

# networking

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# Major parties foil cyber attacks

Hackers targeted Britain's two main political parties with back-to-back cyber attacks, in an attempt to take political websites offline with a flood of malicious traffic just weeks ahead of the general election.

They followed a warning by the nation's security agencies that Russia and other countries could attempt to derail the December 12th vote with cyber attacks and/or divisive political messages on social media. Moscow immediately denied the claims.

The opposition Labour Party said on the morning of November 12th that the day before it had "experienced a sophisticated and large-scale cyber attack on Labour digital platforms," but that the attack was contained and no data was compromised.

"We have ongoing security processes in place to protect our platforms, so users may be experiencing some differences," said a Labour spokesperson. "We are dealing with this quickly and efficiently."

Hours later, the party's website and other online services came under a second digital bombardment, followed by a third attack on the website of the governing

Conservative Party shortly before 4pm.

Sources told Reuters that at the time, there was nothing to link the attacks on either party to a foreign state.

It is understood that the attack on the Conservatives was larger and appeared to be conducted by different hackers, but failed to force offline any party websites. A Conservative Party spokesperson had no immediate comment and said she was unaware of the attack.

The National Cyber Security Centre, part of the GCHQ signals intelligence agency, described the first attack on Labour as a distributed denial-of-service (DDoS) attack - a technique used by hackers to take down websites by overwhelming them with traffic.

It was reported that the same technique had been used in the subsequent attacks against Labour and the Conservatives.

"DDoS attacks are a common form of attack used by a very wide range of attackers. Mitigation techniques are available and worked in this case," a NCSC spokesperson said.

*Continued on page 2*



*It is understood that the attack on the Conservatives was larger and appeared to be conducted by different hackers, but failed to force offline any party websites*

## Nextgenaccess secures HS1 fibre deployment concession

Nextgenaccess, the UK-based provider of full fibre broadband infrastructure, has penned an exclusive 20-year concession for the deployment of full fibre infrastructure along the High Speed 1 (HS1) railway link.

The 67-mile high-speed railway link, which connects St Pancras International station in London to the UK Channel Tunnel in Folkestone, Kent, will benefit from trackside rail deployment that brings essential ultra-fast broadband within easy reach of Kent local authorities and business communities at no cost to the taxpayer.

"We are delighted to have been granted this exclusive concession by HS1 which is a clear validation of our fibre solutions technology and flexible approach to enabling fast, affordable ultra-fast broadband," said Mark Weller, managing director of Nextgenaccess.

The high capacity 432 Fibre System is being deployed between Stratford in east London and the Channel Tunnel in Folkestone, Kent. It connects to the international fibre systems

to mainland Europe in Folkestone, providing the shortest fibre route to the Eurotunnel and subsea cable crossings in Kent.

"We are committed to delivering greater economic benefits to the people of Kent," added Dyan Crowther, CEO of HS1. "Through our infrastructure, we are already providing the fastest trains in the country and are now also enabling Nextgenaccess to provide some of the fastest broadband speeds to Kent. This is an innovative collaboration that will save hundreds of thousands of hours of road disruption that would otherwise be caused by installing this fibre on Kent's roads."

In addition, the company will support the increased network capacity challenges and requirements of mobile operators as 5G-based services are rolled out.

Nextgenaccess announced in October that it had entered into an agreement with SSE Enterprise Telecoms to connect its 12,000km fibre route to the NGD data centre in Wales via the firm's new 60km fibre system. ■



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## Political parties suffer back-to-back attacks

Continued from page 1

He added that the nature of such attacks often makes it difficult to attribute responsibility to any particular group.

Labour leader Jeremy Corbyn said the first attack on his party was successfully repelled by the party's defence systems when the digital assault began.

"But if this is a sign of things to come in this election, I feel very nervous about it all," he said. "Because a cyberattack against a political party in an election is suspicious and something one is very worried about."

DDoS attacks can vary in sophistication, but they are generally easily mitigated if the correct action is taken. Web records show Labour is a customer of Cloudflare, which provides DDoS protection services to a large proportion of the web.

Some Conservative Party members have since accused Corbyn and Labour of making the cyberattacks sound far more serious than they actually were. ■



**"A cyberattack against a political party in an election is suspicious and something one is very worried about" says Labour leader Jeremy Corbyn**

## O2 5G technology to power driverless cars in the capital

Mobile network operator O2 has joined the UK's largest real-world connected and autonomous vehicle testbed, where its 5G network will be used to test the capabilities of driverless vehicles in London.

It will join the London-based Smart Mobility Living Lab (SMLL) as well as Cisco, TfL and Loughborough University.

The SMLL is running tests on 15 miles of roads monitored by roadside sensors and camera systems. 5G powered tests using O2's network will start in early 2020 on the SMLL's testbed in Greenwich and at the Olympic Park in Stratford, London.

Trevor Dorling, managing director of smart city developers DG Cities, said the 'connected', in connected and autonomous vehicles "is critically important" as it enables advanced safety features such as vulnerable road user alerts or dangerous intersection warnings to work, making city streets safer.

"5G underpins these use cases and offers further benefits to people and businesses," he said. "This latest collaboration with O2 and SMLL will enable us to better understand the potential applications of this new technology."



**The SMLL is running tests on 15 miles of roads monitored by roadside sensors and camera systems. 5G powered tests using O2's network will start in early 2020**

O2's internal research has predicted that a 5G-enabled road network could save the UK's economy £880m and reduce CO2 emissions by 370,000 metric tonnes per year, by allowing the transmission of near-real time data including 4k video to

intelligent cloud-based systems that can help to monitor and manage traffic flow.

With 26 million subscribers (as of November 2019), O2 is the second-largest mobile network operator in the United Kingdom after EE. ■

## Airedale signs cooling deal with CyrusOne

Leeds-based Airedale International Air Conditioning is to supply CyrusOne, a global data centre real estate investment trust, with cooling solutions for its

upcoming European data centre projects.

US business CyrusOne has 45 data centres worldwide providing mission-critical data centre facilities for approximately 1,000 customers, including more than 205 Fortune 1000 companies.

Under the terms of the deal, Airedale will supply complete cooling solutions for multiple CyrusOne data centres over an initial two-year period. These sites include CyrusOne's Dublin and Amsterdam facilities. Airedale said would announce additional European projects with CyrusOne over the next 18 months.

The cooling solutions will consist of specifically engineered SmartCool chilled water precision air conditioning systems and OptiChill free-cooling chillers, designed to maximise free-cooling.

"Airedale is known for providing intelligently designed solutions that

deliver best-in-class cooling efficiencies and we are looking forward to implementing this expertise into our developments," said Tesh Durvasula, president, Europe at CyrusOne. "As a company, we have ambitious expansion plans in Europe and see Airedale as a trusted partner to help us deliver low PUE and high availability."

Airedale MD Tony Cole added the awarding of the contract has both cemented Airedale's reputation for supplying precision air conditioning equipment into high-tech industries, but also showcases British manufacturing at its best in a tough economic climate. "We are investing in our production facilities as a result of these projects, and there is a real buzz around the place as we look forward to producing the units and delivering a fantastic solution for the client," said Cole. ■



**US business CyrusOne has 45 data centres worldwide providing mission-critical data centre facilities for approximately 1,000 customers, including more than 205 Fortune 1000 companies**

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**KADIUM**

# IoT cyber accelerator programme launched

A Scottish Internet of Things (IoT) accelerator programme to develop new cyber security products and services has launched in Glasgow.

The IoT cyber accelerator programme will help enterprises and developers enhance the resilience of IoT networks and devices, through new products and approaches to cyber security. It is led by CENSIS – the centre of excellence for sensing and imaging systems and IoT technologies – in partnership with the Scottish government.

Kate Forbes MSP and minister for public finance and digital economy, unveiled the plans at CENSIS’s sixth annual Technology Summit in early November, which attracted more than 500 private and public sector delegates.

Up to five companies will be selected following a competitive process for the six-month programme, which will include tailored support from CENSIS and Scottish Enterprise to turn ideas into products or services.

There will be a series of workshops for businesses from numerous sectors to find

out more and begin to address challenges or identify opportunities within IoT.

CENSIS has also partnered with Abertay University to deliver an IoT vulnerability study that will expose risks or flaws in the design of IoT devices and outcomes will be used to develop or refine best-practice guidelines.

“We have an ambitious cyber resilience strategy, which at its core is about making Scotland a safe place to live, learn and do business,” Forbes said. “Developing robust technology, in Scotland, rooted in principles of quality and trust, goes hand in hand with that.”

Paul Winstanley, chief executive of CENSIS, added that IoT technologies “are quickly becoming ubiquitous” and if they did not already impact enterprises,



*The IoT cyber accelerator programme will help enterprises and developers enhance the resilience of IoT networks and devices, through new products and approaches to cyber security*

it is only a matter of time before they do.

