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FIXED & WIRELESS NETWORKS FOR ENTERPRISE USERS

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Let the SD-WAN wars begin

Aerohive, Teneo and VeloCloud have all launched new SD-WAN services within days of each other.

At the end of November, VeloCloud announced *Outcome-Driven Networking*. It says this utilises the fundamentals of SD-WAN to orchestrate and automate network processes, end-to-end. The firm claims this enables IT organisations to focus on revenue-generating activities rather than "tedious manual processes and error prone tasks".

According to VeloCloud, *Outcome-Driven Networking* provides a platform for users to create a desired state of the network, enforce policies, and manage it all seamlessly. It claims this allows businesses to scale simply and securely from the edge to the cloud and the data centre.

For example, the firm says once an outcome has been stated – such as to access an application resource over a preferred path – its solution learns every site's legacy network and automatically implements the required routing.

IDC forecasts published in July said global SD-WAN infrastructure and services revenues will reach $8.05bn in 2021. The analyst said the growth over the next five years will be driven by digital transformation where enterprises deploy technologies such as cloud, Big Data and analytics, mobility, and social business to unlock new sources of innovation and creativity. It said another driving factor is the continued rise of public cloud-based SaaS applications.

In early December, Teneo launched SD-WAN as a Service in response to what it describes as "restrictive 'one size fits all' SD-WAN offerings and increasingly complex WAN infrastructures". The technology integrator reckons its new service provides a solution that's tailored to fit and also prevents network managers being drawn into "inflexible" carrier deployment processes and support contracts.

Teneo says it XaaS delivery model combines individually-prescribed SD-WAN technologies with "round-the-clock expert monitoring and management services, packaged at a predictable monthly cost". It claims this means that SD-WAN can be deployed and managed to achieve an enterprise's distinct outcomes, without high 'upfront' equipment costs or the need to hire additional global network team members.

Teneo says its new service means network managers won't be drawn into "inflexible" carrier deployment processes and support contracts.

"Global telecoms carriers' haste in aligning themselves with an SD-WAN provider was touted as bringing simplicity for buyers, but this at once removed the diversity of options that growth-focused customers actually need," says Teneo CTO Marc Sollars. "In contrast, our new service model enables CIOs to define their business case, carefully design and right-size their SD-WAN approach, before selecting their preferred technologies.

Hot on the heels of Teneo's announcement, Aerohive Networks unveiled what it describes as a "simple-to-manage and flexible SD-WAN solution that promises a secure and reliable HQ-like network experience for every user and device, regardless of location".

Built on cloud networking, virtualised network services and a self-optimising, software-defined architecture, Aerohive says the new SD-WAN service can be combined with its existing SD-LAN offering. As a result, it's claimed organisations can now "radically" simplify branch deployments with a unified cloud-managed Wi-Fi, switching and an SD-WAN VPN routing solution.

Aerohive will launch its service next month with a new cloud-managed *XR200P* router and a virtualised Layer 3 VPN gateway. It says the latter will offer a number of features such as application-based flow optimisation, network policy enforcement and enterprise-class network visibility, amongst others.

These latest SD-WAN offerings follow the likes of Orange Business Services, BT and Hughes Europe which each launched their own platforms earlier this year *(see news, March and October issues)*. ■

New cyber security service to boost NHS protection

A new £20m project aims to boost data security across the NHS.

NHS Digital's Security Operations Centre (SOC) will provide enhanced and ongoing monitoring of national systems and services, and also offer specific guidance to local health and care organisations. The monitoring service will analyse threat intelligence from multiple sources and share this together with remediation advice.

Other services offered by the SOC include on-site data security assessments to enable NHS organisations to identify any potential weaknesses and to get the best value from local investment. There will be specialist support for any NHS organisation which believes it may have been affected by a cyber security incident.

NHS Digital is now looking for a partner to support it with the project. The contract is tendered to run for three to five years.

Dan Taylor, head of the Digital Security Centre at NHS Digital, says: "The partnership will provide access to extra specialist resources during peak periods and enable the team to proactively monitor the web for security threats and emerging vulnerabilities.

"It will also allow us to improve our current capabilities in ethical hacking, vulnerability testing and the forensic analysis of malicious software, and will improve our ability to anticipate future vulnerabilities while supporting health and care in remediating current known threats."

Taylor adds that by creating a national, near-real-time monitoring and alerting service that covers the whole health and care system, the SOC will drive economies of scale, giving health and care organisations additional intelligence and support services that they might not otherwise be able to access. ■

HPE hangs on as world's top server vendor

Worldwide server revenues increased 16 per cent during the third quarter of the year compared to the same time last year, while shipments grew 5.1 per cent, according to Gartner.

The firm says a build-out of infrastructure to support cloud and hybrid-cloud implementations was the main driver for worldwide growth in the server market during the period.

In Europe, Middle East and Africa (EMEA), total server revenues came in at $3.1bn, a 17.1 per cent increase from the third quarter of 2016, says the analyst. Shipments totalled 495 thousand units, a growth of 2.9 per cent year over year.

Hewlett Packard Enterprise (HPE) maintained the number one position in EMEA but saw its server shipments fall by 0.6 per cent in Q317 compared to Q316, while Dell EMC saw 9.7 per cent to maintain its number two position.

Other named vendors in the top five include Lenovo which saw its shipment numbers fall 27.6 per cent from Q316 to Q317, Fujitsu which grew 11 per cent, and Cisco which declined 4.1 per.cent,

Globally, Gartner says x86 servers increased 5.3 per cent in shipments for the year and 16.7 per cent in revenue during the period. RISC/Itanium Unix servers declined globally, down 23.5 per cent in shipments and 18.3 per cent in vendor revenue compared with the same quarter last year. ■

SITE relocates Ridgeons to new site

Secure I.T. Environments (SITE) has carried out a complex data relocation project for Ridgeons, the Cambridge-based timber and builders' merchants.

It involved the closure of a data centre and relocation to new facilities on an existing Ridgeons' depot site, following the sale of land in Cambridge. The original centre had been built, serviced and maintained throughout its lifetime by Secure I.T. As a result, the company says it had an "excellent" understanding of the client's needs.

The new site introduced design challenges due to its smaller size and location. But given its team's close relationship with Ridgeons, SITE says a design solution was found and the associated risks with planning the transfer of services were mitigated.

It adds that new developments in server and cabinet technology meant no compromise had to be made on the compute and storage power available to Ridgeons, despite the new data centre site being smaller.

The project was completed in 10 weeks. It included new incoming power supply, UPS in N+1 format, structured cabling, 19-inch cabinets with intelligent PDUs, amongst other new infrastructure.

SITE says it will also relocate the existing generator as part of decommissioning the original site, thereby creating cost savings for Ridgeons. ■

"Guesswork" behind a quarter of all storage capacity planning decisions

Nearly a quarter of storage capacity planning decisions are made by IT leaders on the basis of a 'best guess' or no planning at all, according to research by Tintri.

After polling 110 IT pros at IP EXPO in London in October, the flash storage specialist found that when planning storage capacity needs, 42 per cent rely on previous experience, but only 12 per cent run a simulation project to help accurately guide decisions.

Almost 10 per cent revealed that they did not carry out any planning for future needs, and only a fifth said they relied on input from technology vendors or partners.

Among its research findings, Tintri discovered that most IT pros miscalculate their storage needs when planning new capacity. Shown here is the vendor's T5000 which is said to be the first all-flash appliance to offer up to 308TB for 5,000 VMs.

"While previous experience and knowledge are valuable methods to help predict future storage needs, many environments are becoming too complex to rely on that approach anymore," says Tintri CMO Scott Buchanan. "Guesswork leads to performance issues or over-provisioning – and with the analytics tools available today, it's simply unnecessary."

Furthermore, 70 per cent admitted miscalculating their storage needs when planning new capacity. Forty three per cent reported that they have underestimated their needs, while 27 per cent said they have overestimated.

