.

Vodafone UK's senior networks manager Mohamed Elhabiby installing a 4G-enabled manhole and cover in Newbury, Berkshire. By connecting manhole covers to its all-fibre fully converged network, Vodafone says it can provide improved 4G coverage today as well as future 5G.

Vodafone UK chief executive Nick Jeffery says: "It is great to be able to use yesterday's infrastructure – from phone boxes to manhole covers – to deliver the services of tomorrow. This is one of the ways we are extending our 4G services to areas other networks cannot reach, and getting ready for 5G." ■

Jisc extends TNP's contract for managed transmission services

Public sector network specialist TNP (The Networking People) has renewed its commitment to delivering high-capacity connectivity to education institutions and research organisations through the Jisc telecoms framework.

The Jisc framework can be used by further and higher education purchasing consortia, specialist colleges and research council establishments in the UK to purchase transmission services including leased circuits, dark fibre, wide-area Ethernet and xDSL.

Since 2014, Lancaster-based TNP has been named as a vendor offering managed transmission services through the framework. The company has now signed up for another four years as a vendor within that framework.

Commercial director Chris Wade believes that being part of the framework "validates" TNP as a major player within the UK education sector. He claims that the "innovative and cost-effective" point-to-point WAN solutions the firm offers have proven to be a "good fit" with higher education institutions and research organisations. "Framework users appreciate our extensive experience designing, building and supporting higher education-based networks," says Wade.

He goes on to add that alongside cost-effective leased line solutions, TNP offers customers the option of owning their own infrastructure. He says this cuts operating costs and leverages existing investment through the use of alternative technologies. "We allow much greater flexibility and long-term sustainability, which we know the education sector needs." ■

Manchester City sign new player for backup

Acronis will help Manchester City Football Club to enhance and develop its data backup and storage capabilities.

As part of a recently signed global technology partnership, it's claimed the reigning English Premier League champions will be able to "significantly optimise" data management. Acronis says that by having all data, applications and systems efficiently backed up and ready to be restored, the club will open "new opportunities" for what can be done with its available data and reach new goals.

Damian Willoughby, SVP of partnership at City Football Group, says: "A football club like Manchester City has a huge volume of data – covering everything from our players and fans to the day to day operation of our business."

According to Acronis, data is becoming increasingly important to teams in the digital age: "So much so, that during the days leading up to important matches, data is available through iPads in the Manchester City locker room so that players can review historical data with their coaches and make last-minute adjustments to the playbook. It is also vital for the team to analyse data in their post-match analysis."

As part of the partnership, Manchester City will also explore ways to work with the Acronis Foundation which works to provide equitable education around the world through building schools in developing countries. ■

The team shirt is pictured here with Man City stars: Gabriel Jesus (left), Kevin De Bruyne (middle) and David Silva (right).

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UKFast launches HSCN-connected cloud

UKFast has unveiled a new secure cloud dedicated to healthcare service providers and connected directly through NHS Digital's Health and Social Care Network (HSCN).

The company says it is the only provider to offer HSCN connectivity directly from a government-approved data centre, offering dedicated server hosting and colocation alongside *eCloud*, its full-service cloud portfolio.

UKFast says that after working closely with NHS Digital throughout 2018, it is now launching client solutions across the HSCN which is the successor to BT's N3 health network (*also see feature, Feb 2018 issue*). The company says there are 13,500 organisations who are still using an N3 connection that are now required to migrate services to HSCN by August 2020.

Stephen Jewell, the company's director of public sector, says: "We're closely engaged with both clinical teams within the health service and with the HSCN team at NHS Digital to ensure that we are able to offer the right technical solutions to enable digital transformation within healthcare and meet the vision and potential of the new network.

"By offering a cost-effective and flexible HSCN-connected cloud, UKFast is supporting cloud service providers that have only been able to deliver to private healthcare practitioners up to this point.

According to UKFast, organisations providing IT services to the NHS are taking the opportunity to connect directly to the new healthcare network through its data centre complex, with a "significant" number of clients signed up and ready to launch services on the network in the coming weeks.

UKFast says it has become the only provider offering HSCN directly from a government-approved data centre.

"We're meeting people from NHS trusts who want to unlock new technologies like AI, big data and machine learning," says UKFast CEO Lawrence Jones. "We're enabling them to do this by plugging in and accessing burstable cloud facilities at a moment's notice, which is something they just can't do on N3."

Clients set to launch on HSCN through UKFast's *eCloud* include an unnamed AI software provider and a global payroll service which is using HSCN to connect with NHS customers and securing the transfer of payroll data. ■

Softcat offer cloud intelligence service

CloudHealth and IT infrastructure provider Softcat have teamed-up in an effort to bring enhanced visibility into public cloud environments. The partners say their service offers "greater insight" into spend, usage, and identifying efficiencies across all cloud platforms.

CloudHealth is a cloud management provider which is now part of VMware, while Softcat is an IT infrastructure provider. According to the two companies, while many organisations are currently adopting public cloud to be more flexible and to cut costs, some are finding that their lack of experience operating in such an environment leads to loss of control over the services consumed. They say this is resulting in higher than expected costs, and no insight into what changes to make in order to reduce the spend.

CloudHealth and Softcat reckon that by combining their strengths, they are able to address this issue. Softcat says the knowledge within its UK-based *Cloud Intelligence Service* team is used to complement CloudHealth's platform by offering personalised support to customers. It's claimed that by improving their visibility and better aligning cost to the value it generates for them, customers have been able to use the service to reduce their cloud spend by an average of 20-30 per cent.

The *Cloud Intelligence Service* generates automated reports about an organisation's public cloud usage, in *AWS* or *Microsoft Azure*, as part of the service they offer. The reports are designed to provide an overview of the cost and performance of individual cloud resources to highlight inefficiencies. They then offer suggestions on how to address this, as well as flagging areas of overspend and highlighting gaps in provisioning.

In addition, it's claimed the service enables an organisation to control its cloud environment by highlighting any deviations from its desired governance position, for example, highlighting when assets are deployed that fail security best practices. ■

NGD connects to GCX

NGD's facility in South Wales offers 750,000ft2 of technical space and can house up to 22,000 racks.

Next Generation Data (NGD) today announced its hyperscale data centre in South Wales is now connected to the Global Cloud Xchange (GCX) network.

GCX is a subsidiary of India's Reliance Communications and is said to own the world's largest private undersea cable system which spans more than 68,000km. It offers VPLS-enabled Ethernet network capabilities, providing customers with a global service delivery platform. GCX's network is also claimed to carry around a fifth of the world's internet traffic.