“It’s highly encouraging to see so many projects and initiatives underway which involve helping companies to adopt IoT

and realise the benefits it can offer,” he said. “Scotland is very much leading the way and the IoT cyber accelerator can underpin its growth across the country.” ■

## Stellium raises £30m for data centre boost

Stellium Data Centres has secured a £30m cash injection from Tiger Infrastructure Partners and Eram Capital Advisors, which the Newcastle firm said would be used to fund growth and boost fit-out of its data centre facilities.

This investment follows the decision by Aqua Comms and its partners to pick Stellium as a hub for data transmitted between the US, UK and Europe on the North Atlantic Loop, its new transatlantic subsea fibre network.

“This investment further bolsters the position of Stellium Data Centres as one of the most modern, powerful facilities in Europe,” said Noel Meaney, chief executive officer of Stellium. “With this investment, we believe we are well-positioned to serve hyperscale and wholesale companies looking to harness the speed and resiliency of the newest subsea network linking the United States, United Kingdom and Europe, as well as local customers who require data centre services within the United Kingdom.

He added that the firm was looking forward to partnering with experienced data centre investors such as Tiger Infrastructure Partners and Eram Capital Advisors in its growth ambitions.”

Stellium’s campus is comprised of three data centre facilities and since its launch in 2017, it has signed contracts with a number of customers who are fully operational in its campuses.

Alessandro Boninsegna, managing director of Tiger Infrastructure Partners, added that Stellium’s management “has a proven track record” in building critical infrastructure for the digital economy, comprised of large purpose-built data centres, redundant power supply and connectivity through future-proof terrestrial fibre and subsea cable networks.

“Stellium has an existing asset base with all these elements and access to the newest fibre networks in the Northeast of England which makes it an exciting new data hub away from the London area,” he added. “We and our partners at Eram Capital look forward to providing the business with our experience and resources for investment in further growth.” ■



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## UK government calls for evidence in bid to improve cyber security

The UK Government is appealing for enterprises to get in touch after latest research revealed less than a fifth of company boards fully understand the impact of cyber threat.

As part of the current review of cyber security incentives and regulations, digital minister Matt Warman called for views from across the industry.

The review is looking at how government can help organisations protect themselves online and aims to understand the barriers which prevent organisations from improving their cyber security, understand the effectiveness of existing regulations and guidance including GDPR and NIS. It will also develop a range of policy proposals to address any gaps.

As part of this, the call for evidence is seeking information and data on the barriers to taking action on cyber security, the information which would help organisations invest in cyber security, and what more organisations and government could do to stimulate more effective cyber risk management.

“Good cyber security is an absolute necessity but recent research shows less than a fifth of company boards understand the impact associated with cyber threat,” Warman said. “I hope this review will encourage the industry to think about what government could do to help and what incentives might encourage firms and businesses to manage their cyber risk. By driving cyber security improvements across the whole economy we can help make the UK the safest place to live and do business online.”

Warman added that government would welcome input “from all types of organisations in all sectors”, especially organisations that influence and set market expectations, such as membership bodies, consultancies, auditors, insurers, investors, corporate and risk governance bodies, regulators and professional associations. ■



**“Good cyber security is an absolute necessity but recent research shows less than a fifth of company boards understand the impact associated with cyber threat” says Digital minister Matt Warman**

## New framework to encourage cloud computing on NHS

The National Health Service (NHS) has launched a new procurement framework to provide a simple and legally-compliant way of purchasing cloud solutions.

Cloud computing is one way of improving efficiency in healthcare, with the possibility of offering improved services such as electronic health records.

Furthermore, digitising the NHS is a goal set by health secretary Matt Hancock, who wants hospitals and clinics to take advantage of the latest technology to improve efficiency and quality of services.

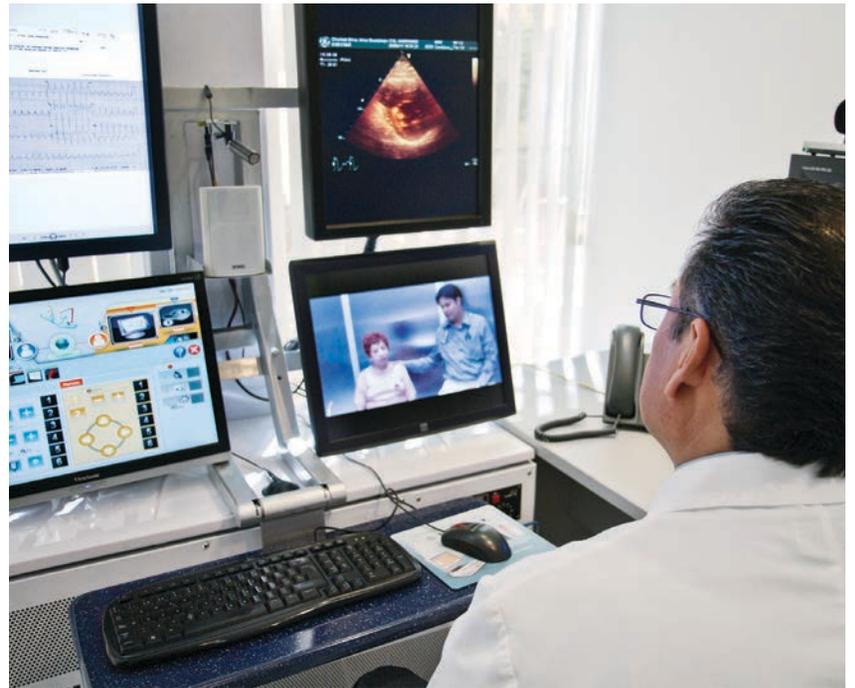
With numerous of providers offering this technology, the new Cloud Solutions Framework launched by NHS Shared Business Services (SBS), helps the health service access high-quality value-for-money services from 24 preferred suppliers.

It also applies across the rest of the public sector, including local authorities, police and schools.

Public sector organisations can use it to make either direct awards, or run mini-competitions to best suit their needs.

In addition, the framework encourages suppliers to bring forward innovative new products and solutions throughout the life of the agreement to benefit the public sector.

“In what is an incredibly crowded and complex market our aim was to significantly simplify the procurement process for the NHS and wider public sector,” said Phil Davies, procurement director at NHS SBS. “To ensure



**Cloud computing is one way of improving efficiency in healthcare, with the possibility of offering improved services such as electronic health records**

framework users have access to the very best cloud services at the most competitive price, we carried out a rigorous tender process and limited the number of suppliers on the framework to the 10 or 20 most outstanding in each Lot. The result is

a specialist pool of 24 leading suppliers, who provide the greatest expertise and value-for-money to the public sector.”

Complying with European regulations, the tool enables public bodies to simplify and expedite the procurement process. ■

## Softcat unveils firms’ IT priorities

More than half of UK firms (55%) have experienced a cyber attack in 2019, up 15% year-on-year, making cybersecurity their main priority.

A report by IT infrastructure provider Softcat also exposed how the UK businesses are taking such statistics, with 83% of industries putting cyber security at the top of the list.

Now that more than two-thirds of global employees work remotely, on-demand access to secure and optimised data is now a basic business necessity. This is reflected in the report with 56% of industries ranking end user computing and mobility as their second biggest technology priority.

The construction industry and two public sectors – education and healthcare

– rank end user computing and mobility as their number one priority, ahead of cyber security investment.

Meanwhile, print services came in as the lowest priority for businesses, but surprisingly emerging technologies (big data, IoT and AI) also rated poorly.

Surprisingly, emerging technologies are the second lowest tech priority for the third year running, despite the hype surrounding the areas where the UK has the potential to be a global leader.

Real estate, private health and social work, plus energy and utilities ranked big data, IoT and AI the highest in seventh and eighth place respectively, but these results are still lower than expected.

“Cyber security continues to be

the number one priority for most organisations,” said Adam Louca, chief technologist – security at Softcat. “This year, we’ve seen the first enforcement actions as part of GDPR, proving the ICO isn’t afraid to punish those falling short of the mark. “Investing in security by design not only reduces risk but enables organisations to take advantage of new technologies more rapidly.”

Elsewhere, investment in the data centre and cloud is ranked third overall, highlighting how hybrid cloud is an integral part of evolving IT strategies, helping organisations gain competitive advantages.

Softcat surveyed over 1,600 of its customers across 18 different industries to reveal the biggest 2020 technology priorities. ■

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# TSB IT debacle down to 'lack of common sense'

The major IT meltdown that locked two million customers out of their TSB bank accounts last year has been blamed on the board's "lack of common sense".

A damning report by law firm Slaughter and May has concluded the lender's board should have done more to challenge bosses in charge of the systems upgrade in April 2018.

It also found the IT boss failed to alert management at the bank to problems with the system, having made an "ill-judged" assessment that the lender was ready to go live with a new platform for its five million customers.

It also saw TSB foot a £370m bill for customer compensation and expenses for the inquiry over the past 18 months.

Slaughter and May's report concluded that the new IT system was "neither stable nor complete" when the board approved



**A damning report by law firm Slaughter and May has concluded the lender's board should have done more to challenge bosses in charge of the systems upgrade in April 2018**

the migration of customer data from former owner Lloyds Banking Group's IT system to a new one managed by TSB's

new parent company Sabadell.