In addition, 77 per cent of the respondents said that up to a fifth of their storage capacity is unused, except as acting as a buffer to maintain performance. Only 10 per cent were able to say that they operated with five per cent unused storage capacity or less. ■

BSI revises standard for information security risk

BSI has revised BS 7799-3, its guidance standard for information security risk management systems.

Notable changes include conformity to the latest version of ISO 2700, the internationally recognised standard which covers requirements for IT security techniques and infosec management systems. BS 7799-3 provides guidance on defining, applying, maintaining and evaluating risk management processes in ISO 27001's infosec context.

Anne Hayes, the BSI's head of market development for governance and resilience, says: "BS 7799-3 was revised to work hand-in-hand with ISO 27001 in assisting organisations in evaluating their risk management processes. If ISO 27001 is the bread and butter of an organisation's information security management system, BS 7799-3 is the knife to spread the butter."

Other revisions to the standard include the term 'risk owner' which replaces 'risk asset owner', and the effectiveness of the risk treatment plan is now regarded as being more important than the controls.

According to BSI, BS 7799-3 identifies two widely recognised approaches to risk identification and risk analysis: the scenario-based approach, where risks are identified (and assessed) through a consideration of events and their consequence; and the asset-threat-vulnerability approach, where risk identification takes into account the value of information assets and identifies applicable threats.

The business standards company recommends that for an organisation to increase the reliability of estimating the likelihood of a security event occurring, it should consider using: team assessments rather than individual ones; employing external sources, such as infosec breach reports; unambiguous targets, such as 'two a year' rather than vague targets and timings; and scales with at least five categories to ascertain risk, from 'very low' to 'very high'.

BS 7799-3 also includes dedicated sections for infosec risk treatment, with guidance on how an organisation can monitor and measure its risk identification plan.

BSI adds that the standard is applicable to all users but will be of particular interest to governance, risk and compliance personnel, security managers, operational managers, auditors, and anyone responsible for implementing GDPR requirements. ■

For more on GDPR, see this month's feature, pp11-13.

The BSI's Anne Hayes says if ISO 27001 is the "bread and butter" of an infosec management system, then BS 7799-3 is the "knife to spread the butter".

FOI request reveals councils face rising Oracle costs

Councils are experiencing increasing costs and lengthy software licences for their Oracle software, according to a Freedom of Information (FOI) request sent by TmaxSoft.

The company, which describes itself as a "global software innovator", issued the request to 75 local authorities to find out their costs and "operational burdens" of using Oracle's relational database software.

Of the 60 councils who replied, 92 per cent said they are currently using Oracle. Twenty per cent reported that they had spent more than £100,000 or more on the firm's software in the past two years, while two per cent claimed their spend had increased by more than 100 per cent and tipped the £500,000 mark.

TmaxSoft says councils also appear to be tied into long-term license arrangements – while 43 per cent stated that their existing agreement was between one and two years, more than 20 per cent said it was over four years.

Furthermore, of those that responded, five per cent had had an Oracle audit in the past year – TmaxSoft says that's roughly 21 of the 418 councils in the country. "It is of course, the responsibility of the council to make sure it adheres to the terms of its software licenses," says Carl Davies, TmaxSoft's UK CEO. "But with Oracle auditing just five per cent of councils per year, there is a real risk that some cash-strapped local authorities may be operating outside of the remit of their software licenses without knowing it. This could have very expensive ramifications, as councils may find themselves forced to purchase additional, costly licenses from Oracle."

Davies adds that in an era of austerity where local councils are having to make cuts to all areas of their budgets, there are a growing number of alternative providers they can take advantage of.

When asked for its reaction, Oracle said it did not have any specific comments about TmaxSoft's findings. Instead, the company pointed us to what it described as a "positive" story on its website. This dates back to February 2017 and is about how Leeds City Council cut costs and reduced risk with a licensing review.

According to the article, the council worked with Oracle License Management Services after an infrastructure upgrade to verify its new licensing position and ensure it remained compliant but was not over-licensed. Oracle claims Leeds saved $127,000 per year with reduced licenses and support costs as a result of its help. ■

HNS migrates Penguin to NGD's "mega" data centre

Hub Network Services (HNS) has migrated Penguin to NGD's South Wales mega data centre. The Cardiff-based ISP wanted to relocate its rack servers to a modern colocation facility which also offered lower costs and a more convenient location.

HNS says a critical requirement of the project was avoiding changes to the extensive IP address base managed by Penguin on behalf of its customers. During the two week transition period, the colo and network infrastructure provider's solution was to implement a VPN-based IP tunnel which securely encapsulated and routed all IP traffic simultaneously between the two sites.

Following the move to NGD, HNS says it has also provided Penguin with additional network redundancy through direct connections to its diverse IP transit network.

Penguin MD Chris Hemmings adds that with zero downtime involved and by eliminating the need for renumbering of IP addresses, HNS saved his company valuable time and avoided inconveniencing customers. ■

THE WORLD ACCORDING TO...

Alastair Waite, data centre solution architect, EMEA, CommScope

Assessing the differences between multimode and singlemode fibre

Recent predictions say there will be a 25 to 35 per cent annual growth in data traffic. This is putting data centre managers under increasing pressure to evolve to provide higher capacity across almost every type of network. To facilitate this growth, many have begun to use fibre optic cables and transceivers to such an extent that fibre is now the trend in many data centres.

With the need to provide higher capacity, the design of data centres that can deliver this at an optimal cost is also changing. One of the hot discussions to emerge from this is around the type of fibre to deploy: singlemode or multimode.

The fashionable answer may be to deploy singlemode, as used by long-haul telecoms networks. However, if multimode can also deliver high capacity with distance support, there are reasons to consider continuing with its use.

Here are a few of the issues that should be considered when weighing up the options:

Support for distances: lower cost multimode may be more attractive, but only if it can support the speeds that will be required as the network evolves.

Singlemode, on the other hand, is commonly used in data centre entrance facilities and its long-distance capabilities make it the only choice for links between the centre and MANs/WANs. In fact, many long-reach, high-speed options are only available in singlemode.

Costs: comparing these between network types involves assessing the cost of the entire link – transceivers, trunks and patch cords. While the outlay for any link is length-dependent, some have an inherently higher cost due to an increased number of fibres. Therefore, knowing the link length enables you to determine the lower-cost solution. When the average channel length is known, making an accurate comparison between link types becomes easier.

Network topology: some data centres may have more than 100,000 servers while others may have just a few. Some use a centralised placement of network equipment while others distribute networking equipment throughout the data centres. These design requirements and choices determine the number of network links and the distance those links must support.

Considering these factors will ensure a cabling solution that is easy to maintain as well as scale as you grow in line with rising data demands.

Addicted mobile workers "feel anxious" without Wi-Fi connectivity

Wi-Fi's importance to productivity is the biggest reason why mobile workers feel so lost without it, according to new research from iPass.

For its recently released *Mobile Professional Report 2017*, the global connectivity provider interviewed 1,700 mobile professionals across various age groups from Europe and North America.

Nearly two thirds revealed that they feel "anxious" when not connected to Wi-Fi. Of those, 31 per cent said it was because they would find it more difficult to work remotely.

The study showed that mobile workers use Wi-Fi and cellular data very differently. Whether due to mobile performance issues, data restrictions, or reliability, iPass says Wi-Fi is still the "dominant force" in connectivity, particularly for data-intensive tasks such as video conferencing.

Ninety per cent said that they regularly stream multimedia content over Wi-Fi, versus just 34 per cent who do so over a cellular connection. Even lower-bandwidth internet tasks such as accessing cloud services and internet browsing were roughly twice as popular over Wi-Fi.

Because of this reliance, the average mobile professional connects to eight public Wi-Fi hotspots each week, while a fifth connect to them 20 times a week or more. Half of respondents said that they wanted to be instantly connected to Wi-Fi on arrival at a hotel (50 per cent), business meeting (53 per cent), or airport (48 per cent). However, 68 per cent said they had decided against using a Wi-Fi service because the registration process was overly time consuming or frustrating

Many mobile workers said they would find it more difficult to work remotely without Wi-Fi which is preferred over cellular connectivity.