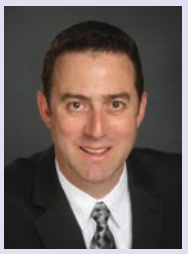
The connection of emerging markets such as India and South East Asia to established markets in Europe and North America is a key strategic focus for GCX. Its aim is to deliver ultra-high bandwidth services up to 100Gbps to support internet traffic, OTT content, and enterprise data and cloud computing services.

The company hopes linking to NGD will bolster its ambitions. Stefano Mazzitelli, GCX's president of Europe and USA, says: "NGD's world class data centre and its direct connections to major hyperscale cloud services will be of real interest to our enterprise customers whose digital transformation is underpinned by cloud services like those hosted in [the centre]."

Located near Newport, NGD is a purpose-built carrier-neutral Tier 3 facility offering 750,000ft^2 of technical space that can house up to 22,000 racks. It is also said to offer a high capacity 180MVA power supply sourced from 100 per cent renewable energy, as well as a variety of on-site high-speed, low latency carrier interconnects. ■

THE IoT CONNECTION

News & developments from the world of the Internet of Things. This month, we look at some of the network building blocks.



The SCF's David Orloff believes if regulators do not create an environment in which small cells can realise their potential, operators run the risk of being left behind.

LoRaWAN protocol now supports OTA firmware updates

The LoRa Alliance has introduced new specifications for its open *LoRaWAN* IoT protocol. In what's said to be a unique capability among low power WANs, *LoRaWAN* now supports firmware and standardised updates over the air (FUOTA). The three new specifications include: *Application layer clock synchronisation v1.0; Remote multicast setup v1.0; and Fragmented data block transport v1.0.*

The specifications were developed to allow the LoRa Alliance ecosystem to perform FUOTA in a standardised way. The alliance says the ability to update devices remotely is critical for the IoT, where many sensors are in remote or difficult locations to reach but may require updating. It reckons that making FUOTA part of the specification contributes to future-proofing LoRaWAN and ensuring that supported devices will continue to operate over long lifetimes.

For example, the remote multicast setup protocol can be used standalone to send messages to a group of end-devices; fragmentation can be used on its own to send a large file to a single end-device (unicast); and time synchronisation can also be used as a standalone capability.

It also points out that security was a "strong focus" and is addressed in the multicast and fragmentation specifications. For multicast, the alliance says the protocol has a means to securely deliver a cryptographic key to the group of end devices. This key exchange is described with its security implication. In fragmentation, a section is dedicated to file integrity and authentication recommendations.

According to the alliance, these enhancements are accompanied by "significant growth" in deployments and certification, with an increase of more than 50 per cent in the number of *LoRaWAN* certified products compared to October 2017. The number of public networks using the protocol globally is said to be rapidly approaching. Recent examples from Japan include NEC providing LoRaWAN network servers for remote liquefied petroleum gas meter reading, and SenseWay deploying a LoRaWAN network on the Kashiwanoha Campus to acquire and visualise the city's environmental information to build a true smart city.

Small cell deployment is "key factor" in densifying 5G and IoT

Europe is lagging behind North America and South East Asia when it comes to the deployment of small cells, says the Small Cell Forum (SCF).

According to the forum, small cells will provide the backbone upon which 5G will be built. For industrial and enterprise use cases, it says the convergence of small cells with edge compute nodes, especially for low latency IoT use cases, is set to be a driver in deployments.

Following a survey of 66 mobile operators and 32 other service providers worldwide, the SCF found that small cells are currently proliferating in regions where work has been undertaken to lower regulatory barriers relating to cost, sites approvals and deployment processes in the urban environment.

The SCF says that working in partnership with partner bodies, it has made "considerable efforts" in recent years to bring about more favourable regulatory processes for the rolling out of small cells in North America and Asia. It says these have paid dividends with regulators encouraging faster and cheaper small cell deployments. As a result, the forum predicts that between 2017-2019, annual deployment rates in North America will rise by 92 per cent while South East Asia will see 74 per cent.

However, with 5G at the heart of the critical need for densification, the forum points out that growth remains regionally varied, with Europe lagging behind North America and Asia.

Meanwhile in the enterprise market, the research shows that the top factors that will accelerate deployment are lower operating costs, a clear framework for how cost and risk are shared between operator and enterprise, and a clearer ROI case. The SCF believes cost is paramount and many of the other important enablers are geared to lower TCO and the effort required by the enterprise IT department or the operator. It adds that neutral hosting will also be an important enabler of densification, in particular for industrial and enterprise use cases and the IoT.

Forum chair David Orloff says it is critical that regulators allow operators the freedom to build out the next-generation networks and the enhanced connectivity they will bring. He says: "The Forum and its partners have spent considerable amounts of time working with regulators around the world, sharing our considerable expertise to create an environment in which small cells can realise their potential.

"While this is reaping rewards in many regions, there are others who run the risk of being left behind – and it is critical that regulators allow operators the freedom to build out the next generation networks and the enhanced connectivity they will bring."

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A worthy cause

From helping to raise funds to supporting advice lines, IT networks are making valuable contributions to the charities and not-for-profit sector.

Saint Martin-in-the-Fields Charity's (SMITFC) runs *The Connection* emergency night centre in Trafalgar Square as part of its mission to support people away from homelessness. Each year, its team tries to find new ways of engaging new donors, and like many organisations it's embracing digital transformation to do this.

Since 2010, the charity has used Sesui's cloud communications software to help ensure every call gets through. The vendor says its *Call Manager* software sits on top of existing equipment and only needs a connection for cloud-based comms. Teams can then stay connected anytime, anywhere, as every call and message comes through their own virtual contact centre.

Sesui continues by saying that with just a few hours' notice, it can set up an operational cloud contact centre without needing to take up expensive building space for a physical hub, enabling call handlers to work any time and from anywhere in the country.

"We're a small team, and on top of our many online and postal donations, we'll handle thousands of calls in just a number of days," said SMITFC director Tim Bissett. "The number of donations we receive in the first week of the campaign would take other charities a year to raise. The only possible way to manage all of this goodwill is through the cloud. Sesui *Pop-Up Connect* will allow us to take up our posts – wherever we need to – in order to get those calls answered."

Sesui say it is one of only a few UK providers able to offer real-time reporting. This means SMITFC's team can see what's happening with donor calls up-to-the-second. If calls start queuing, they can be routed to available volunteers somewhere else in the country. This is vital in reducing call abandonment rates.