"While the TSB board asked a number of pertinent questions... there were certain

additional common sense challenges that the TSB board did not put to the executive," the report said. "In the lead up to the 'go live', the TSB board should have done more to assess, and should have provided a stronger challenge to the executive's explanation of the adequacy of testing."

The probe also said the timetable was rushed in the final stages and laid the blame not just on the board, but also said chief IT officer Carlos Abarca failed to raise major "shortcomings" of the new system to the board.

It said his statements to the board that the system was ready and would work as expected were "ill-judged".

The debacle sparked one of the UK's biggest ever banking systems crises and led to former TSB chief executive Paul Pester stepping down. ■

## Crossword Cybersecurity looks to solve fraud puzzle

Crossword Cybersecurity, the cyber security and risk specialist, has launched a family of machine-learning based security and anti-fraud software products, that help organisations build these capabilities into applications.

Nixer CyberML is a new tool for businesses that want to solve advanced security and cybercrime problems, such as detecting and dealing with compromised accounts, fraud and in-application denial of service attacks.

"Machine Learning based approaches to cybersecurity are not uncommon in very advanced applications, but most development teams are maxed out and do not have the right data science skills and tools to implement effective solutions quickly," said Jake Holloway, Crossword's chief product officer. "This is why Nixer CyberML has been designed – it allows organisations to build in security and anti-fraud capabilities easily and quickly, without needing to employ machine learning specialists."

Some key benefits of using Nixer CyberML include detecting, mitigating and preventing fraud and other user-based attacks that web application firewalls (WAFs) and distributed denial of service (DDoS) tools cannot mitigate, by using advanced machine-learning integrated into business applications. It also allows for quick and reliable deployment by using existing code and architecture, and, where needed, working with a specialist partner familiar with machine-learning, cyber security and cyber-crime prevention to provide support with data science and algorithm creation. ■



**Nixer CyberML is a new tool to help businesses solve advanced security and cybercrime problems**

## Enterprises failing to wipe data from old endpoints

Enterprise bosses know they should erase enterprise data from old PC, notebook and mobile devices, but a third are taking considerable risks when it comes to data sanitisation, including relying on inappropriate tools, according to a new report.

However, the global study called A false sense of security, conducted by supplier of data erasure and device diagnostics services Blancco Technology Group, with help from Coleman Parkes Research did yield some encouraging signs. It found that 96% of those questioned had some kind of data sanitisation process in place – it also uncovered a number of misconceptions that are putting confidential data at risk during IT upgrades.

In addition, 36% of IT leaders reported using data wiping methods such as

reformatting, overwriting using free or paid software-based tools without certification, or physical destruction of hard drives – both degaussing and shredding – without conducting a proper audit.

These methods are not secure and can leave users open to security risks and compliance breaches of data protection regulations. Furthermore, 4% said they were not sanitising data at all.

However, 73% of respondents said the large volume of different devices at end-of-life left them vulnerable to security issues, while 68% were very concerned about a breach. In the UK, 57% agreed they were both vulnerable and very concerned about breaches – the lowest percentage point from all of the countries surveyed.

Among other findings, Blancco reported that 80% of enterprises were sitting on a stockpile of old and out-of-use equipment – 85% in the UK – and over half took longer than a fortnight to erase devices.

Speaking exclusively to *Networking+*, Fredrik Forslund, VP of enterprise and cloud erasure at Blancco, said the timeliness of this research enhances its value, "as the past year has been an incredibly busy and active time for data protection. "Enterprises globally have been driven by regulation, public opinion and risk of breaches to completely rethink the way they manage data," he said.

The survey recorded the views of 1,850 enterprise leaders in Europe, North America and Asia-Pacific. ■

## UK workers don't realise hacking is a criminal offence

Almost two thirds (63%) do not realise that unauthorised access to an email account without the owner's permission is a criminal offence, according to a new study from a cyber security company.

The survey of 2,000 fulltime UK workers in professional services, conducted by Centrifly via independent survey company Censuwide, also found that one in 20 workers said they have logged into their friend's Facebook account without permission. A further one in 25 admitted to having hacked-in to a colleague's email account without permission.

These findings come just a few months prior to the 30-year anniversary of the Computer Misuse Act – a piece of legislation that deals with the crime of accessing or modifying data stored on a computer without authorisation to do so. Currently, the lowest-level of penalty for a person found guilty of gaining access to a computer without permission is up to two-years in prison and a £5,000 fine.

In addition, 69% per cent of those surveyed revealed that they do not have confidence in their security processes when it comes to protecting their data. As a result, almost two-thirds (63%) of workers refused to change their passwords when prompted to by an app or their company.

Elsewhere, 27% said they used the same password for multiple accounts, putting both their personal life and their professional security at risk. The survey further revealed that 14% do not use multi-factor authentication for apps or services unless forced to do so,



**The survey of 2,000 fulltime UK workers in professional services also found that one in 20 workers said they have logged into their friend's Facebook account without permission**

while 14% keep their passwords in a notebook or on their desk – putting their companies' data at risk of hackers or even colleagues with malicious intent.

"Cyberattacks can have a devastating impact on a company or individual and it is important that workers understand how seriously instances of unauthorised access to someone else's computer will be taken," said Andy Heather, vice president at Centrifly. "The Computer Misuse Act does not discriminate between hackers with malicious intent and employees who do not know the law. Would the one in every 20 employees who have admitted to hacking done so if they realised the risks

that are presented to their company, and the actions which could be taken against them were they caught?"

Heather added that "at the same time", workers must ensure that they take the necessary precautions in ensuring that their own passwords cannot be guessed, stolen or obtained by any of their peers, and organisations must adopt a zero-trust approach "to further reduce the risk of malicious parties taking advantage".

Last year, Conservative MP Kemi Badenoch admitted in an interview that she hacked Labour rival Harriet Harman's website in 2008, apparently unaware of the seriousness of breaching the Computer Misuse Act. ■



## VIEW FROM THE TOP...

How companies can support gender equality in STEM, by *Jennifer Deutsch, CMO, Park Place Technologies*

As it stands, just 24% of roles within science, technology, engineering and mathematics (STEM) careers are held by women. A report by Engineering UK said this country has the lowest number of female engineers in Europe and it's an issue.

Women make up just 17% of all those in the UK tech industry and the National Centre for Women & Information Technology (NCWIT) found that women hold only 25% of computing roles within UK companies.

Enabling women to flourish in the UK workforce is lucrative. The McKinsey Global Institute reported that gender parity in the workplace could add up to \$28 trillion (26%) to the annual GDP BY 2025.

There has been a huge increase in initiatives to tackle the gap and positively affect the number of women choosing a career in STEM, especially within the last five years. They've had a positive effect, especially in awareness, but they haven't yet had the impact to readdress the balance.

Employers must show they operate a female-friendly environment and provide reassurance that they adhere to a strong equal opportunities policy that clearly lays out how they are supporting work-life balance and equal pay:

- **Option to work flexible hours**

Maintaining a work-life balance can be tricky. Women often juggle family responsibilities whilst looking to progress within their career. Many women in male-dominated industries take a voluntary pay cut, to have time to spend at home. A working environment that is flexible to the needs of working parents will appeal to more women and encourage them to stay and progress in their career rather than to choose between work or family.

- **Higher salaries**

Women also take considerable pay cuts to maintain a balanced life. Women in Technology found that an alarming 25% of women in STEM want to negotiate a higher salary for their role, but feel they are stereotyped as willing to settle for less money than a man in their same position. Ensuring women can work flexible hours without being forced to take a pay cut is the key to businesses gaining and retaining a key part of the workforce.

- **Equal opportunities for promotion**

Empowering women by offering promotion when it is warranted helps businesses to stand out as drivers toward STEM equality. Many women in the industry feel as though they need to change employers to progress in their careers, whilst research found that 40% of women in the industry have experienced being rejected for promotions that have been given to a less-qualified male.

Encouraging girls into STEM at an early age, at home and at school, is key to addressing the gender stereotypes that still exist. Currently, only 7% of students in the UK taking computer science at A-Level are female and just half of all those studying IT and technology subjects at school will go into a job of the same field, according to Women in Technology.

Positive female role models are vital, so companies and organisations should ask their successful female employees to visit local schools to meet with students and share their experiences. By sharing their personal experiences and successes, these female employees can inspire and encourage the students to follow their lead.