The study also confirmed that people are addicted to Wi-Fi as part of their personal lives as well as for business. In fact, iPass found that people are so dependent on their smartphones that they will break social etiquette to use them – 72 per cent of respondents admitted to checking their devices from the toilet, 11 per cent during a funeral, and seven per cent during sex. ■

O2 adds PRESENCE for micro-proximity customer analytics

O2 is aiming to gain insights into subscriber behaviour with the help of specialist wireless technology.

Following successful customer deployments and trials over the last year, it has implemented ip.access' *PRESENCE* sensors in selected enterprise customer properties across a range of market segments. The devices will be responsible for micro-proximity customer analytics across differing use-case applications in retail, banking, transport, stadia and tourism.

ip.access' PRESENCE sensors incorporate 3G, LTE, Wi-Fi, Bluetooth and GPS.

The sensors incorporate 3G, LTE, Wi-Fi, Bluetooth and GPS to enable O2 to recognise subscribers as they enter chosen customer sites. The mobile operator says all data from the sensors is anonymised to ensure it fits within the company's privacy and permissions frameworks to guarantee end-user privacy.

According to ip.access, its *PRESENCE* devices gather "rich" analytical data. It claims the data provides actionable behavioural insights for businesses that want to truly understand who visits their venues, as well as the ability to provide targeted campaigns at a level of granularity that has not been previously possible.

O2 director of digital Robert Franks says: "With rich data insight, *PRESENCE* enables us to help our customers in a variety of sectors understand what factors influence people visiting certain locations."

ip.access points out that its technology does not require any handset modifications or applications, nor does it need Bluetooth or Wi-Fi to be activated, thereby making it a "universal" solution across all handsets. ■

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KADIUM

Broadband scheme extended

The government has extended its *Better Broadband Scheme* which will now run until the end of 2018. The initiative provides a subsidy of up to £350 to those people who cannot get speeds of at least 2Mbps, enabling them to access an affordable basic broadband service. The subsidy contributes towards the installation and hardware costs to ensure that the customer's first year costs are no more than £400. The scheme was originally planned to close at the end of this year, but according to minister for digital Matt Hancock "there is still more to be done to get decent broadband to all". It's claimed that more than 10,000 homes and businesses have already benefited from the *Better Broadband Scheme* with subsidies worth more than £3m in total. ■

Huawei to supply OpenStack to Vodafone

Huawei will supply its *FusionSphere* OpenStack platform to support the Vodafone Group's global roll out of NFV and SDN. Huawei claims its "rich" set of O&M tools simplify network deployments and deliver the much needed agility in operating NFV platforms. The vendor adds that its *FusionSphere* cloud OS has standard OpenStack interfaces, community-enhanced features, and open access to third-party VNFs which make it "well suited" for telecom cloud use. Vodafone is said to be driving the adoption of NFV and SDN technologies across the group, together with the necessary operational transformation required to deliver increased agility, consistency and efficiency across all of its businesses. ■

Centiel acquires MPower UPS

Swiss-based UPS maker Centiel has acquired MPower UPS for an undisclosed sum. MPower MD Michael Brooks says the acquisition means his company now has the product range and financial strength to exclusively and proactively market Centiel's power protection solutions to a much larger target market. He adds: "The new structure also means we can target ever larger contracts and have access to ever greater resources." Brooks also pointed out that it remains "business as usual" for all existing customers. ■

Redrow Homes to boost broadband in co-funding deal with Openreach

Thousands of homes across the UK are set to see their broadband speeds increase following a new partnership between Openreach and Redrow Homes.

Under a co-funded deal worth more than £350m, Openreach and Redrow will connect 3,000 properties on existing developments in Yorkshire, West Midlands, Warwickshire, Leicestershire, Devon, Wales and West Sussex.

The first tranche of residents will have superfast broadband by next October and gain access to speeds of up to 80Mbps where previously they typically had less than 2Mbps. All the FTTP deployments are due to be completed by the end of 2018.

All future Redrow homes will benefit from full FTTP technology as standard.

While the 3,000 homes were built before FTTP was widely available free of charge to developers, Redrow says all future homes will benefit from full fibre technology as standard. Openreach adds that it has now has an agreement in place with the government and the Home Builders Federation to provide free ultrafast fibre broadband infrastructure to all new housing developments of 30 properties or more.

Furthermore, the company has teamed up with property firms across the UK to ensure new homeowners get instant access to their high-speed broadband on the day they move in.

According to a recent survey by Redrow, 98 per cent of people believe high-speed broadband is the second most important factor for social well-being in their community after GP surgeries. ■

Comtec to deliver data centre upgrade for IP House

IP House has commissioned Reigate-based Comtec Power to upgrade its data centre in London Docklands. Once completed, the 16,000ft^2 facility will meet Tier III requirements to provide users with secure, resilient, and ultra-fast colocation services.

Startup operator IP House purchased what was previously a redundant data centre next to the City of London and Canary Wharf in late 2015. It redesigned and upgraded the existing infrastructure, and essentially rebuilt the facility from the ground up with a new power room and carrier-neutral network.

The new data centre is due to open next year, and the company says it's aiming to attract high-value customers in the financial services, gaming and online gambling industries.

Comtec Power undertook much of the installation work and will deliver the data centre in two phases over the next 18 months.

The first data suite will offer 14,000ft^2 of white space with a total of 216 racks – 192 of which will be available when the facility becomes operational. Once the second stage is completed towards 2019, the centre will have a total of 512 racks.

Given the staged upgrade, IP House has opted for a modular, pay-as-you-grow approach to deploying its critical infrastructure, utilising components from Schneider Electric's *InfraStruxure* system, *NetShetler SX* racks, *Symmetra PX* UPS, plus APC switchgear, *NetBotz* environmental monitoring, and intelligent metered PDUs.

Comtec adds that the power modules and batteries in *Symmetra PX* have a smaller footprint than rival products, thus creating more room for customers' IT equipment. ■ *InfraStruxure improves efficiency at Sheffield Hallam – Real World Networks, p8.*

High demand forces Gatwick data centre expansion

Independently owned operator 4D Data Centres has completed a £500,000 expansion of its Gatwick facility following what it says was "higher than expected" demand from businesses across the South East.

Since opening in March 2017, 4D says it has sold all of its phase 1 rackspace capacity at Gatwick, and has also increased its workforce by 20 per cent in the last six months.

The company's MD Jack Bedell-Pearce says: "Due to a hugely positive response from the local business community, we've been forced to bring forward our expansion plans for the site and invest £500,000 in building out additional rackspace to keep up with demand."

4D says its phase 2 expansion, which will see a third of the overall capacity being used, will take place within the next 12 months. "We're having a significant impact on boosting the digital economy of West Sussex by being able to provide faster internet connections and secure data centre space to growing businesses in Crawley, Croydon and Brighton in particular," claims Bedell-Pearce. "Over the next year, we are planning to invest a further £1 million into infrastructure upgrades at the Gatwick site and continue to hire and train technical staff from the local area."

Opened in March 2017, 4D says it has sold all of its phase 1 rackspace capacity at its Gatwick facility.

Among its key specifications, 4D says Gatwick offers 3MW of power, 10,000ft^2 of technical space, up to 400 racks, fully diverse fibre connections, and dedicated cross-connects into the 4D cloud platform as well as other public cloud providers. ■

FIREMON

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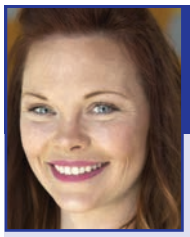

VIEW FROM THE TOP

Destiny Bertucci, 'Head Geek', SolarWinds

Network opacity and clarifying the muddy waters of hybrid IT

The benefits of hybrid IT have been well documented – agility, scalability, greater potential for ROI, cost efficiency, just to name a few. However, many IT professionals find it difficult to adopt hybrid IT.