Another benefit of the system is its ability to automate calls. Traditionally, collecting donations by phone requires call-handlers to be on point at any time, day or night. But SMITFC wanted to securely take donations out-of-hours without needing volunteers on the line. Sesui's *Support Connect* platform provides an automated calling feature and uses a PCI compliant credit card facility. Donors hear a pre-recorded message and can then securely enter their card details.

In 2017, as part of BBC Radio 4 Christmas Appeal, the charity's volunteers answered more than 3,000 calls with more than 1,000 on the first day. Call abandonment was reduced by 80 per cent, and the team went on to raise £3 million pounds in a month.

Network visibility gives debt charity access control

StepChange Debt Charity is said to be the UK's largest provider of free independent debt advice and managed solutions.

The organisation operates its telephone and online advice service from seven centres based across the UK. With such a large network, StepChange needs to be able to see what's happening on the system and shut out unknown devices. This task presents a huge workload to staff and is a regarded as a very tedious job that requires knowledge of all vendor type network devices. On top of all this, the administrator has to manually fight-off threats by isolating infected devices.

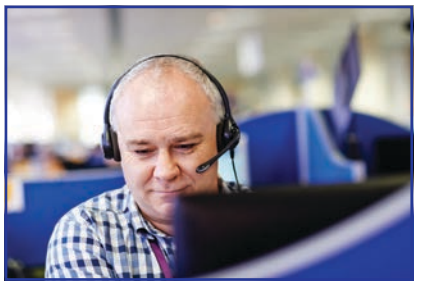
In order to get full visibility of its network, StepChange moved to the Macmon *Network Bundle*. This analyses the network at speed, gathering all relevant network information to paint a rich picture. This enables StepChange's infrastructure team to dive into the graphical topology and get a much better understanding of the environment. Macmon says its platform continuously monitors 34 switches. DHCP information is collected every 15 minutes, while several Layer 3 devices provide ARP information. Macmon says the "seamless" integration of *Network Bundle* and *Windows Active Directory* allows StepChange to appoint users to access the GUI with different permission levels.

It was important for the solution to work with StepChange's existing environment. Macmon says its platform detected the network devices and listed all discoverable endpoints right from the start.

According to Macmon, monitoring and securing the network was the biggest challenge. The company says its platform enforces strict guidelines that are "deeply rooted" – for instance, unauthorised devices are instantly isolated by switching the VLAN, and suspicious endpoint behaviour is instantly flagged as a potential threat with administrators being notified right away.

As a result, StepChange can quickly identify unauthorised devices and quarantine or deny access whilst they were investigated. The team now receives frequent status updates via email about network health, whether an unauthorised device has been detected, if there has been an attempt to poison the ARP cache, etc.

Furthermore, instead of relying on a very time consuming manual process via the service desk, alerts are now automated freeing up valuable IT resource. Macmon says it handles the entire process in the background.



Social housing group harmonises desktop management

Based in North East England, social housing company Bernicia Group owns 14,000 properties and employs 550 people at four sites across the region. As well as building new homes and delivering high quality rental properties, the group provides specialist care and management services. Its commercial subsidiaries gift aid their surplus back to Bernicia, which is used to increase the social value delivered.

Following a merger, the organisation inherited a mix of ageing PC and thin client desktops. It therefore sought a cost effective, secure and flexible technology solution to manage the desktops across four main sites and more than 20 satellite offices.

"Rather than invest in a whole new fleet of hardware, we decided to use IGEL's *Universal Desktop Converter* software (UDC) to turn all the devices into IGEL desktops," says the group's network and infrastructure manager Adam Watson. "It was a vastly more cost-effective way to get more value from our existing desktops and to bring them under one management system."

IGEL has designed *UDC* to repurpose existing hardware. The vendor claims it takes "just minutes" to convert almost any x86 device, regardless of manufacturer or form factor, into a universally deployable Linux-based desktop.

Connected to a VMware virtual desktop infrastructure, the IGEL devices can now be managed securely and remotely using the company's endpoint management software, *Universal Management Suite* (*UMS*). IGEL says *UMS* is purpose-built to simplify complex enterprise environments, and supports diverse operating systems, databases and directories. The firm reckons its "smart, simple and secure" management software lets IT easily manage any remote endpoint.

Bernicia has also deployed the *IGEL Cloud Gateway*. This is said to extend the management suite capabilities via a standard internet connection to IGEL OS-powered endpoints running in remote branch offices, home offices or being used by mobile workers.

"The desktops were easy to convert and the management software has given us the ability to do everything remotely from one place and harmonise the configuration," says Watson. "As the old hardware dies, we simply swap it for a cost-effective replacement and immediately convert the device to an IGEL. Even our home workers use laptops, converted to [the firm's] devices."

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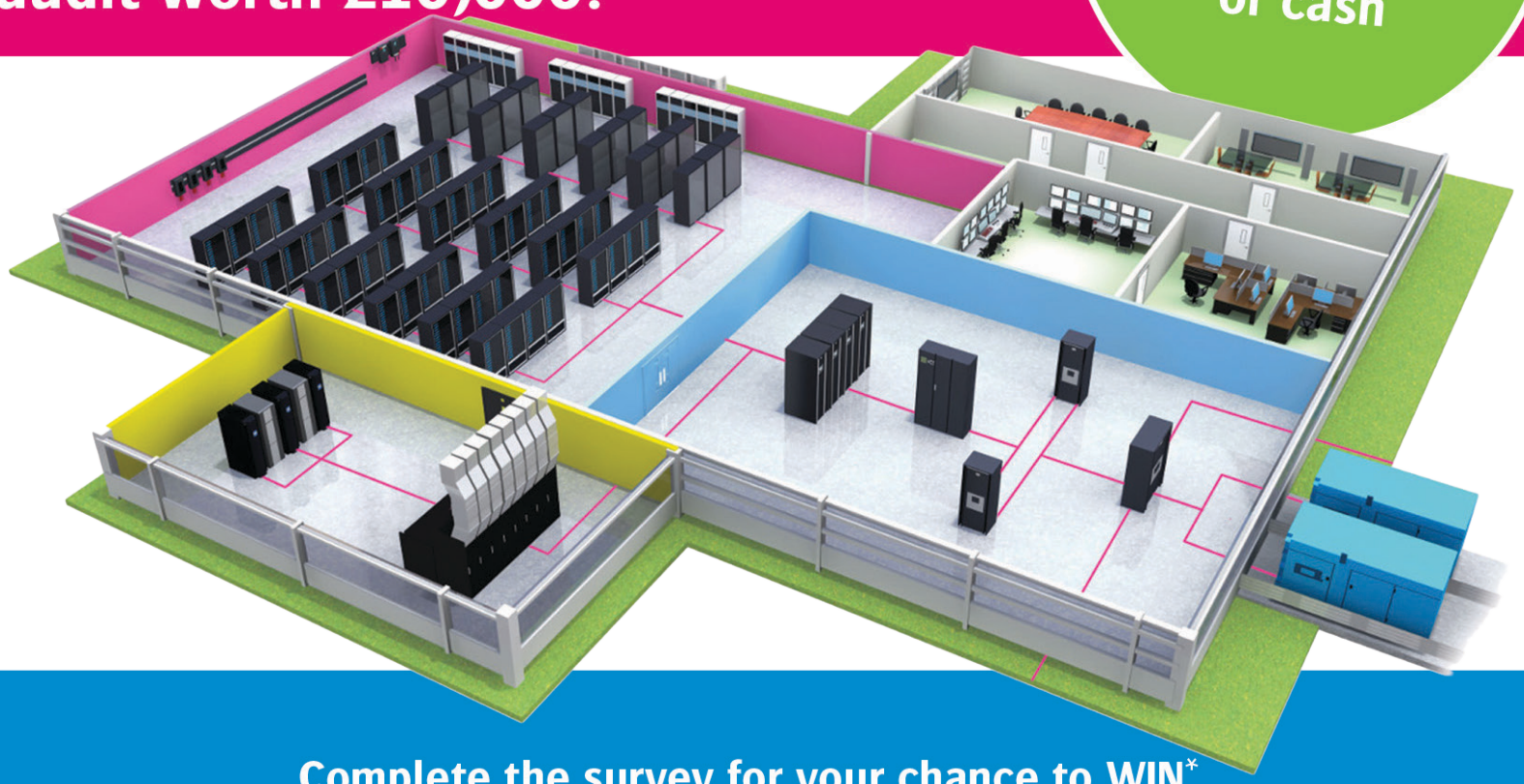