Businesses can also offer work experience placements or internship programmes, specifically targeted at young girls who are interested in STEM, but who are perhaps unsure about exactly what a career in this field entails. Park

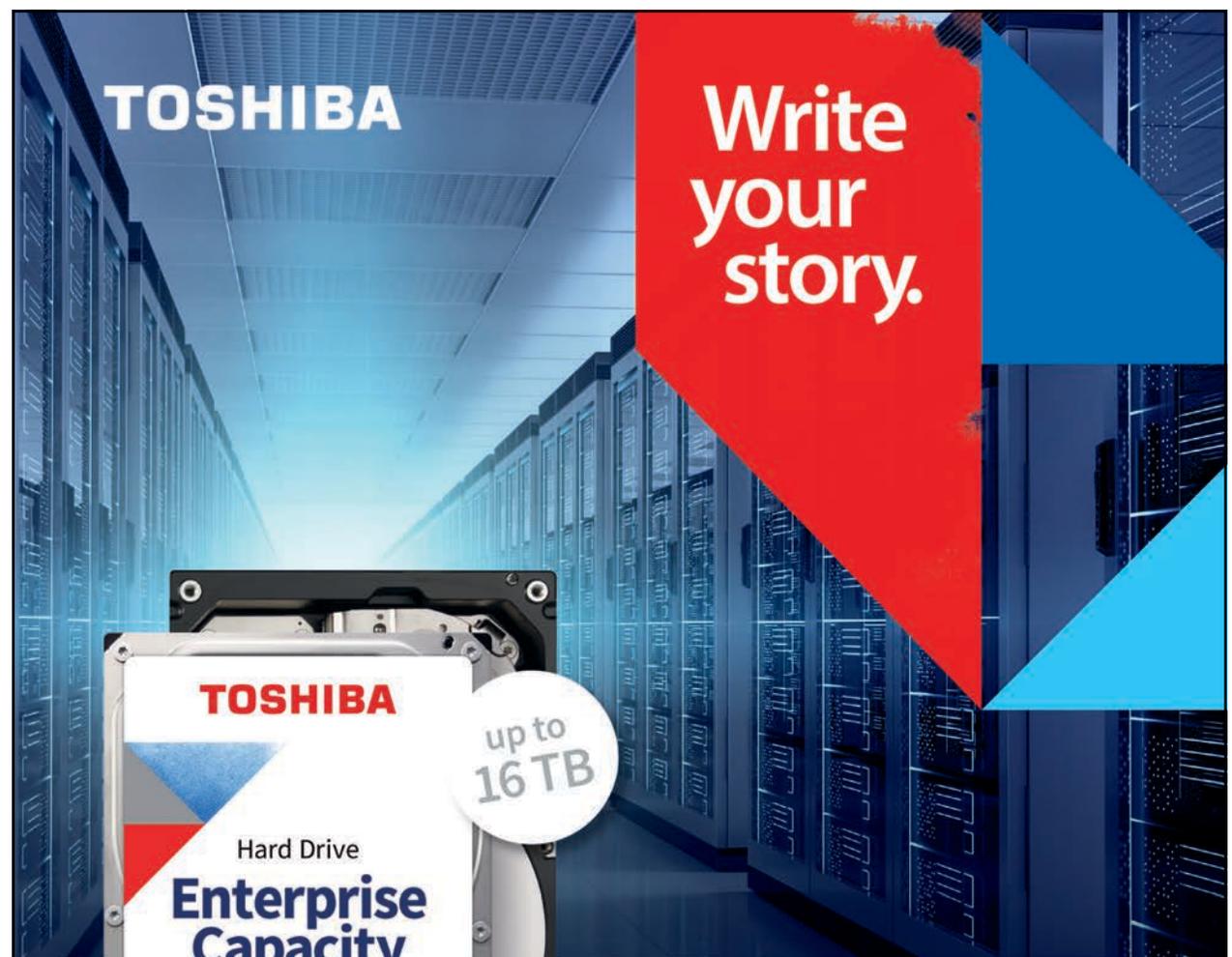
Place Technologies recently sponsored an initiative in Ireland aimed at female college students studying STEM related subjects, who wanted to gain experience in the industry. The two selected candidates have been given the opportunity to fly to our US headquarters for a 10-day internship programme, where they will receive hands-on industry experience as well as the opportunity to network with the senior executive team and go through a leadership training program. Internships give students gives them first-hand experience of the type of work involved with that industry and for the organisation, it can be used as a recruitment process to identify future talent who could one day join the business once they have completed their studies.

Prior to this a Park Place STEM committee was established in Q4 2018, consisting of a diverse group of women at Park Place, many of whom had no formal training in STEM.

Organisations need to honestly ask themselves how many women hold leadership positions within the company or will have the opportunity to do so in the future? If the answer is very few, then you risk losing the already limited number of talented women in your organisation to a more inclusive competitor. At Park Place, there are several high-ranking women who contribute to the leadership of the company.

There is undoubtedly an appetite and acute awareness within the industry about the

need to encourage more women into STEM. The media attention and various initiatives to support STEM diversity are helping to improve the situation, but this won't happen without widespread industry engagement. There is clearly more work to do in changing outdated perceptions and unconscious bias and this is where employers can make a real difference – by showcasing the opportunities available to women in STEM and ensuring access to the same opportunities for all. Employers have an obligation to immerse themselves in these initiatives and where appropriate drive them to ensure that we are creating a STEM industry that is innovative, creative, progressive and diverse for future generations.



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## ON THE NETWORK...

Evolving the network platform: why closure of CAS(T) matters, by Des Ward, director, Innopsis

The recent announcement from the National Cyber Security Centre regarding the closure of the security assurance standard CESG Assured Service (Telecommunications) or CAS(T) scheme over the next six months may have slipped under the nose of many, but it's a defining point in the assurance of telecoms networks within the UK.

### What is CAS(T)?

The CAS(T) scheme (CESG Assured Service (Telecommunications)) is an information and service assurance standard based on ISO/IEC-27001:2013. It's built on the principles of good commercial practice for cyber security and adding service assurance for meeting stringent availability requirements of the public sector for 99.95%.

Its origins are from the legacy NHS N3 standard, and it's now in its second iteration to meet the needs of the current ISO/IEC-27001:2013 standard (it adds some additional service assurance controls to maintain the service assurance aspect that aren't in the current ISO standard).

CAS(T) is used as the assurance to underpin a wide range of government network procurements (such as regional local authority WANs, WANs used for central government and the PSN itself).

The most recent uplift of the Annex A controls within CAS(T) came within the delivery of the HSCN compliance operating model from NHS Digital, which effectively has delivered an in-life update for healthcare connectivity providers (CPs).



The announcement from the NCSC on the closure of the security assurance standard CESG Assured Service (telecommunications) or CAS(T) scheme over the next six months is a defining point in the assurance of telecom networks within the UK. Ward discusses why the closure of CAS(T) matters to the telecom industry

### What is happening to CAS(T)?

The CAS(T) scheme is being closed, with no new entrants to the scheme nor renewals. At present, CPs with existing CAS(T) certificates will be allowed to run until their expiry.

### What is replacing CAS(T)?

This is unclear at present, although The Department for Digital, Culture, Media & Sport (DCMS) telecoms supply chain review does provide some views on where assurance

might head. The review discusses a new security framework, with following key areas:

#### • New Telecoms Security Requirements (TSR)

The foundation for the framework is a new set of security requirements, which will be finalised in conjunction with industry. The TSR will raise the height of the security bar and require telecoms operators, overseen by Ofcom and government, to design and manage their networks to meet these new requirements. The TSR will provide clarity to industry on what is expected in terms of network security.

• **Establishing an enhanced legislative framework for security in telecoms.** In addition to putting the TSR on a statutory footing, the new legislation will provide Ofcom with stronger powers to allow for the effective enforcement of the new requirements and will establish stronger national security backstop powers for government.

#### • Managing the risks posed by suppliers

The new framework will ensure that telecoms providers are managing the security risks posed by all suppliers. The government will make a final decision on the additional controls to be applied to individual high-risk vendors in due course. The ultimate stated goal of the report is to increase regulatory oversight and enforcement, and "ensure a competitive, sustainable and diverse supply chain" for communications providers (CPs). The review also talks about enforcing the use Ofcom's threat intelligence-led penetration testing scheme (TBEST).

### What are the challenges as a result of this approach?

At present, CAS(T) has provided a pathway for CPs of all sizes to deliver assured network services to government. Indeed, the adoption of CAS(T) as the foundation for healthcare CPs within the Health and Social Care Network (HSCN) allowed a range of new entrants (of varying sizes) to provide evidence of their network assurance and bring the number of CPs with services aligned to CAS(T) to 40 in total.

In the event of mandating TBEST, we will see the baseline cost of assurance rise to at least £200,000 per annum and this will constrain the CPs within the marketplace. Certainly, very few SME's could contemplate that kind of investment for speculative business. This will undoubtedly lead to an increase in the cost of network services and impede growth in a market that already

requires significant stimulus to deliver the aspirations of full-fibre and 5G.

Coupled with the uncertainty around certification, standards and costs for compliance, we should also take consideration the government's drive to Internet First. Perhaps there is no need to establish that a network is available, secure, tamper-proof and free from insider attack if the user does not trust the network anyway? If the majority of public sector traffic is to be carried over the internet, then the cost of upholding the remaining networks to a non-generic standard may be seriously out of line for the benefit.

### Addressing the user need

Whilst CAS(T) did require maintenance (evidenced by the approach taken by NHS Digital), removing it without replacement when it underpins a large number of contracts, will place CPs in breach of contracts and increase the cost of procurements for customers until the new compliance regime is implemented.