Hybrid IT is an entirely new way of managing an IT environment, requiring IT pros to handle applications and services across on-premises and cloud deployments. Perhaps the greatest barrier to consumption is the opacity that results from hybrid IT adoption.

Insight into the network is a vital tool to identify and address any issues that occur, from downtime to latency, and to ensure the needs of end-users are met. This insight is proving harder to achieve when some services are distributed in the cloud, and thus fall under the cloud service provider's remit.

While some organisations may feel that these challenges are insurmountable, many others understand that the benefits hybrid IT represents make it worth persisting with. The key to realising these benefits is to gain single-pane-of-glass visibility across the network, which is only achievable with the right tools.

Lack of availability or downtime can be catastrophic for a business and have a real impact on end-users, which is why gaining insight into the network is so important. This is widely understood in the IT community, and yet far too many tools are implemented that offer visibility, but no real insight.

This is why professionals require a comprehensive monitoring and management tool – one that is as sophisticated as the network devices now permeating the enterprise. For those looking to address the challenges of hybrid IT and maintain clear network visibility, a single dashboard that visualises the critical functions of a network device can help resolve problems and mitigate threats faster than ever before.

IT pros should update their monitoring tool to one that can handle the complexity of modern technology and the ever-growing demands of organisations – a tool that can clarify network issues as well as the muddy waters of hybrid IT.

WND offers "network for nothing" to help boost IoT innovation

Technology startups and SMEs wishing to develop IoT proof-of-concepts (PoCs) are being offered the network access they need at zero cost.

WND UK says it will provide successful applicants with IoT gateways and ongoing network maintenance anywhere in the country. The offer also includes installation and licences for up to 100 device subscriptions.

WND UK chief exec Neal Forse says firms looking to capitalise on the IoT shouldn't be "shackled" by the expense of building and maintaining a network.

WND operates the Sigfox LPWAN in the UK, and since launching its operation here in March 2017, the company says it is already providing coverage to more than 42 per cent of the population and is on track to reach 95 per cent by 2019.

"We want to ensure that startups and SMEs have the right tools and the right technology in place to fuel their creativity," says WND UK chief executive Neal Forse. "Innovation is, all too often, crushed by concerns over financial viability and access to resources."

Once PoCs have been tested and are ready for market, small businesses will be provided with continued connectivity, and benefit from what WND claims is the UK's "most advanced", fully supported LPWAN.

The operator adds that businesses already engaged in developing devices should find adopting the Sigfox network straightforward, as RF module vendors increasingly offer hybrid solutions that incorporate multiple standards.

For example, it says device maker Murata now offers a dual-mode module that supports both LoRa and Sigfox using the same chipset, while GCT Semiconductor recently announced a highly integrated single chip that will support LTE and Sigfox wireless IoT connectivity. ■

ITPS claims world first with Azure Stack for true hybrid cloud

IT services firm ITPS is said to have deployed the world's first available *Microsoft Azure Stack* at its flagship data centre at Chester-le-Street, Durham.

Azure Stack is described as the first hybrid cloud solution acting as an extension to public cloud, giving end users a single management interface across both on-premises and *Azure* public environments.

ITPS says it now offers the only service of its kind currently on the market. It's claimed the deployment will enable the company to offer cloud functionality within its data centre, while giving users the security and regulatory requirements that only on-premises deployments can provide.

ITPS says it will focus on meeting the demands of customers who wish to use an on-premises environment for critical applications, while using a public *Azure* option for small I/O workloads and other tasks.

"A large proportion of IT managers are still reluctant to move to public cloud due to confusion over the location of their data," says ITPS operations director Paul Anderson. "With GDPR set to come in next year, this concern is growing. *Azure Stack* overcomes the problem by providing a consistent experience between public and private for a true hybrid experience. This allows us to offer a comprehensive cloud solution on a subscription basis to meet a substantial customer demand."

ITPS purchased one 12 node *Azure Stack* installed on a Lenovo *ThinkAgile SXM6200* server. The systems were manufactured at Lenovo's European factory in Hungary, allowing them to arrive onsite within a week of build completion. The installation was carried out by Lenovo Professional Services which maintained the existing layout, cabling and system integrity at ITPS' data centre. The appliances also arrived pre-configured for what was said to be a quick and easy setup. ■

GDPR: are you ready? Feature pp11-13.

ITPS is using Azure Stack on Lenovo's ThinkAgile SXM6200 server. The installation is said to represent the first time "true" hybrid production-ready cloud services have become available on the global market.

Glasgow cell network upgraded with digital DAS

Arqiva has upgraded mobile coverage and capacity in Glasgow city centre with the help of equipment maker Dali Wireless and system integrator Cellular Asset Management.

The UK communications infrastructure company replaced the network's analogue components with Dali's digital distributed antenna system (DAS) to support 2G, 3G, 4G and future 5G services.

In comparison to traditional DAS, Arqiva says Dali's digital DAS is able to provide the required performance to accommodate the ever-increasing high-capacity demands.

"Mobile connectivity is a fundamental requirement of city living, and networks are beginning to feel the capacity squeeze as demand for voice and data continues to increase," says Jon Freeman, product and technology director, Arqiva. "Network densification in high footfall areas is the only way to alleviate these issues."

The firm also claims Dali's platform is "completely scalable", meaning it can be used in all kinds of outdoor environments, as well as indoor locations such as shopping centres and multi-floor offices.

According to the company, the flexibility of the solution allows mobile operators to "effortlessly" update and expand their network in a plug-and-play approach. 2G, 3G and 4G services from multiple operators are delivered to 12 outdoor nodes from a central equipment room using CWDM technology over five optical fibre rings. The equipment is positioned in key locations in the city centre including a busy restaurant and a 300 year-old clock tower.

Based in California, Dali Wireless also has offices around the world including an R&D centre in Vancouver, Canada. The company claims its fully digital wireless signal routing solution "revolutionises" in-building and outdoor coverage and capacity by eliminating interference and maximising spectrum usage.

The company describes its patented virtual Fronthaul Interface (vFI) as an "intelligent" aggregator-router and "key enabler" of RAN virtualisation elevating networks to 5G readiness. ■

Computacenter switches Liberty to private cloud

Computacenter has migrated Liberty Global's operations onto a new private cloud environment using VMware.

Claimed to be the world's largest international cable company, Liberty Global offers quad play services across 12 European countries and a portfolio of brands including Virgin Media, Telenet and UPC.

Computacenter says the company needed to unite its operations to maximise agility but found that traditional data centre infrastructure no longer offered the flexibility it needed.

Liberty Global's new cloud environment comprises around 1,000 virtual servers and supports business-critical systems such as the company's backend TV platform and user identity solution for 25 million customers in Europe.

The company worked with Computacenter at every stage, from the design and implementation of the container-based platform to network configuration. It's claimed Liberty can now launch new services immediately, and is no longer restricted by 12-month development cycles.

All new services will be hosted within the private cloud environment, with hybrid cloud capabilities to be introduced in the future. Additionally, the new platform allows Liberty to centralise its mixed product sets across 12 individual operating companies into a single offering.

"The benefits of having a private cloud is we get to increase the capacity much easier than ever before," says Colin Miles, European VP of data centre technology, Liberty Global. "Working with a flexible capacity model, we're able to reduce the footprint inside the data centre through having composable architectures." ■

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Taking congestion out of education

How to deal with the data deluge on networks at universities and schools.

Improving IT efficiency at Sheffield Hallam

With a pedigree dating back to the early 19th century, Sheffield Hallam University has more than 31,000 students and more than 4,500 staff. It is situated on two campuses comprising 12 major buildings in the city centre, including the Sheffield Institute of Education at Charles Street which was re-developed at a cost of £30m in 2014-15.

The university's IT department operates two data centres that run as an active-active pair in which each location provides primary IT services as well as offering failover support to the other.

As one of the existing data centres was located in a building where the lease was due to expire, the IT department took the opportunity to move the facility into the Charles Street development and upgrade its capabilities to improve efficiency and availability.