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Will Brexit lead to Techxit?

What impact is Brexit having on the UK's IT skills market? RAHIEL NASIR asks if the country's talent shortages are set to become worse. Plus, the skills network managers and their teams will need in order to support UK Plc's ongoing digital transformation.

Following the UK referendum vote to leave the EU in June 2016, some industry commentators immediately raised concerns about the country's technology skills shortages worsening. They warned that 'Techxit' could now become a reality with organisations struggling to hire and retain non-UK IT staff (see News, Jul-Aug 2016 issue).

For instance, with the UK's well-documented shortage of tech talent, many companies believe they cannot compete globally without tapping into highly-skilled overseas workers such as those from the EU. But they now fear the prospect of having to apply for visas and becoming hampered by bureaucratic processes in their quest to access such workers. Some also argue that leaving the EU will make it even more difficult for UK technology companies to compete with the US tech giants who will benefit from the ability to draw from a much larger talent pool.

So two years after the historic vote, what's the reality?

"In a nutshell, it has pretty much been 'business as usual' for the IT industry in the face of Brexit," says Ahsan Iqbal, director, technology at global recruitment consultancy Robert Walters. "London's tech industry has one of the most international workforces in the world, joining the likes of Singapore, Berlin, and Chicago, according to the Tech Nation 2018 report.

"If there was one area where we did see a slowdown in recruitment activity following the announcement of Brexit it was in financial services and the bigger banks. During this downtime, we witnessed some of the larger tech firms such as Google and Amazon in the UK swoop in and take top talent away from the more traditional sectors."

Curo Talent deals almost exclusively with Microsoft contract work and says that very few of the 35,000 freelance experts in its database come from outside of the UK. The company's marketing head Graham Smith says: "We have just conducted a survey of hiring managers and in-house recruitment executives and asked if Brexit would impact their IT recruitment plans for 2019. The respondents hire both permanent and contract IT staff across a range of technologies and 48 per cent stated that Brexit will have no impact."

Smith believes the impact of Brexit is more likely to be on an organisation's confidence in signing-off big IT transformation projects. "Business does not like uncertainty. At the moment, demand for IT subject matter experts outstrips supply, but if demand falls it could impact salaries and day rates."

Andrew Gardner, director at recruitment firm Reed Technology, echoes this view to an extent when he says: "Change creates uncertainty, and the great unknown that is Brexit has undoubtedly had an impact – not only on the technology sector but across all industries, with a number of skilled workers looking at their options.

"The candidate indecisiveness is mirrored by employers, with some organisations slowing investment and spending until the outcome is revealed, while others are stealing a march and increasing their headcounts.

"Whether this air of uncertainty and confusion continues depends, firstly,

"Contrary to widespread discussion, Brexit will not necessarily exasperate any sort of skills shortage within the IT industry."

Ahsan Iqbal
Director – Technology
Robert Walters

on whether the UK can successfully negotiate a deal with the EU, and secondly, what the details of that agreement include."

Overall though, and in line with the underpinning rationale behind the Brexit vote, Gardner says he expects to see a reduction in foreign workers. "Unsurprisingly, we are seeing some choosing to return to their home countries or simply not to migrate to the UK. Conversely, we are currently partnering with our European operations in certain candidate led skillsets because we are seeing an appetite to move to the UK before any restrictions on movement are implemented."

Skill shortage not new

Curo Talent's Smith reckons that while the skills shortage may be set to become worse, this is not primarily because of Brexit.

"IT skills are constantly evolving as new technologies enter the market. The labour market has struggled to keep pace with the constantly changing landscape. Initiatives such as the emphasis on STEM subjects in schools and the T-level apprenticeships will help build a pool of talent, but it will take time for that to feed its way into the world of work.

"EU tech experts, or IT workers from other countries, can fill the gap in the meantime – but that assumes they have the right skills. All countries struggle with the same problem – a rapidly changing tech landscape and a workforce that cannot be re-trained fast enough."

Bob Nott, MD of specialist training firm PTT, lends his voice to the debate as he points that it is widely acknowledged there is a looming skill shortage in the ICT sector, irrespective of the effects of Brexit. "This is partly because of the rapid advances in technology leaving some behind. However, training aims in the sector are often short-sighted and narrowly focused on the participants' current roles without providing the foundations to adapt to advances in technology."

Iqbal from Robert Walters is likely to agree here: "Contrary to widespread discussion, Brexit will not necessarily exasperate any sort of skills shortage within the IT industry. We can expect this to follow a regular pattern where areas in high demand, such as DevOps, will understandably be met with a candidate shortage."

All change

Uncertainty aside, what's clear is that the country's forthcoming departure from the European Union presents new opportunities. In its Digital Brexit Report published early last year, BCS, The Chartered Institute for IT, said Brexit potentially provides the UK with an "incredible opportunity to create jobs, drive growth, create a fairer society, and position itself as a digital world leader".