With an increased move towards the internet as the network platform and the threat of no-deal Brexit looming (which will result in all personal data transiting outside of the UK being reliant on EU countries allowing it to return as we will be a third country), the end-to-end assurance of network services is more important than ever.

### Working as an industry to evolve the network platform

Innopsis has always supported the stated views of the NCSC and government in the principles to be undertaken in the delivery of network services. We believe that the needs of the application should define the needs of the network, and that a diverse CP market is crucial to deliver full-fibre, IoT and 5G.

TBEST in its current form provides a high cost of entry for very little benefit beyond satisfying the compliance needs of regulators. We would like to work with government to ensure that the outcomes of TBEST are met with a cost that is more realistic and provides useful assurance to CPs as well as the regulators.

Innopsis is encouraging dialogue on this issue with an aim of providing a useful certification that reduces cost for both procurer and supplier whilst raising the bar for security, availability and integrity of the networks in the UK used for sensitive and crucial data transport.

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networking november 2019

8

# IT systems made to last

## Manufacturers of wheels, blinds and premium food undergo makeover

### Titan Europe changes gear



Titan Europe is a global manufacturer of wheels, tyres and undercarriage solutions based in Halesowen. Over time the business had accumulated a number of different PCs and printers, each with their own costly requirements.

Thick walls throughout the site made simple IT jobs such as cabling difficult, in addition to Wi-Fi signals being unable to penetrate the walls.

When EBC Group first met with Titan Europe, the business was struggling to maintain a disjointed and messy print environment. Each room housed individual printers that required various toners and paper, making the overall process costly and inefficient. From further discussions, EBC Group also found that Titan was running an antiquated telephone system via traditional ISDN lines, which were expensive and inflexible. Despite employing a capable internal IT team, multiple offices and warehouses made it difficult to manage the old analogue technology, cabling and equipment. Linking between and connecting these sites was a real challenge, in addition to the consumer level Wi-Fi which meant remote access was not possible.

After a full audit, EBC Group made recommendations and the steps for achieving it. As a total solutions provider it was able to create a bespoke solution including a range of technology from managed print to managed IT, telephony and Wi-Fi.

The first step was to remove all old printers and replace these with a smaller number of multi-functional devices, as part of managed print service. EBC Group also replaced the old analogue line with a leased line, replacing ISDN lines with modern SIP trunking to provide VoIP telephony. A fully managed IT infrastructure was installed, providing co-location to EBC Group's private data centre, with a hybrid cloud solution providing on-site and off-site support. The vendor also provided business-grade wireless which gave full seamless roaming across the entire site with both private and guest access.

Titan Europe has received a range of benefits which have improved both efficiency and lowered operational costs. Consolidation of print devices and the introduction of a managed print service has significantly lowered both maintenance and consumable costs. Its new telephony system has made savings across their communications, with the bridged network enabling free calls to other sister sites, including overseas. Employees are now able to connect remotely to the network, even when abroad which has significantly reduced mobile phone bills. The company's new Wi-Fi solution means remote access to the internet across the entire site.

### It's curtains for the old system

Hillarys Blinds is one of the best-known players in the UK, owning one third of the market share. The Nottingham-

based digital specialist company, IPI is to deliver a programme of digital transformation across its contact centres.

For almost 50 years, Hillarys' IT needs have continually evolved to keep pace with the company's growth, with its call centre at the heart of operations.

IPI was charged with delivering solutions and consultancy to enhance Hillarys' two dedicated call centres, as well as supporting the contact centre operations of a sister company, to better manage its 17,000 weekly call volume. This strategic approach to IT was designed to enhance the customer journey for Hillarys' expanding customer base and improved staff engagement.

Hillarys decided to bring in-house its management of outbound calls to improve efficiency and better ensure consistent quality and turned to IPI to provide an appropriate technology solution. The latter rolled out Avaya's Proactive Outreach Manager (POM) to provide an automated outbound campaign management tool. This implementation alone has saved £500K in the first year on the previous system.

IPI has delivered solutions and consultancy to enhance Hillarys' two dedicated call centres, as well as supporting the contact centre operations of a sister company, to better manage its 17K weekly call volume. This strategic approach to IT has both enhanced the customer journey for Hillarys' expanding customer base and improved staff engagement.

"We are hugely proud of our call centre and the strides we have made as a team to improve our operations at Hillarys," says Helen Dodds, the firm's head of contact centre. "We are committed to investing in our team to deliver changes that foster better working practices. IPI plays a key role in this, delivering both the underpinning technology and the expertise to drive this part of our digital transformation journey."

Over time, IPI's relationship with Hillarys has expanded to now include computer telephony integration (CTI) for Hillarys' call tracking and analysis solution from Infinity. This complex project links together 16 different IT systems and allows Hillarys to better understand the effectiveness of its different marketing activities in facilitating customers' journey from first browsing on its website to picking up the phone.

Following these successful project deliveries, IPI was awarded Hillarys' Nortel CS1000 system support, replacing the incumbent partner which was growing rapidly but at the expense of the service provided.



### An appetite for change

Paramount 21 is a Devon-based specialist in creating premium value-added frozen seafood, vegan, vegetarian and gluten-free products. Launched in 1988 by Ali Hannaford, the Newton Abbot company's website explains how it "was started with an investment of only £3,500, second-hand machinery, sheer determination and faith

in the future and Paramount is still an independently-owned family business".

The company quickly developed from packing prawns to creating a range of premium value added frozen seafood and vegetarian products for the foodservice industry.

Now exporting to the likes of Australia, UAE and Europe, Paramount21 knew it had to install a high-end and high-speed Wi-Fi network to keep operating at the level to which it has become accustomed.

The rationale behind this is that it wanted smooth access to its equipment and internal networks for better management control and process. Furthermore, Paramount 21 needed to link up other buildings to the same internal network, with secure internal access for all staff.

As you can imagine, the food manufacturing environment has strict hygiene requirements, so all works took place during factory closure in a "clean room style" situation.

All Wi-Fi access points were located in the ceilings and once sealed they were then cabled back to the main cabinet. Paramount 21 has a single grouped network, all controlled and secured with Unifi switches and Unifi Security Gateway Pro. The system is managed and controlled on the hosted Clubwif Unifi Controller platform, with regular updates and maintenance ensuring the factory runs smoothly with this technology at all times.

"Club Wi-fi has been very professional since we started using it for our Wi-fi

services, whereas previously other suppliers told us the technology would never work in our factory, we were it would work and he was prepared to stand by his word," says a Paramount 21 official. "An efficient installation later and we have excellent coverage throughout our site with a seamless bridge to other buildings, all in all excellent solutions, expertly installed with the minimum of fuss and superb reliability."

The main benefit to having the Unifi UAP access points, controllers and switches is that they provide Paramount 21 with "superb uptime", while solid Wi-Fi allows the business to deliver even more for its customers.

Once a manual process, now automated, managers receive information in the factory via tablets at all times.

This solution is managed on the Clubwif Hosted Unifi Platform, which controls all aspects of Unifi Systems and Components. This ensures the system is secure and up to date at all times from the Clubwif Management Service.



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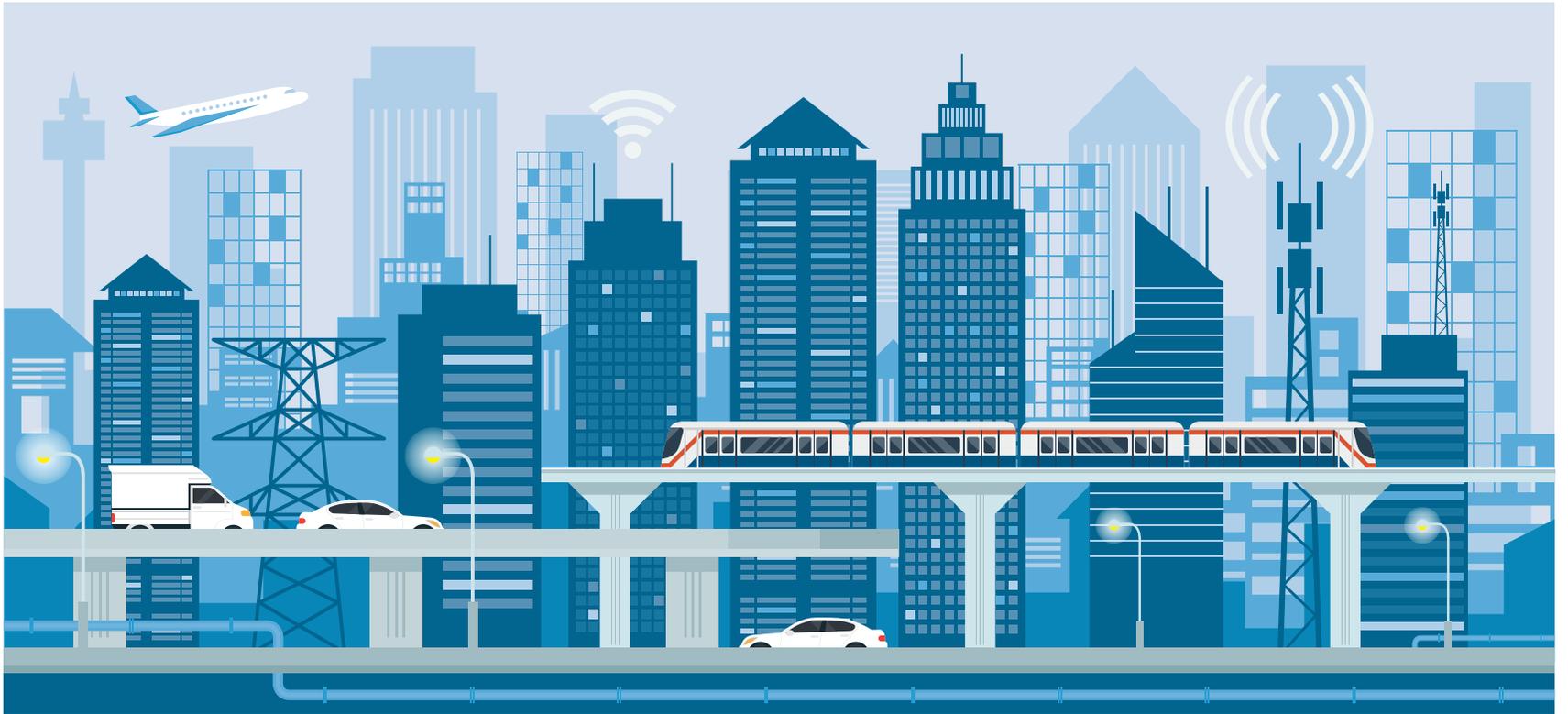
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# Smart cities: what's so clever about them?