West Yorkshire-based data centre specialist Advanced Power Technology (APT) won the tender to provide and install the cooling and power infrastructure equipment and the DCIM software necessary to manage it efficiently.

Thanks to virtualisation, the number of physical servers the university needed to maintain services had dropped from 60 in the older data centre to 15 in the new Charles Street facility. What would have run in three racks before can now run on one chassis.

APT's installation is based on Schneider Electric's *InfraStruxure* integrated data centre physical infrastructure solution for power, cooling and racking. The new Charles Street data centre has IT equipment racks installed within two *InfraStruxure* hot aisle containment systems (HACS). Two 300kW free-cooling units supply chilled water to the HACS and within the equipment racks, while APC *InRow* cooling units aim to maintain optimum operating temperatures. The HACS segregate the cool air supply from the hot exhaust air, preventing both streams from mixing and enabling more precise control of the cooling according to the IT load's requirement.

At the same time, Schneider Electric says locating the *InRow* cooling units next to the servers and storage equipment also reduces the cooling energy requirement by eliminating the need to move large volumes of air in a suspended floor space.

The vendor's *StruxureWare* DCIM software has also been adopted, and it's claimed this is crucial to maintaining efficient operation. The new management capabilities presented by the software gives the IT team the flexibility to monitor the IT infrastructure for maximum efficiency, and to manage how services are made available to students and staff.

The university says it can also now tender for research contracts that it was previously unable to bid for.

Woldingham School gets data backup sorted

Set within a 700-acre estate in the Surrey Hills, Woldingham School is a Catholic boarding and day school for girls aged 11 to 18, and was founded in 1842 by the Society of the Sacred Heart.

Its 200-acre main site is comprised of a mix of traditional and modern buildings for teaching, accommodation for more than 350 pupils, and more than 50 houses and flats for teaching and support staff. An IT team of four manage a complex network with high demand to support the teaching and learning, the school's business elements, and the social use of ICT.

One of the issues Woldingham faced was to ensure that all data stored across the network was backed up and easily available should anything go wrong. It was utilising a hybrid solution to backup both physical and virtual servers which meant that once the data had been backed up to a storage array, a copy of that data would then be transferred to tape.

But the significant increase in student and staff data challenged the scalability of this solution. The school also found that because it was using separate providers for the virtual and physical backup, there was no single point of contact for support. This was growing into an increasing problem as the backup system was creating issues on a daily basis.

Having looked at a number of solutions, the IT team were shown a demo of the *Redstor Backup for Schools Service* (*RBUSS*) and found it satisfied all their requirements. The solution was rolled out in August 2015, and it's claimed the implementation was smooth with no downtime due to the school overlapping their old backup system with *RBUSS*.

Woldingham is now successfully backing up more than 4TB of student and staff data and Redstor says *RBUSS* addresses the challenge of coping with data growth as it can scale without any additional hardware or software requirements.

The company adds that the system guarantees security by ensuring data are encrypted at source, in transit and at rest in its data centres using either 128-bit AES, 256-bit AES or 448-bit Blowfish security. It says the system is also ISO 27001 and ISO 9001 certified which allows organisations to comply with the legislation and guidelines outlined by Ofsted, the Data Protection Act and the Information Commissioner's Office.

Manchester Metropolitan conquers IP demand

Manchester Metropolitan University (MMU) is said to be the fifth largest and second most applied-to in the UK. It has around 37,000 students and 4,000 staff members including 40 in the IT infrastructure department.

Like most universities, MMU has been challenged by the number of internet-connected devices students bring to the campus each day, expanding the amount of IP addresses under management.

To successfully deal with 600 switches that handle more than 10,000 IP addresses and carry out the day-to-day operations, the university had been using a DNS, DHCP and IPAM (DDI) solution from Infoblox. As this approached end-of-support, MMU decided to start a tender process and investigate other DDI solutions that were available.

While the easiest option from a technical perspective would have been to continue with a straight upgrade from Infoblox, MMU's IT team evaluated other vendors including EfficientIP which came in with a DDI solution that was said to be three times cheaper and more feature-rich.

The solution purchased consisted of four EfficientIP *SOLIDserver 1100* appliances for IPAM and internal DHCP and DNS, plus two *550* appliances for external DNS. The architecture required by the university also included two software features: *NetChange-IPL* and *MVSM* (*Multi-Vendor Service Management*) license.

MMU network engineer Justin Michell says it took three months to get the new system up and running, and that the deployment was "99 per cent smooth" given the scale of the project.

"The only issue we had during the whole upgrade occurred when we were changing the public DNS records. With JANET, the glue record was not put in so after an hour of services migrated across, we started disappearing from the internet. However, the EfficientIP's engineers spotted it quickly and everything came back as it should."

In addition to meeting the same functional requirements as the previous solution, Michell says efficiency and productivity are the two key benefits he has noticed with the new system. "The *NetChange* module which queries network switches and pulls information on what devices are connected to particular interfaces has made a big difference, especially for our campus deans. They can respond much quicker to an issue."

He adds that the new platform's visibility and search capabilities means his team can gain a lot of network information.

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by Mark Waters

It is misguided to assume that just because a UPS is running; it is fully operational, fit for purpose and legal. While a power failure may only occur for minutes, recovery can take weeks, if not months (and be expensive).

UPS testing is riddled with complexities and dangerous, but what is involved? A maintenance contract provides 24/7 emergency technical support, plus monthly, bi-annually and annual testing including:

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The risks of cyberattacks, ransomware, and industrial espionage is on the rise, while at the same time EU regulations for the protection of personal data will reach a new level with GDPR (General Data Protection Regulation) entering into force as from May 2018. Organisations and companies need to have reliable and secure storage in place in order to protect their sensitive information as well as the personal data of their customers.

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Are you ready for it?

With the General Data Protection Regulation coming into force in the UK in just five months time, RAHIEL NASIR finds out what companies need to do in order to comply.

After being ratified by the EU in 2016, the General Data Protection Regulation (GDPR) will go live on 25 May 2018. Among the new rules, organisations will need to implement "privacy by design" and actively demonstrate that the way they collect, use, transfer and store EU customer and client data complies with the new regulation. Any transgressors risk hefty fines. For instance, the Information Commissioner's Office (ICO) says failing to notify a breach when required to do so could cost companies up to €10 million or two per cent of their global turnover.

By the way, if you were hoping that Brexit would scupper the UK's GDPR implementation, sorry: speaking to a select committee in October 2016, DCMS secretary Karen Bradley said: "We will be members of the EU in 2018, and therefore it would be expected and quite normal for us to opt into the GDPR, and then look later at how best we might be able to help British business with data protection while maintaining high levels of protection for members of the public."

So what do organisations need to do in order to comply? And what should they have done by now?

The ICO offers plenty of advice here, including a *12 steps to GDPR checklist* (*see p12*). It says many of the new regulation's main concepts and principles are much the same as those in the UK's current Data Protection Act (DPA). If organisations are adhering to this, then most of their approach to GDPR compliance will remain valid and can be the starting point to build from.

But the commissioner's office goes on to point out that the GDPR introduces some new elements and significant enhancements, so organisations will have to do some things for the first time and some things differently. It states: "The GDPR places greater emphasis on the documentation that data controllers must keep to demonstrate their accountability. Compliance will require organisations to review their approach to governance and how they manage data protection as a corporate issue. One aspect of this might be to review the contracts and other arrangements you have in place when sharing data with other organisations."

The GDPR is a subject that has had the industry experts queuing up to share their knowledge (we were inundated with comments and unfortunately lack the space here to include everybody's contributions).

For instance, Linus Chang, CEO and founder of cloud security specialist Scram Software, says: "Companies should have already taken an inventory of what data they collect, and identified and classified this data. They should have tracked the lifecycle of each piece of data, from the time it's collected to the time it gets destroyed, forgotten or anonymised.

"It's important to also make note of not only primary copies of data but also secondary copies (backups and archives) and all the obscure places it can end up (such as logs, photocopier memory and cloud-to-cloud replication)."