But in order to ensure that the country reaps the maximum benefit from the exit, the report called for more investment in the current and future workforce, along with academia and research, to match the UK's digital ambitions in every sector. It also said that this had to be supported by "world-leading" digital infrastructure through strategic cooperation on communications, regulation and pricing beyond Brexit.

Many industry commentators have pointed out that the role of IT and network managers has changed over the years. So moving forward in a post-Brexit era, and in order to achieve the "digital ambitions" referred to by the BCS above, will IT pros need to offer more than just the 'traditional' skills of LAN/WLAN infrastructure building, updating software, maintaining server rooms, patch updates, etc.?

Part of the Maindec Group, MCSA provides IT services across the UK and operates from a number of key locations across the mainland. According to its MD Paul Timms, IT managers are no longer just 'techies' who exist to ensure system availability: "They are now more integrated into the business and have a key role in developing business solutions."

According to Timms, the pace of change is accelerating as a result of the rapid adoption of cloud technologies. He says that as companies migrate services to cloud-based technologies, whether IaaS, PaaS or DRaaS, IT managers must ensure that their company is getting maximum benefit from all that this has to offer, whilst simultaneously balancing budgets.

"IT departments will need to work

smarter to ensure that off-premise services are accessible, compliant and secure, and that these consumption-based resource models consume minimal resource until the point of use. IT managers need to ensure that their department is appropriately trained to deliver these objectives.

"It is up to employees to investigate which programmes and tools are going to define the next few years in the industry and master them."

Andrew Gardner
Director
Reed Technology

"Staff with 'traditional' skills also are realising that the world is changing and that they too need to adapt or risk being left behind. But equally, their experience and understanding remains invaluable in this modern computing world."

So does that mean IT pros need to be more business-minded and look at ways of how technology can improve business? "No, I'm not sure I fully agree with this," says Timms. "The IT managers of the future need to be able to do both – there is little doubt that if systems are not available, they will look to the IT team to fix it and fix it quickly! The aspect of the role that is changing is the business focus. It's what IT can do to help businesses in general, and to develop solutions that meet the specific needs of the business."

Iqbal is likely to support this view. "Whilst the outcome of negotiations remains to be seen, we can assume that post-Brexit, UK companies may outsource some of the roles abroad rather than try to attract EU talent into the country. But these tech-heavy based roles in the UK will be replaced by the need for more strategic thinkers as the role of the IT manager changes to become more business-focused."

Securing the future

Security is an area that continues to dominate the IT agenda and, regardless of what kind of Brexit deal is ultimately agreed, it is a subject that will remain uppermost for both the government, industry and consumers alike.

But while the ambition is for the UK to be the global leader in the field of cyber security, this is an area where much more needs to be done in terms of creating the skills and talents needed to fend off ever-increasing threats.

Speaking earlier this year, Paul German, CEO of security software specialist Certes Networks, said organisations now recognise the need to invest heavily in security. But he went on to point out that when day rates for cyber security experts hit £1,400, the industry clearly has a "massive problem" regarding supply and demand. "While it is fair to say that the escalation in cyber threats has created an unprecedented need for individuals with skills, talent and experience, it is chronic under-investment in training and education that is at the heart of the skills shortage problem.

"The industry is frankly appalling at selling itself; at inspiring the next generation by demonstrating that IT can be an exciting and financially rewarding career. In addition, training has over the past decade become almost exclusively product focused – with vendor 'academies' teaching individuals about specific product sets, rather than security framework requirements, a move that has further weakened the depth of expertise offered by any one individual."

According to German, the only way organisations will be able to address the huge demand for cyber security skills will be to take control and invest. "And that means shifting away from outsourcing and a reliance upon expensive contractors towards re-insourcing key services, including security: the onus is now on companies to build up their own expertise in-house."

Among some of the initiatives that could help here is a new alliance that was formed earlier this year as part of an effort to advance the development of the country's cyber security profession. It brings together a number of established councils, chartered professional and certification bodies, academics and industry representative groups. Founding members include several organisations operating under a Royal Charter who are able to grant chartered status within their discipline.

Their overall aim is to provide clarity around the skills, competences and career pathways within the cyber security profession. The initial objective is to support the National Cyber Security Strategy and provide a focal point for advising policy, including the intent to recognise professionals through chartered status.

Alliance members offer a range of established expertise and disciplines, and each is said to have a leadership role in underpinning UK resilience in the digital environment. They currently include: BCS; the Chartered Institute of Personnel and Development; the Chartered Society of Forensic Sciences; CREST; the Engineering Council; IAAC; The Institution of Analysts and Programmers; IET; Institute of Information Security Professionals; Institute of Measurement and Control; ISACA; (ISC)2; techUK; the Security Institute; and The Worshipful Company of Information Technologists.

Among some of the common objectives, members have agreed to provide a forum for benchmarking and shared standards for cyber security professional excellence; enable the development of the specialist skills and capabilities that will allow the UK to keep pace with rapidly evolving cyber risks; and enable a self-sustaining pipeline of talent providing the skills to meet our national needs.

Speaking at the time, the BCS' then director of standards, Jeremy Barlow, said: "Collaboration at all levels is necessary to protect the public from current and future cyber threats. This collaborative development is therefore not only a functional necessity, but speaks to a necessary culture change for organisations and individuals working in cyber. As with other established professions, there will be places where we compete, but we must collaborate and share as a diverse professional community for the good of everyone to ensure we do not let down the people we ultimately serve."

The hottest future skill?

As well as cyber security, 'Big Data' is another area where the UK aims to be seen as a global leader, and presents another opportunity where IT professionals with fresh skills are desperately needed.

Citing the Harvey Nash/KPMG CIO survey, MCSA's Timms says that Big Data and analytics are top of the skills shortage critical list for the fourth year running. "This is having a significant impact on all organisations, with two-thirds of IT leaders saying it is preventing them from keeping up with the pace of change. Unless we tackle this shortage the potential of these technologies will never be realised.

"[Big Data] and analytics tools are developing rapidly – we measure more now than ever before. It is inevitable that this data will present opportunities and, when interpreted well, deliver new solutions. However, these tools are only as good as the individuals using them and therefore, if the potential of these technologies is to be fully realised, it is imperative that as an industry we continue develop staff and arm them with the necessary skills."

Reed Technology's Gardner concurs, saying that while Big Data has been around for a number of years now, the challenge for the industry has been how to utilise it properly and effectively. "This is the challenge for data scientists – a role which has grown in interest four times over in the last five years according to Reed Global's State of Skills research. They have to convert Big Data into actionable insight, and this takes a great deal of skill. It will be up to data scientists to decide what questions to ask, and how that data will be used, so that companies can continue to profit from the wealth that customer and business data brings."