**Smart cities are no longer a dream of the future. Great news for most consumers, but what's in it for the enterprise network managers and their teams? ROBERT SHEPHERD asks the smart questions**

**T**he man on the Clapham omnibus should easily comprehend the benefits synonymous with smart cities.

Anything that is supposed to make our day-to-day lives more manageable, indeed more bearable in many cases, can only be a boon.

Now the UN has predicted that while today, 55% of the world's population lives in urban areas, that proportion is expected to increase to 68% by 2050.

This is making it critical for governments and other powerbrokers to put strategies in place to more effectively meet the needs of growing populations. So, for the purposes of the *Networking+* readership, just how will network managers and their teams benefit from a smart city?

"A 'smart city' is enabled with wide area wireless network infrastructure of substantial scale, capable of hosting and supporting the deployment and management of sensors and devices in a variety of organisation types and use cases," says Nick Sacke, head of IoT and products at network services company Comms365. "A network management team would be able to

access and use this infrastructure to deploy and manage their own private network for devices, working for the betterment of their respective businesses and users."

He says lighting, monitoring of energy use, temperature, humidity, security/alarms and other critical systems in buildings all could be co-ordinated as a service that the network management team could enable/offer to the operations teams and third party facilities management companies, "so as to be proactive in maintaining and protecting infrastructure".

Matthew Hawkrige, development director at telemetry hardware and software vendor Servelec Technologies says smart cities are already providing network managers with unprecedented efficiencies and economic opportunities. "That's because smart technologies can change the nature and economics of infrastructure, reduce the cost of gathering information about usage patterns—and with an unprecedented volume of data, allow network managers to find new ways of optimising their

existing systems," he adds.

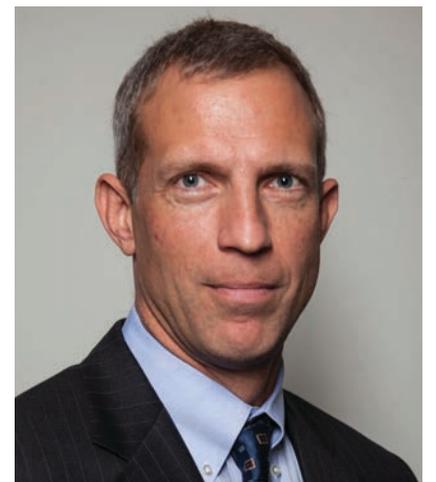
"Smart cities rely on data gathered via thousands of smart sensors and other telemetry devices such as RTUs, which provide insights into how to manage assets, resources and services more efficiently. That means cost and efficiency benefits for a wide range of businesses that serve Smart cities. [Examples include]

transportation firms, power plants, utilities, water supply networks, waste management, crime agencies and hospitals. Ultimately consumers also benefit from businesses being more efficient and responsive."

Eric Law, vice president of EMEA sales at global network infrastructure provider

**"For 5G to deliver ultra-low latency applications it is totally dependent on edge computing and this is even more important in smart cities."**

*Kevin Brown,  
senior vice president of innovation,  
CTO,  
Schneider Electric*



CommScope, says to make things “smart” and improve overall efficiency, “we connect IoT devices through a network to the cloud” (and each other). “Thus, anything ‘smart’ requires connectivity, both wired and wireless, at least in most cases,” he continues. “Once we connect all the eyes and ears (IoT sensors) of the world to the data centre brain, we can start generating intelligent data to drive new analytics and services.”

Law says that as the speed of connectivity increases, through the likes of 5G and more IoT devices are connected everywhere, “we are starting to blur the lines” between our typical domains like buildings, campuses and cities. “For example, the weather sensors in our cities should feed that data to our buildings to cool or heat them more efficiently by pre-heating or cooling buildings during non-peak hours and drive up overall efficiencies,” he adds. “Essentially, smart cities are transforming into smart spaces that are connecting everything.”

He says that, today, cities are typically served by different networks built by traditional telcos, cable operators, internet companies like Google, neutral host providers, utilities and municipalities. “As a result, there are disparate wireless and wireline networks and each time a new network is implemented, the city streets are being dug up again and again for installations,” Law continues. “Considering new and emerging possibilities, consulting with IoT and network connectivity vendors and planning for the long term through the development of smart cities will minimise network upgrades and disruptions to network management in the future.”

Now, let’s take a look at the technology currently available.

“Low power wide area (LPWAN) IoT wireless infrastructure is capable of supporting millions of ‘smart’, battery powered and connected devices in the City,” says Sacke. “These devices generate data from previously unconnected systems and assets that can be analysed and used to create insight which allow for immediate action. Once data starts flowing, future trends and projections start to emerge, which are able to enhance operational planning and maintenance programmes. In time, a live data blueprint of all the devices and systems becomes available, and this can be used to prioritise intervention and even track down faulty components in a system.”

Dan Bladen, CEO and co-founder of wireless charging tech company Chargifi, says that as IoT becomes the norm, technology networks will become more and more complex, with hundreds – if not thousands – of devices communicating at any given time. “Crucial to retaining control of these technologies is cloud-connected software



**By encouraging the use of automation and data analytics, smart buildings enable operators and professionals to enhance productivity and maintain energy efficiency by optimising equipment and related processes**

which can be remotely managed and provides network managers with the real-time status of their network, including diagnostics,” he says. “This is the best method for ensuring smart technology makes the role of network management seamless and pain-free.”

Hawkridge says smart cities are characterised by geographically spread assets all capable of generating massive amounts of information. “The key to making the role of network managers easier is ensuring accurate data is captured and interpreted in real-time,” he continues. “Recent advances in technology assist in this area, helping to deliver improved efficiency, cost savings and longevity as well as, ultimately, better-quality service for people living and working in smart cities.”

He says transport is an area where smart cities can make a real difference. “This ranges from commuter information systems, control of pedestrian crossing lighting, traffic light system monitoring, through to street light monitoring and tunnel lighting and ventilation control,” he adds.

Indeed, Hawkridge says cities that go down the route of congestion charging will rely on smart city technology, too. “This will allow authorities to monitor congestion, traffic management, pollution and environmental systems as well as access and toll systems,” he adds. “Recent weather events can be better managed as well.”

He mentions Servelec’s TBox remote telemetry unit, which is used to monitor storm water. The data can be used to activate alarms to activate storm defences before they breach critical assets.

Law says governments are seeking creative ways to improve services and quality of life. “Digital transformation uses technology for better transportation, law enforcement, waste management and workplace systems,” he says. “Our customers are trying to figure out ways of tapping into the power of big data, IoT,

artificial intelligence, cloud infrastructure and higher computing capabilities.”

Sacke also extols the virtues of smart buildings, which “will be feeding data to the network team” about resource demand and usage, assisting them in the active quantification, projection and management of user requirements. “As more and more data is collected, trends can point to resource pinch points and potential system failures, creating extra insight, scale and operational agility for the team, and ultimately, happier users within the building,” he says.

Hawkridge believes smart buildings help network teams by allowing them to collect and analyse increasing amounts of data from a diverse range of assets. “Much of this information was previously not available,” he adds. “We are already deploying technology that will enable water organisations to adapt in real time to customer needs – such as smart metering, showing demand in real time, identifying leaks, impact of leakage on specific customers, detecting problems in the sewer network before it becomes a pollution event, amongst others.”

He says that “likewise”, network teams could create systems, facilities and physical assets tailored to user requirements such as security protocols, pricing models and usage among others.