Luke Brown, EMEA VP of data encryption specialist WinMagic, agrees that by now companies should have already assessed what, where and how EU resident personal data is stored, processed and transferred, both inside and outside of the organisation. "This should cover every department, and they should understand that personal data includes 'any information relating to an identified or identifiable natural person'."

Brown says in reality this means names, passwords, ID numbers, location data, online identifiers and any data relating to physical, physiological, genetic, mental, economic, cultural or social identity. He continues by saying that by now businesses should also have evaluated all consent forms and processes to ensure that it is both 'voluntary' and 'explicit' with regard to the scope and consequences of data processing. "They must obtain or empower 'a statement or a clear affirmative action', and ensure that consent can be withdrawn as easily as it is given. Withdrawal of consent is an area where many companies can fail."

Citing a survey of 500 IT decision-makers in the UK, France, Germany and the US that WinMagic conducted earlier this year, Brown says UK firms are struggling to get ready for the new rules in key areas such as the management of personally identifiable information and data breaches. "For example, only 40 per cent of companies check on every occasion whether a customer has given permission for records to move between data processors, and only 21 per cent claim to have processes that allow them to remove data without delay from live systems and backups as required under articles 16 and 17 of GDPR."

Another area where many could struggle is if they suffer a data breach and then have to collect the relevant intelligence by a deadline set by the regulation. "One significant change that the GDPR introduces is that of notification," says Ian Goslin, MD, Airbus CyberSecurity UK. "It dictates that as soon as an organisation becomes aware that an incident has occurred and that personal information has been affected, the data controller must notify the relevant supervisory authority (which in the UK is the ICO) without 'undue delay' and within 72 hours. The challenge for many in complying with this requirement is the amount of information that must be supplied, and being able to collate this within the specified timeframe."

"Data sprawl and complex IT environments are one of the biggest challenges for IT departments when it comes to staying GDPR compliant."
Luke Brown, VP, EMEA, WinMagic

WinMagic's survey corroborates this. It revealed that only 27 per cent of UK firms are "completely confident" that they could precisely identify the data that had been exposed in a breach. Furthermore, only 37 per cent said they were completely confident of being able to report breaches within 72 hours of discovery to the authorities.

There have so far been several references to the "data controller". Adam Brown, manager of security solutions at software firm Synopsys, explains that companies should acknowledge their role as either a 'data controller' or a 'data processor' (or more usually both). "Controllers own the GDPR responsibilities while processors must maintain technical controls to secure data. Processors must maintain technical and organisational measures to ensure that data processing is GDPR compliant."

12 steps to GDPR

The Information Commissioner's Office (ICO) has issued detailed guidance about the regulation and how to prepare for it, including the following 12 steps that organisations need to take now.

1. Awareness
You should start thinking now about whether you need to put systems in place to verify individuals' ages and to obtain parental or guardian consent for any data processing activity.

2. Information you hold
You should document what personal data you hold, where it came from and who you share it with. You may need to organise an information audit.

3. Communicating privacy information
You should review your current privacy notices and put a plan in place for making any necessary changes in time for GDPR implementation.

4. Individuals' rights
You should check your procedures to ensure they cover all the rights individuals have, including how you would delete personal data or provide data electronically and in a commonly used format.

5. Subject access requests
You should update your procedures and plan how you will handle requests within the new timescales and provide any additional information.

6. Lawfully processing personal data
You should identify the lawful basis for your processing activity in the GDPR, document it and update your privacy notice to explain it.

7. Consent
Review how you seek, record and manage consent and whether you need to make any changes. Refresh existing consents now if they don't meet the GDPR standard.

8. Children
You should start thinking now about whether you need to put systems in place to verify individuals' ages and to obtain parental or guardian consent for any data processing activity.

9. Data breaches
You should make sure you have the right procedures in place to detect, report and investigate a personal data breach.

10. Data protection by design and impact assessments
You should familiarise yourself now with the ICO's code of practice on Privacy Impact Assessments as well as the latest guidance from the Article 29 Working Party, and work out how and when to implement them in your organisation.

11. Data protection officers
You should designate someone to take responsibility for data protection compliance and assess where this role will sit within your organisation's structure and governance arrangements. You should consider whether you are required to formally designate a data protection officer.

12. International
If your organisation operates in more than one EU member state (i.e. you carry out cross-border processing), you should determine your lead data protection supervisory authority. Article 29 Working Party guidelines will help you do this.

ico.org.uk

When it comes to implementing those measures, organisations need to take into account the risk presented to individuals if the security of that data was breached. Here, the GDPR says you should consider implementing the "pseudonymisation" and encryption of personal data as appropriate. Jes Breslaw, EMEA director of strategy at data platform provider Delphix, says: "While the law stops short of telling businesses they *must* implement pseudonymisation, the express reference to it in the security provisions of the GDPR is highly significant, as regulators will take its implementation into consideration when considering compliance."

Breslaw explains that pseudonymisation uses data masking tools to replace fields with dummy alternatives. "The data itself is not changed but its pseudonymised format ensures that if information is lost or stolen, it won't leave a business exposed to GDPR sanctions as masked data contains no identifiable personal information."

He continues by saying it's important to note that encryption alone does not satisfy GDPR requirements. "Encryption is certainly valuable for data that is in transit. However, in order to make encrypted data useful, it must be decrypted. This exposes the sensitive data once again so that anyone can access it. Businesses should therefore seriously consider pseudonymisation in their GDPR compliance preparations."

Synopsys' Brown is likely to agree here. He says while the GDPR requires the implementation of processes, policy and activities where technology solutions can help, there is no "magic fairy crypto dust" here. In fact, he believes encryption will only solve a very small part of high risk data requirements, and that a privacy dashboard would more likely be the way to go.

More time needed?

Since 2016, organisations have had two years to ensure that all their compliance procedures are in place by May 2018. Given all the apparent complexity surrounding the new rules, has this been enough time to prepare?

"A lot of organisations are only starting to think about this now," says Damian Kinney, head of security, BT Security. "If they had started two years ago, they would have been in a much better place regarding their journey towards compliance. Some are literally waiting to see what happens. In the case of major corporations with complex data, achieving compliance within the space of two years is a massive challenge."

WinMagic's Brown says in theory two years should have been sufficient, but in reality firms may have focused on what they believe are more pressing projects and IT deadlines. Plus, he points out that the regulation is not just about IT: "Preparation requires a review of how personal data is used and managed across the organisation, not just how it is stored and protected.

Josh Mayfield, product marketing director at firewall management software provider FireMon, supports this view when he says management should embrace GDPR compliance as a strategic initiative and enlist the support and participation of all key stakeholders in the organisation, not just IT. He adds that education is "essential" for all departments to understand what the GDPR is and how it will impact the way the company conducts business.

For cloud security specialist Netskope, there are four key stages to help achieve compliance. In line with pretty much everyone we spoke to, Andy Aplin, the company's sales engineering manager, says organisations should begin by first conducting a full audit in order to understand the types of data present, where it resides, where and how it travels, and how it's protected. This will present a clearer picture of data and enable organisations to then move to the second stage of rationalisation. This provides the opportunity to put data protection agreements in place with all cloud services in use. Aplin says the organisation can then proceed to the next phase.

"The third stage of is the enforcement of agreements and decisions made by organisations over their data. This connects the planning elements of data protection regulations and the IT departments who have a duty to ensure compliance is taken seriously in their organisations.

"The final stage is the monitoring and reporting of policy enforced by organisations in order to maintain consistent compliance over time."

But even with suitable preparation and planning in place, Aplin believes two years could still be considered a short time for most organisations when you consider the deluge of data they must discover, understand, categorise and secure.

Others are not so sure. "The GDPR builds on existing standards adding aspects of privacy relating to the rights of EU subjects," says Synopsys' Brown. "For example, companies that already ran Privacy Impact Assessments or those that have already created data inventories should already be in pretty good shape. So two years should be plenty for all but the most disorganised."