Given the need for such highly specialised skills, are there enough appropriate courses and training experts out there at present to meet the challenges of 2019 and beyond?

Gardner says the changing nature of the tech industry means that companies are always playing "catch-up" in educating their entire workforce. "In this respect, it is up to employees to investigate which programmes and tools are going to define the next few years in the industry and master them. We find that there is a lot of skills-sharing through mentoring going on in the professional world, before there is formal training – which takes a while to define and setup.

"In this fast paced world, the tech employees that have a hunger to learn and get a kick from using new tech to create and

Training to fill ICT skill gaps and to support UK Plc's ongoing digital transformation

"IT skills are constantly evolving as new technologies enter the market. The labour market has struggled to keep pace with the constantly changing landscape."

Graham Smith
Head of marketing
Curo Talent

streamline processes will thrive. It's not an industry where employees can stand still."

Referencing Reed's State of Skills study once more, Gardner says the products and tools used by technology professionals over the past 10 years have fluctuated and evolved rapidly. He reckons software and solutions used for data collection, visualisation, storage and interrogation will only increase in importance as digitalisation gathers pace.

"This constant evolution adds to the skills gap that currently exists. Yet, this also poses opportunities to young, 'homegrown' talent. If employees and graduates are willing to be passionate and show a real desire to learn, immersing themselves in training, then there is no reason why the skills gap cannot be bridged."

Bob Nott from PTT says apprenticeships have a major role in ensuring a pool of talent is created to meet the future skills requirements of the ICT sector. However, he also points out that there is also a lack of trainers who have both the appropriate background in the ICT sector and the necessary training skills.

Nott claims that PTT has successfully demonstrated the use of blended learning to overcome these challenges in supporting apprenticeships in the telecoms sector. He says: "A blend of e-learning courses with online tutor support and assessment allows the flexible delivery of technical knowledge while making the most efficient use of available trainers."

Post-Brexit

Despite all the uncertainty that lies ahead and fears over a possible 'Techxit', the industry commentators we spoke to are not as pessimistic about the UK's future skills prospects as some in 2016 were.

Iqbal from Robert Walters says: "It's important to remember that digital tech companies in London are the most connected in Europe, and this coupled with the opportunity to work alongside some the most advanced tech talent in the world, and the success stories of start-ups such as Deliveroo, will continue to be a big pull for overseas candidates.

"With a growing network of tech startups, and hubs forming in Shoreditch, Manchester and Leeds, companies will need to improve their work-life environment and culture as well as enhance their employer brand in order to attract and retain the best talent.

Gardner also remains optimistic and says the UK currently attracts a "significant proportion" of overseas inward investment into Europe. He reckons that if a positive agreement is made with the UK remaining part of the single market, then there should be little impact on the industry with foreign workers being encouraged to stay in the UK and choosing to migrate here.

And of course within all this, training remains crucial to the success of a digital Britain. Timms says MCSA is fortunate in having access to a huge pool of skills and talented IT professionals but adds that, as UK Plc, we need to take care to carefully manage the current situation around Brexit in order to ensure that position is maintained.

"Training and development of existing staff will become even more crucial for businesses as they look to overcome staffing issues brought about by Brexit. Looking ahead, it is vital that companies maintain their investment in skills training so that they are able to meet the challenges set out by their customers, whatever direction we take, Brexit or no Brexit." ■

"The industry is frankly appalling at selling itself; at inspiring the next generation by demonstrating that IT can be an exciting and financially rewarding career."

Paul German
CEO
Certes Networks

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Turned on by switches?

Here are some of the latest switches to look out for. Plus, KEVIN DRINKALL on how to choose the model that suits your network needs.

The perfect switch is centred around individual requirements: from whether you need to power a device from the switch, reduce overheads in installation costs, or have specific application requirements. Consider the following features to simplify the decision-making process:

1. Ease of use:
TThere are different aspects to think about here. Unmanaged switches, for example, are plug-and-play but lack any form of control. At the top end of the spectrum, enterprises may prefer to deploy switches with CLI, which usually means a Layer 2 or Layer 3 model. Layer 3 switches allow for more advanced functions in a network. The need for such a device is often driven by the need for mission-critical uptime for both applications and connectivity which require a feature that assists in 'auto healing' a network.
If an SMB is focusing on ease of use and how basic functions can help set up a network, PoE power management and elements of security and control should be the priority. While there are places for unmanaged switches, smart-managed designs should be a good starting point as they give plenty of flexibility in functionality at the price point. For small businesses, a smart managed switch is the ideal solution – but this can become complex if several are being managed at once.

2. Cost-effectiveness
The right switch can help maintain costs and reduce overheads. In businesses, the standard switch for such an environment is often 1GB per port and is smart-managed. This is also sometimes referred to as web-managed.
If bandwidth requirements are high, or you are planning for growth, it is important to consider switches with 10GB uplinks to prevent bottlenecks, which would ultimately result in higher management costs.

3. Management
There are plenty of options when it comes to managing network switches – cloud management and smart managed, or standalone are the two key methods.
With cloud management, large numbers of switch ports can be monitored and configured over the internet. A physical connection is not required between switches as remote configuration can be used for access devices. Network segregation can also be done remotely, for example, voice VLANs can be assigned and can also control PoE. All of these features are available in a few clicks without on-site IT or complex remote access processes. When managing a network through the cloud, the process becomes simplified as network-wide configuration changes can be made in one click.

Kevin Drinkall is EMEA wireless and cloud market development manager at Zyxel.

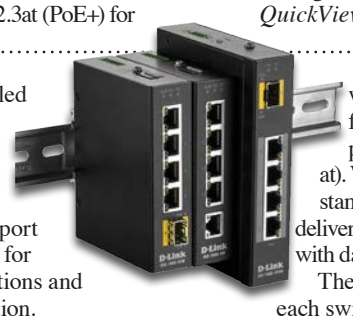
Buffalo has introduced a new line-up GbE switches for enterprise users. The 13 products in the range span managed and unmanaged switches with five to 24 ports, and include models with PoE and PoE+ support.

The *BS-GSP* and *BS-GS* series of gigabit multi-port managed switches offer eight, 16 and 24 ports. Buffalo reckons they're "easily manageable" via a web interface, and offer "advanced" management features such as network device monitoring over SNMP, VLAN configuration, port trunking/link aggregation, DHCP snooping, STP support and QoS 802.1p. All the switches are equipped with Gigabit auto-sensing ports and SFP slots for fibre connectivity (16- and 24-port on both series).