According to Law, by encouraging the use of automation and data analytics, smart buildings enable operators and professionals to enhance productivity and maintain energy efficiency by optimising equipment and related processes. As these applications evolve, the connectivity linking a building’s IT and operational technology (OT) systems make it possible for business occupants to maintain a conducive work environment. The connected systems can regulate security, environmental conditions, lighting, communications and other factors – and have become critical to enabling efficiency and effectiveness within network teams.

He says a smarter city leverages technology to promote sustainable development, focussing on particularly intelligent technologies that will make life healthier and safer for its citizens. “For example, 50% of smart city objectives are focused on climate change, resilience and sustainability, leading to more successfully sustainable cities,” he says. “What’s more, by utilising data from smart technologies, urban areas will see a 30% increase in energy efficiency within 20 years, and through regulating light levels with smart street lighting, public energy costs will also be reduced.”

Hawkridge says the potential benefits and efficiencies to business from smart cities “are becoming better understood”, with an important area being improved sustainability. “Smart cities can improve

many of the inefficiencies that currently occur, including RTUs to control & monitor critical sets and technology that detects leaks and blockages,” he says. “Another example is appropriate deployment of RTUs that enables pump energy consumption to be optimised. In addition, advances in smart sensors, loggers and telemetry technology means data can be captured and analysed from pumps and valves to allow them to optimise and adjust their rate of activity according to the requirements.”

Sacke argues that there is research showing that smart cities can potentially make a significant contribution to urban sustainability; data gathering can be used to improve operational management as well as on the ground performance. “We’ve seen and are involved in programmes that leverage ‘smart’ solutions for parking, waste management, environmental monitoring and utilities; all of which are already contributing to sustainability globally through the roll-out of city-wide IoT networks,” he says.

Nevertheless, Sacke concedes that there are challenges linked to reliance on technology intervention as collecting and using urban data needs to be managed within a proper framework to promote engagement and trust. “Therefore, establishing new digital teams/departments within local government structures responsible for IoT that work across all departments – not in their own silos and citizen engagement and participation in planning, feedback and auditing of the initiatives,” he says. “These are highly recommended by many global organisations including the UN.”

It’s also important for enterprises to know if and how they will be able to leverage the data being collected by the smart city to better understand their target demographic and the space itself to provide a more succinct service.

Hawkridge says an “interesting development” is smart water grids. “This offers combined sustainability, safety and water quality benefits by allowing operators to more accurately monitor the quantity of water being piped into cities to ensure that it is not over-allocated for what its eventual usage,” he adds. “Another is a city’s energy infrastructure which could benefit from ‘smart meters’ – and here electric or gas meters could provide real-time data, via an internet connection, to the consumer and the utility company regarding each user’s consumption. This will enable better management of electricity supplies by responding to live demand, which will reduce the overall cost and likelihood of power cuts.”

Sacke mentions initiatives in large UK cities to make data available to stakeholders other than the government. “A ‘digital twin’ of London’s infrastructure is a project already underway to provide



**“Once we connect all the eyes and ears (IoT sensors) of the world to the data centre brain, we can start generating intelligent data to drive new analytics and services.”**

*Eric Law, vice president EMEA sales, CommScope*

comprehensive, real-time digital simulation models via artificial intelligence and machine learning technologies, enabling insights into physical assets and services," he says. "Projects like this provide substantial commercial value to businesses looking to own and manage assets within a city, as well as delivering targeted services to certain target demographics. Mechanisms such as 'digital trusts' for the accessing and exchange of data in secure, regulated ways are already in the planning phase. Such 'information exchanges' are essential to leveraging the value of data for businesses and local governments."

If any technology is going to help make the smart city what it's hyped to be then it's 5G, but will it enhance every smart city application beyond what network managers already have at their disposal?

"5G will be the 'glue' that binds the elements of local networks, infrastructure and processes together, creating safer, easier and more pleasing living for citizens and company employees," says Sacke.

Law opines that in the future, cities will use new applications and the IoT to enrich the lives and safety of their residents and visitors. However, he says for these innovations to be made possible, smart city applications will need networks that are much faster, offer lower latency, and integrate well with IoT devices.

"Smart cities will be built on fibre," Law says. "As governments around the world invigorate broadband with investment in digital infrastructure, the number of 5G connections is expected to exceed one billion by 2025."

He says, "most people think of 5G as a new wireless service for faster smartphones", but it is also a medium that enables a city to become smarter. "Citizens and visitors will demand virtual reality, augmented reality and autonomous vehicle applications also be integrated into city services and capabilities," Law continues. "5G holds the promise of superfast download speeds and unparalleled performance that will support these technologies, as well as the move towards connected communities. The next few years are critical to building networks that will meet the demand."

Law says 5G networks will be key for the integration of technology into city services as these networks of the future will bring sophisticated connectivity to edge IoT devices with higher speeds, more machine-to-machine connections and very low latencies, therefore undoubtedly making the lives of network management teams easier. "5G will enable new or enhanced services at a much faster pace, making it possible for teams to meet the growing demands and increasing expectations that surround the development of smart city technology," he adds.

While this is all positive reading for network management teams, Kevin Brown, senior vice president of innovation and CTO at Schneider Electric, secure power division says 5G has some way to go before they can get the best from it. "With regards to the hype around the build-up, I tend to be more of a sceptic at this point," he says. "That's because it's unclear how fast it is really going to happen, especially when you consider the sheer volume of data centre infrastructure required to deliver the service. For 5G to deliver ultra-low latency applications it is totally dependent on edge computing and this is even more important in smart cities."

Then, of course, there's security surrounding the prevalence of Wi-Fi hotspots.

"There is an elevated security threat because of the significant increase in the number of interconnected devices," says Hawkridge. "In fact, the roll out of IoT technology has resulted in thousands of connected systems being embedded in a

city's critical infrastructures.

In terms of security we see our role as making sure that loggers and RTUs smart sensors are built using (insert cyber security requirements/standards here) securely. There is also a shared responsibility between the manufacturer and users – with the former issuing timely software updates for security issues, and the latter applying these."

Sacke notes "significant risks" associated with the use of public Wi-Fi hotspots which redirect web traffic to the 'captive portal' page on the first connection - the point where users agree to terms and conditions or enter a password. "The issue with this is that the portal in question is a website outside the companies virtual private network (VPN) and while you're entering these details, your device is open to attack," he continues. "So-called 'untrusted' Wi-Fi hotspots can alter or re-direct browser traffic

as it is sent and allow access to data stored in temporary caches; you may be asked to agree to location tracking when you sign up. Tier 1 mobile operators are already tracking the movements of millions of smartphone users through the MAC address of their devices when they pass within range of their hotspots, which is data that local government and commercial organisations pay for. Strong encryption of all data sent by devices and policies regarding the use of public hotspots is a necessity to mitigate against these and other risks."

For Law, the risks apply to the legacy infrastructure in place today, courtesy of mobile phones and cellular watches connecting to cell towers and accessing the location of the user through triangulation. "We therefore need to address this question from a different angle," says. "For all this and future connectivity, we will need

robust guidelines around privacy and data gathering. European regulations around "the right to be forgotten" is a first step on this journey. Clear rules of engagement around what data is captured, what can be stored and what can be made public or opted out by users and governmental oversight are needed on this digital journey."

Going forward, Law says "we as an industry also need to do a better job" at sharing with society the good that this technology brings to bare. "A smartwatch tracking a child being abducted, warning of an imminent heart attack or alerting staff of an elderly person falling down is the type of application that will improve our quality of life and should not only be described as an invasion of privacy, but an enabler."

This has hopefully filled the lacuna in your smart city knowledge and provided a window to the (near) future. ■

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# Wireless wisdom

Browse our selection of routers and access points. But first, read these top tips from Paul Routledge, country manager at D-Link



Finding your perfect router can be a headache with options that include different wireless speeds, security standards and extra add-ons. Here's how to decide which key features matter to you.

While it's still possible to purchase a wired-only router – using an Ethernet cable – wi-fi models are the most flexible and popular.

These are the two features that matter most: **Wireless range** depends on factors such as how many radios and antennas, frequencies used, interference and so on. All you need to know is that Wireless AC routers provide the best connectivity at the farthest range, followed by Wireless N. For reliable wi-fi throughout the building, stick to AC; steer clear of Wireless G.

**Wireless speeds** have come a long way. Wireless AC routers are three times faster than Wireless N and Wireless N routers are 14 times faster than Wireless G. If you use real-time applications, Wireless AC will offer a superior experience to N or G.

**Features to look for:**

**Dual band connectivity** Single band routers operate only on the 2.4GHz band, fine for surfing the Internet, but can get congested and unsuitable for high-bandwidth apps. Dual band routers use the 2.4GHz band and the 5GHz band, which

is less prone to interference from other devices. With dual band, you can browse the Internet on the 2.4GHz while streaming on the 5GHz band with neither overloaded. Dual band means less interference and faster speeds. All Wireless AC routers and select Wireless N routers offer dual band.

**Tri-band connectivity** means simply adding another band, specifically 5GHz. Each added band means less chance of congestion.