Brian Chappell, senior director for enterprise and solution architecture at identity and risk management firm BeyondTrust, points out that the GDPR was no secret before it was accepted into EU law and firms have therefore had longer than two years to work towards compliance.

He adds: "GDPR is all about protecting that personal information that organisations collect from individuals. Does anyone think that shouldn't be something that's done anyway (outside the criminal fraternity, of course)? Best security practice should be how we treat that personal data; it's how most of us expect other organisations to treat our data and yes, we should be doing that anyway. In an ideal world, GDPR would be a formality."

Tech support

Rajesh Patel, B2B sales manager UK and Ireland for storage hardware maker Buffalo EU, adds his voice to the argument when he says any organisation that is already adhering to the DPA should be able to comply with the GDPR. And while compliance may seem complicated, Patel says there are IT solutions that can help, such as storage technology that can save and backup data in a secure way.

In a recent white paper, Buffalo says if companies plan to store data in-house, they will be regarded as both the data controller and data processor. To ensure compliance, the vendor says the following features should be incorporated into in-house storage devices: all files and/or folders that contain personal data should be password protected; data at rest or on the move should always be encrypted; devices that store personal data should have physical protection such as locks or keys; all devices should have anti-virus software and firewall protection; backups should be automated and carried out on a daily basis.

The vendor also highlights several other additional measures that it considers to be equally important. These include an in-house storage device that provides RAID redundancy, protects against hard drive failures, and avoids system downtime and data loss. Furthermore, Buffalo says centralised storage should be preferred over local storage on PCs, laptops or external/portable hard drives. As well as being more prone to theft and unauthorised access, it says local devices are "extremely difficult" to control in terms of who has access to them and the data they contain.

Here, Scram Software's Chang says client-side encryption will provide protection against many forms of data breach when unauthorised people gain access to storage devices or accounts (such as cloud storage). He adds backup and disaster recovery solutions protect against hardware failures, theft and natural disasters, while data loss prevention (DLP) systems can protect against data exfiltration.

However, Oliver Pinson-Roxburgh, EMEA director with security, cloud and compliance company Alert Logic, may not agree with this latter point. Firstly, he says organisations will need to sift through and deal with the data sprawl by initially removing what they don't need. For what's left, they need to identify the legal right to collect. "Then ensure you know where your data is. It is not a trivial problem, and many that I have spoken to are still looking for, or investing in, tools to help find this out."

Here, Pinson-Roxburgh says carrying out the initial detection of where the data sources are has, for many years, been driven by DLP solutions. But he believes these are not easy to get working well without being presented by false positives. "Getting the right tools is one challenge, the next is making them work correctly without adding to workloads and swamping teams. For notifications, it's about getting the right data to ensure you can detect a breach. However, it's more important to get the right people with the skills to detect the threat and reduce the wasted investigation of events that are not real threats."

Like Alert Logic, IT solutions distributor DataSolutions talks about data sprawl. Francis O'Haire, the company's director of technology and strategy, says the amount of data that organisations store is growing exponentially and can exist in many locations: data centres, branch offices, mobile devices, across multiple cloud providers, etc. Furthermore, in any of these locations, personal data could be spread across files, databases, emails and backups, and is also likely to be duplicated. He recommends systems such as Commvault's data protection and information management solution which can help simplify compliance by initially discovering personal information within the sprawl, and then allowing controls to be put in place to maintain and prove compliance.

Delphix reckons DataOps is another approach that could help here. Breslaw says this focuses on aligning people, process and technology to enable the rapid, automated and secure management of data. Its goal is to eliminate 'data friction' – the functional gap between the huge volumes and copies of information that we generate and our ability to use it securely and effectively.

"DataOps can create a comprehensive library of data sources that enables users to pinpoint the exact location of sensitive data across the entire IT estate, whether on-premise or in the cloud," says Breslaw. "What's more, with the right tools, organisations can identify which data values are subject to GDPR, and adapt these to the business' unique definitions of what is considered personal, confidential information."

O'Haire says while traditional security products such as anti-virus and firewalls can help protect personal data from loss or theft,

ensuring that all sensitive data never leaves the data centre in the first place makes the job much easier. He adds that using virtualisation can also help when keeping the data safely in the data centre where all access can be audited and controlled. "Should data need to be held or processed offline on mobile devices, [virtualisation] can also ensure it is protected in an encrypted and secure container."

WinMagic's Brown points out that it is important to realise adherence is as much about process as technology: "Take encryption as an example. Critically, personally identifiable information must be encrypted in all locations and only sent where permitted, as defined by the legislation and rights of the individual. Solutions can manage encryption across on-premise servers, devices and cloud service providers, but they will only encrypt what they are told to."

Several commentators cite the need for automation here. For example, Airbus' Goslin says: "Regardless of numbers or level of efficiency, security teams simply can't have eyes on everything all of the time. Whether it's monitoring the perimeter or a lack of cyber security resources that impedes performance, automation is necessary."

He goes on to say technology should be utilised to monitor networks for signs of anomalous behaviour and sound an alert, and then echoes Pinson-Roxburgh's earlier point when he says: "However, this will need to be combined with humans who then investigate false positives or if there is an attack in progress. To be truly effective, this activity needs involvement from of all business lines, including top management."

That then introduces the crucial human factor into the equation. "Technology can support GDPR compliance but it will not guarantee it," says BT's Kinney. "This is about changing behaviours; it's about understanding the data you have, why you have it, who it's shared with, and how it's protected. Certainly there are products out there to support GDPR. But they need to be introduced with care and with a clear objective regarding the outcome and benefit of their use."

Beyond May 2018

Of course, no one is going to wake up on 26 May next year and breathe a sigh of relief after two years of compliance work and think 'job done'. Corporate teams will continue to have plenty to do in order to ensure their organisations remain compliant going forward. For example, everyone agrees that the world's data mountains can only get bigger which means documenting it all will be a never-ending task.

WinMagic's Brown says: "Data sprawl and complex IT environments are one of the biggest challenges when it comes to staying GDPR compliant. It's a growing problem and the risks are greater than ever. Every time a device is added to the network, a cloud service used, a new virtual machine created, or data extracted for analysis, data creeps and spreads to new locations. Within that data could be personally identifiable information which, over time, you can easily lose visibility and control of."

At the end of the day though, none of this should send organisations scrambling to the panic room. As the ICO states, some of the misinformation and "outright scaremongering" out there seems to be commercially driven. It fails to take into account that the GDPR is an "evolution" in data protection, not a "revolution", and is building on foundations that have already been in place for the last 20 years.

Of course, the ICO acknowledges that any regulation has some sort of impact on an organisation's resources and says that is unavoidable with any new legislation. But it warns that thinking about compliance in terms of a "burden" indicates the wrong mindset to preparing for the GDPR.

Few are likely to disagree here as many commentators believe the new rules are a step in the right direction. "Implementing GDPR compliance will force IT to examine the lifecycle of data and the security risks, and implement tighter measures," says Scram Software's Chang. "This is better for citizens, customers and for the companies themselves. As the old adage goes, prevention is better than cure."

Delphix's Breslaw adds to this by saying data protection is no longer a 'nice to have' but a question of principles. Indeed, he goes further and says the protection of data should be seen as a human right: "Companies are custodians of a customer's data – they don't own it, the customer does, and it needs to be cared for appropriately. It is therefore in the interest of all businesses to be seen as taking data protection and data security seriously."

And finally, as BeyondTrust's Chappell concludes, you should make sure that you don't concentrate on the technical solution and lose sight of the process changes that are required: "GDPR, like any good security practice, has people, process and technology inseparably intertwined. Lack of focus on any of them will leave you exposed." ■

"Companies are custodians of a customer's data – they don't own it, the customer does, and it needs to be cared for appropriately."

Jes Breslaw, Director of strategy, EMEA, Delphix

off-the-shelf: testing

Putting it to the test

Some of the latest gear to help you carry out your network installations and ensure they pass with flying colours.