The *BS-GSP* series also includes an energy conservation feature that monitors the activity status of each port to reduce the power consumption. Furthermore, the models in this line-up feature IEEE 802.3af (PoE) as well as IEEE 802.3at (PoE+) for delivering even more power over an Ethernet cable to a maximum of 180W.

Meanwhile, the *BS-GU* series of unmanaged gigabit switches comprises models with five, eight, 16 or 24 ports. The *BS-GUP* additionally features PoE. Buffalo says they all offer "eco-minded" features such as 802.3az Green Ethernet technology and an energy conservation function that monitors the activity status of each port. It's claimed the latter cuts total power consumption, therefore reducing related operational costs.

Buffalo adds that all the devices are reliable and have a "durable" metal chassis enabling use in environments with an ambient temperature of up to 50°C. Most models can also be configured and managed with Buffalo's free *Network QuickView* management tool.



D-Link has unveiled a number of industrial gigabit switches that have been designed specifically to support the rising demand for smart city applications and industrial automation.

The line-up includes the *DIS-100G* unmanaged series which, according to the firm, offers an "excellent" entry-level Ethernet switch for industrial environments and is "ideal" for network edge deployment.

There are three models to choose from: the *DIS-100G-5W* offers 5 x 10/100/1000BaseT ports; the *DIS-100G-5SW* has 4 x 10/100/1000BaseT ports and one SFP port; while the *DIS-100G-5PSW* features four x 10/100/1000BaseT, an SFP port, and PoE ports (IEEE 802.3af/at). With its support for the PoE+ standard, D-Link says the latter devices delivers up to 30W power per port along with data on standard Ethernet cabling.

The vendor adds that because each switch can operate in temperature extremes (-40° to 75°C) and can withstand vibrations and shock, it is ideal for outdoor deployment in kerbside compartments.

The company also say that a "robust" design combined with high availability network features enables each switch to perform "reliably" without the need for costly air conditioning and vibration isolation enclosures.

The *GC752X* and *GC752XP* are **Netgear's** first 52-port GbE switches with 2 SFP and 2 SFP+ 10G ports. Additionally, the *GC752XP* also includes 48-ports of PoE+ with a 505W PoE power budget.

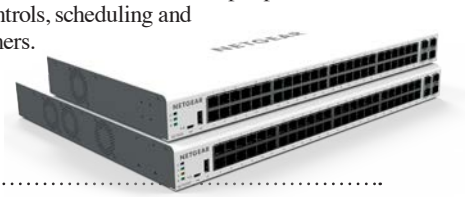
Each device can be managed using Netgear's *Insight* app or *Insight Cloud Portal* to provide what's said to be easy setup with anywhere remote/cloud monitoring, management, and advanced security.

Unlike competitive cloud solutions, the vendor claims its Insight managed products are also fully functional networking and storage solutions in local mode and do not require cloud connectivity to function. It says this allows customers to decide when and how to use the cloud-connected solution, and provides the ability to change modes as required.

Like all of Netgear's cloud switches, the *GC752X* and *GC752XP* are said to support a full suite of advanced L2+/L3 Lite switching features to support both simple networks as well as ones that are highly complex.

The vendor adds that the *Insight* single pane of glass view displays granular port level management capabilities. Some of the key features here include: VLANs (including auto-VoIP a auto-video) and LLDP support; port trunking/link aggregation and IGMP snooping; QoS and priority queuing, port-based rate limiting, STP/RSTP and loop prevention; and ACLs, storm control and port mirroring.

Furthermore, there's IPv6 management and support for network future-proofing, and IPv4 and IPv6 static routing for optimising outgoing traffic. In addition, PoE models are said to offer "advanced" per-port PoE controls, scheduling and timers.



Zyxel has updated its GS1920 series with new features. Among the new functions, the GS1920v2 line-up now includes an eight-port fanless PoE model that is claimed to be versatile, cost-effective, and has a smaller port count.

According to Zyxel, further improvements have been made to the design, including a quick restore button, carbon-style front, and improved depths for the larger models. It says the latter enables the switches to fit in a wider range of racks where space and unit depth are of concern.

Each model combines GbE/SFP ports with up to 28 gigabit copper access ports and up to six Gb fibre uplink ports.

The company has also added the new smart managed uplink XGS1930 series to its switch portfolio. With gigabit connectivity plus four 10G uplinks, Zyxel reckons the new range is ideal for those seeking to upgrade to an easier-to-manage network at an "affordable" price.

Both the GS1920 and XGS1930 series switches are said to provide 30W per port and a wide range of power budget options from 130W to 375W which, says Zyxel, is "ideal" for denser PoE deployments. It adds that a default consumption mode boosts efficiency by delivering the actual power required.

Both ranges are also part of the vendor's NebulaFlex family, enabling them to be setup and smart-managed via a local web browser or centrally managed with via the license-free Nebula solution.

Skills shortages inhibiting digital transformation

The pace of digital transformation in enterprises is being held back by skills shortages along with migration and integration challenges, according to new research by the Cloud Industry Forum (CIF) and BT.

As part of their joint study, the two organisations surveyed 100 senior IT and business decision-makers from large enterprises in the UK with more than 1,000 employees. Their aim was to understand how large enterprises were making technology decisions in the face of heightening levels of digital disruption.

The study found that 52 per cent expect their business models to be "moderately" or "significantly" disrupted by 2020, and that 74 per cent either have a digital transformation strategy in place or are in the process of implementing one.

However, just 14 per cent believe they are "significantly ahead" of their competitors in terms of the adoption of next-generation technologies. The CIF and BT believe this indicates that many are struggling to adapt to the digital revolution.

"Of all the parts of our economy, it is large, enterprises that are the most vulnerable to digital disruption," said forum CEO Alex Hilton. "Many have invested heavily in their company assets and carry with them a significant amount of tech debt, often making change difficult, slow and expensive."

The research suggests that skills shortages sit at the heart of this issue, with larger enterprises significantly more likely to report facing skills shortages than their smaller counterparts. Fifty-nine per cent of those polled stated that they lack staff with integration and migration skills (compared to just 28 per cent of SMEs), 64 per cent need more security expertise, and 54 per cent require more strategic digital transformation skills.

David Simpkins, BT's GM of managed services and public cloud, said the research findings confirm that most enterprises have well-developed strategies aimed at minimising digital disruption and enhancing competitiveness.

"Unlike small organisations, who can easily be more agile and nimbler in the face of market conditions, change within large enterprises, whose IT estates are infinitely more complex, is much more difficult to achieve," said Simpkins.