**Multi-User MIMO (MU-MIMO)**, a newer feature is going to really make a difference as more devices become compatible. MU-MIMO allows multiple devices to get high-bandwidth wi-fi signal at the same time, distributing data more efficiently and the fastest speeds.

**Wireless signals and MESH technology** Typically, wireless routers broadcast using multiple antennas and Multiple Input Multiple Output (MIMO) technology. MIMO allows for higher data transfer rate by simultaneously using multiple antennas. Signals are broadcast in a doughnut shape to blanket the area. Instead of a doughnut broadcast, routers with MESH technology find and track devices and aim wi-fi signals directly at them, providing a much stronger signal.

**Quality of Service (QoS)** Routers with QoS traffic controls track the type of network traffic and decide and deliver to the application deserving higher priority, ensuring the best quality.

**Gigabit Ethernet** If you are using a wired connection, choose Gigabit Ethernet for up to 1000 Mbps, not Fast Ethernet (up to 100Mbps).

Designed for emergency services and other fleet operators, **Cradlepoint's** new COR IBR1700 is said to be the world's first mobile router with Gigabit speeds for LTE, wi-fi and Ethernet.

And it says the router mitigates security risks with multi-zone firewalls, IDS/IPS, Internet security and FIPS 140-2 certification.

Cradlepoint sells the mobile routers as part its NetCloud mobile networking package, including software, hardware, 24x7 support and warranty. Other features include: field-upgradable with second



Designed to ease congestion in high density areas, a new range of WiFi 6 (11ax) access points has been introduced by **Zyxel**.

Led by the WAX650S, they are said to be able to support a large group of devices simultaneously. They use WiFi 6, or high efficiency wireless, the latest iteration of wireless technology, which offers faster speeds, greater capacity and reduced latency.

Zykel says its use of a smart antenna and spatial reuse technology means that the

WAX650S boosts network performance and overcomes network interference more powerfully than other WiFi 6 APs.

It also includes 5Gb Ethernet support and WiFi 6 standard multi-gig speed for faster wireless and dedicated scanning radio which allows for all-time monitoring of network issues without affecting WiFi quality. And optimised hardware design is said to enable the AP to better interference.

The 11ax APs also integrate with the company's NebulaFlex platform and includes a one-year pro-pack license. This means, says Zykel, that users – particularly schools – benefit from cloud networking and can remotely manage their systems without a dedicated IT team.



Just introduced, **WatchGuard's** AP327X outdoor access point is said to be ideal to deliver secure outdoor wi-fi for campuses, warehouses, manufacturing sites, shopping centres, public hotspots and municipal facilities. Rated IP67 for harsh conditions, it has four N-type connectors for flexible antenna coverage and two Gigabit Ethernet ports

The AP327X is an 802.11ac 2x2 MU-MIMO model with dual concurrent 5GHz and 2.4GHz band radios and data rates up to 867 MHz and 400 Mbps respectively. It can use existing wi-fi networks and APs, securing all from wireless threats by using dedicated

Wireless Intrusion Prevention Systems (WIPS), along with real-time analytics.

WatchGuard says it is the only company to offer what it calls a Trusted Wireless Environment to aid in setting up wi-fi networks which are fast, easy to manage and secure.



Downtime is eliminated with the Vigor 2620Ln router, says **DrayTek UK**, making it ideal where uninterrupted connectivity is essential such as in retail and security.

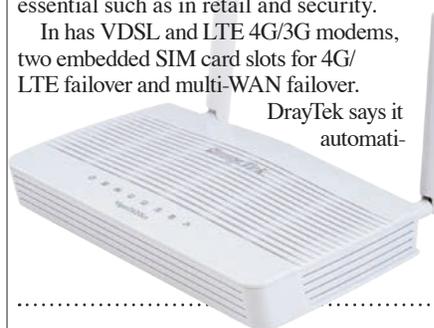
It has VDSL and LTE 4G/3G modems, two embedded SIM card slots for 4G/LTE failover and multi-WAN failover.

DrayTek says it automatically

reconnects if the primary connection fails and the dual-SIM LTE is compatible with major mobile services.

The Vigor 2620Ln LTE 4G/3G modem is said to offer up to 150Mbps downstream and 50Mbps upstream. It has two gigabit LAN ports and can connect to fibre to the cabinet (FTTC) VDSL2 or ADSL.

DrayTek says the router is ideal for connecting branch offices with HQ or for enabling remote work. And it says remote configuration and management is seamless with its VigorACS central management platform.



This is said to be the industry's first 802.11ax (Wi-Fi 6) 2x2 access point. And **EnGenius** says the new model EWS357AP means that budget-conscious small and medium sized business benefit from enterprise level features.

Backwards compatible, it uses Qualcomm's latest chipset. EnGenius says this means more efficient channel use, reduced latency between AP and client devices, plus "wake time" power saving, optimal signal and reception reliability and a feature for mass configuration of APs. In addition, it is said to run more efficiently and use less power

and can be deployed immediately into existing switch infrastructures.

For those in higher-density buildings, the company has brought out an 802.11ax 4x4 AP, EWS377AP.



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## THE WORLD ACCORDING TO...

SD-WAN and IoT: a perfect partnership, by Hubert da Costa, SVP and GM EMEA, Cybera

The Internet of Things (IoT) is one of the major influencing trends in the digital transformation of the global economy. In fact, worldwide demand for IoT technologies continues to climb, with data and analytics company GlobalData projecting that the global market for IoT-enabling software, hardware, and services will reach \$318 billion (USD) by 2023 – more than double the estimated \$130 billion in 2018.

Cost-effective, secure, and manageable connectivity is the foundation of IoT adoption, but as IDC reports, traditional WANs are too costly and complex to support the new apps and IoT devices popping up at remote business sites.

As a result, enterprises are now deploying Software-Defined Wide Area Network

(SD-WAN) solutions for greater network flexibility, security, and ease of use.

The SD-WAN is a software-based technology that is especially useful for connecting remote locations to a distributed enterprise network. SD-WANs at the edge of existing networks operate as a network overlay, enabling remote sites to consolidate multiple network functions and applications over low-cost broadband connections.

Because they are software-based, SD-WANs reduce the number of network devices and connections needed at each site, significantly lowering network complexity and costs. Moreover, these SD-WANs can be remotely customised and reconfigured via software to quickly adapt to changing business needs and to make ongoing system updates.

Similarly, SD-WANs can be delivered as a cloud-based managed service, which simplifies enterprise-wide implementation and eliminates the need for IT departments to maintain their own SD-WAN data centres. This results in very fast time-to-execution for initial installations, as well as future upgrades, and it can all be done at web scale with the lowest possible cost.

These are critical business advantages for enterprises making strategic investments in the IoT world. Given the expected ubiquitous deployment of IoT devices – there could be as many as 21.5 billion active IoT connections by 2025 – organisations must be able to affordably deliver and centrally manage their networks. Designed to address these unique requirements, SD-WANs are ideally suited for IoT deployments, and that's even

before examining the key issue of security.

The impact of IoT on the SD-WAN market will be significant. According to IDC, spending on SD-WAN infrastructure will reach \$4.5 billion (USD) by 2022, when the SD-WAN managed services market will be worth \$5.4 billion. In the same research report, IDC reveals that 82% of enterprise survey respondents would use SD-WAN at some point, with 75% saying they were already using it or would be within two years.

Together, SD-WAN and IoT offer organisations a strategic roadmap to the future, where they can exploit the opportunities of a world where everything is connected while retaining the high levels of management control and security that are so critical for business success.

## IT pros bemoan lack of training – report

IT pros are concerned they need more training and support to stay competent and prepare for the jobs of tomorrow, according to new research by corporate learning business Skillsoft.

The report found that many require more from their workplace to implement digital innovation, keep up with emerging technologies and working practices, or perform effectively in roles that are rapidly evolving.

The study, conducted at the recent Digital Transformation Expo Europe event held in London in October, found that most (81%) said they will need to learn a new skill in

the next 18 months to remain confident and competent in their current role. However, 59% expressed concern that they would not receive enough training or preparation from their current organisation to remain employable or skilled in the future. Meanwhile, 47% confirmed that their team or department currently lacks the skills or capabilities required to meet the needs of the business today.

For those working in the fields of DevOps, AI, cyber and data security, infrastructure, and cloud, study respondents voiced strong concerns that investment in skills development is not keeping pace with

the demands of digital transformation or empowering people to work in new ways.

Almost half (45%) of respondents confirmed that upcoming new technology implementations mean their organisation would need to do more when it comes to workforce training and skills development. A further 16% said that increased investment in digital skills training would be essential.

Most respondents (85%) said their role has already been impacted by digital transformation, yet 79% would have liked more learning, development or training

opportunities in the last 18 months to ensure they were equipped for their evolving roles.

“Today’s workforce is made up of five different generations, ranging from Traditionalists to Generation Z, who all need to go through the digital transformation journey,” said Steve Wainwright, managing director EMEA at Skillsoft said: That’s why it is important organisations futureproof their workforce, ensuring they invest in their current employees and provide the training and support they need to take on new roles and acquire new expertise.”

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