"Increasingly, we're seeing enterprises managing a wide range of workloads, combining public and private cloud deployments with data centre infrastructure, while at the same time addressing a range of new security threats. This is changing the skillsets that enterprise IT departments need, and it is clear that many will need greater support to safely transition to the digital age."

Technically Compatible secures funding to expand IT recruitment platform

A Sunderland-based recruitment firm that allows prospective employers to test the skills of IT pros and hire the right people has secured financial support of £500,000 from the North East Venture Fund (NEVF).

Established in 2014, Technically Compatible has developed an online assessment platform that is said to enable businesses to check the abilities of developers and IT staff, reduce the risk of costly appointment failures, and speed up the recruitment process.

CEO Mike Rohan said the new investment will help the company scale its operation, expand its engineering and marketing functions to keep up with demand, and create an additional 10 jobs.

Supported by the European Regional Development Fund and managed by Mercia Fund Managers, the NEVF can invest up to £1m for firms in Northumberland, Durham, and Tyne and Wear, particularly those that are engaged in innovation or developing disruptive business models.

Ian Wilson, head of Mercia's team in the North East, said: "Developers are in high demand but it is notoriously difficult to ensure that candidates have the right skills for the job, so companies often make poor hiring decisions.

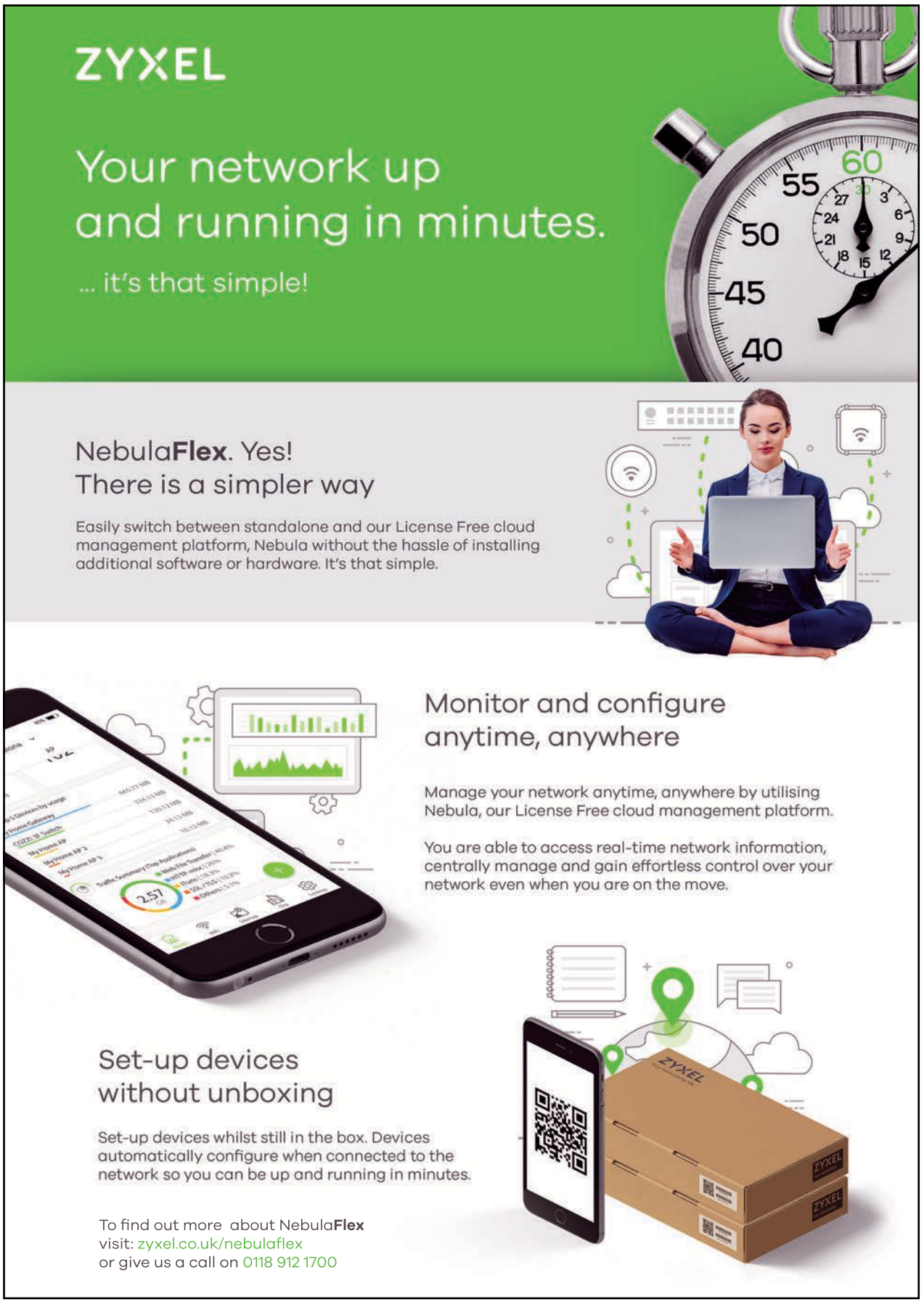
"Technically Compatible not only allows employers to check candidates' technical abilities but also carry out personality and psychometric testing. The funding will allow it to strengthen its team and move on to the next stage of its development."

IN BRIEF...

■ November saw a further steep increase in demand for IT workers, according to the *Report on Jobs* published by KPMG and the Recruitment and Employment Confederation in early December. Adjusted for seasonal factors, the *IT & Computing* permanent vacancies index registered well above the neutral 50.0 level at 63.6 in November. Across the ten monitored job categories, *IT & Computing* has been the best-performing sector in terms of permanent job vacancies for the past five months.

■ SST (Staff Skills Training) offers a number of specialist courses via its "state-of-the art" e-learning platform. They include programmes dedicated to information security such as IT Security Certification, Remote Worker and Business Travel Security Certification, and GDPR certification. Each course features self-study modules that last a total of three hours and include an exam. Prices for some courses start from 35p per user. *https://staffskillstraining.co.uk*

■ The Knowledge Academy has launched courses for latest version of The Open Group Architecture Framework (TOGAF) standard. *TOGAF 9.2* is said to bring a host of improvements to the framework, including improved guidance and structure, the correction of errors, and the removal of obsolete content. While current *TOGAF 9.1* certification will remain valid indefinitely, those who wish to update their existing knowledge with the new standard can take advantage of The Open Group's recently introduced *TOGAF Essentials* course. *www.theknowledgeacademy.com*



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