Billed as an "affordably priced" entry-level copper certifier, **Fluke Networks**' *DSX-600* is designed to provide Category 6A and Class EA copper certification.

According to the company, the new device "streamlines every aspect" of the certification job – from setup, to testing and troubleshooting, to reporting results to the customer.

Fluke claims the *DSX-600* can perform Cat 6 and Class E certification tests in nine seconds, and handles Cat 6A tests and Class EA in just ten. It adds that the unit's extended battery life means it can perform eight hours of tests on a single charge.

Furthermore, Fluke says the tester features its *ProjX* system. It says this helps the *DSX-600* manage job requirements and progress from setup to systems acceptance, making sure the test process is "foolproof" and that all assessments are completed right the first time. Should a link fail, built-in troubleshooting analytics provide tools to help users identify the location of the failure.

Test sets are available in two versions: a base model that includes channel adapters; and a Pro device which adds permanent link adapters. Both feature touchscreens.

The device is compatible with Fluke's *LinkWare Live* cloud-based service which means contractors can manage certification jobs and testers from any smart device over Wi-Fi at any time. The *DSX-600* also works with *LinkWare PC*, enabling users to quickly and easily create customer PDF reports.

Netscout Systems has added new features to its *AirCheck G2* which is designed to address performance problems on wireless networks.

The latest version of the handheld tester now offers the ability to quickly and easily verify Wi-Fi throughput and performance, and detect non-802.11 interferers on the network. Netscout says it enables wireless network professionals to determine how various impairments may impact the end-user experience.

Using what the vendor describes as an "easy to deploy" test accessory as a performance endpoint, network performance degradations can be identified, pinpointing the Wi-Fi access, LAN or even WAN connections.

Netscout adds that the *AirCheck G2* also provides increased efficiencies with captive portal support, allowing easy testing of guest Wi-Fi networks.

Other features for the rugged wireless tester include support for all the latest Wi-Fi technologies (802.11a/b/g/n/ac); a one-button AutoTest which quickly provides a pass/fail indication of the wireless environment and identifies common problems; and an instant view of test results including network availability, connectivity, utilisation, throughput, security settings, rogue hunting, and interference detection.

Netscout says the device can also be connected to its centralised test results management platform, *LinkLive*. It reckons this facilitates greater job visibility, project control and fleet management for larger distributed environments.

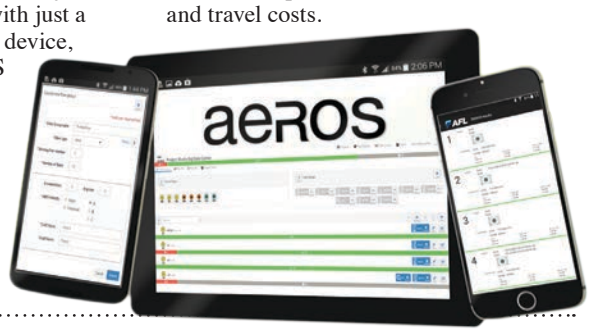
Fujikura Europe's *Rogue* is a modular test platform that enables network operators to pick and choose the functionality they need.

The system uses patent pending architecture from Fujikura sister company AFL that enables technicians to control the test hardware directly using any *Android* smart device. By pairing *Rogue* modules with apps running on such a device, users can create the test capability required for a specific job.

According to Fujikura, with just a push of a button on a smart device, *Rogue*'s Dual Engine OLTS solutions test two fibres in both directions on two wavelengths. The company claims this enables users in the field to certify and test networks two to three times faster than traditional approaches.

Rogue works in tandem with Fujikura's *aeRos*, an overarching cloud-based management system that allows customers to direct all testing activities from the central office.

The company says *aeRos* (*pictured*) unifies the *Rogue* solution by enabling managers to build test programmes and configurations, push them to technicians in the field, and address challenges as they arise. It reckons this "dramatically" reduces setup time, mistakes in the field, and travel costs.



CERTiFi is a cloud-based system from **Viavi Solutions** and is designed to enable cabling contractors to manage test and certification projects across increasingly distributed workforces with complex specifications.

Powered by the company's *StrataSync* cloud management platform for network service providers, *CERTiFi* is said to deliver a solution proven in large carrier networks that has been adapted for enterprise contractors.

It's claimed the system enhances overall project workflows by syncing test and certification instruments (such as Viavi's *Certifier40G* and *SmartClass Fibre OLTS-85P*) and managing them via a centralised cloud-based platform.

From there, the company says administrators can then create and distribute project designs, assign projects to team members, pre-load test instruments with tasks and required test criteria, and assimilate, analyse and share test results in real time.

It adds that with CERTiFi, team members establish alignment at every stage of their projects – from creating design requirements and assigning tasks, to performing tests and analysing project metrics, which can significantly reduce the time, cost and errors associated with offline communications.

According to Viavi, a major benefit and differentiator of its system is the "breadth" of options for user interfaces. These can be web-based, via a mobile app (*iOS* and *Android*), or on-instrument UI. The firm says these interfaces are part of its workflow design to maximise efficiency.

It says management responsibilities such as gathering results from instruments and sending them back to the main office or preparing tasks for the next day typically end up happening out of hours, when everyone else has clocked out. With the *CERTiFi* app, Viavi reckons field managers now have everything they need right on their mobile, so they can manage their crew and maintain communication with the office.

Ideal Networks has released free software updates for its *LanTEK III* cable certifier.

Following updates in October, the company claims that a "greater variety of tests than ever before" are now possible with the *LanTEK III*, giving installers maximum flexibility with the same handheld device.

For example, it says the unit can now be used for alien crosstalk testing, allowing a bundle of Cat6 or Cat6A unshielded cables to be tested for data interference between them. Some specifiers or network designers require this test for certification but this is usually difficult and time consuming to conduct, according to Ideal. The company claims the new *LanTEK III* software ensures that these tests can be done four times faster than other certifiers while meeting the requirements of TIA 568.2/ISO 11801-1 standards.

The software updates have also improved the quality of graph resolutions on the certifier's display.

Ideal says this updated functionality provides greater on-screen detail when testing cables up to Cat6A/Class EA.

Furthermore, and in response to customer feedback, Ideal says a number of additional cables have been added to the device's manufacturer database, including copper and fibre cables from Draka and R&M, and Belden 4K UHD cables. The firm says this allows users to select the specific manufacturer's cable providing extra detail in customer reports, and removes the need to spend time setting the cable details manually in the certifier.

Other enhancements include support for the latest version of the Chinese GB50312-2016 copper and fibre test standard, and general bug fixes.

Yokogawa's compact and lightweight 1G/10G Ethernet network field test unit, the *AQ1300*, now features ITU-T Y.1564 compliant test functionality.

ITU-T Y.1564 mandates that standard tests like throughput, frame loss, latency and packet jitter are executed simultaneously, with multiple services running at the same time. This allows the measurement of the influence between services, which can affect the network's ability to maintain SLA conformance, as well as reducing the time taken to test an Ethernet service.

Two different kinds of test are available using the *AQ1300* series with ITU-T Y.1564 functionality: a configuration test mode for examining the speed and burst size per contracted service; and performance test mode for measuring guaranteed bandwidth of multiple services.

In configuration mode, Yokogawa says the *AQ1300* performs either a 'ramp test', whereby the device outputs a gradually increasing volume of signals and measures the guaranteed rate and the securing rate; or a 'burst size' test in which it outputs frame signals at regular intervals and measures the burst bandwidth guaranteed size and the burst bandwidth securing size.

The *AQ1300* provides pass/fail judgement according to specified thresholds of the information rate, frame loss, frame transfer delay, and frame delay variation.

In performance test mode, the unit transmits frames within the committed information rate of selected services at the same time to confirm whether all traffic is sent without being discarded. The test can evaluate the traffic quality for the same period for up to eight services.

Yokogawa says the addition of ITU-T Y.1564 functionality to the *AQ1300* complements the unit's existing RFC2544 compatible network performance tests.

Budget boost for technology education

Among some of the new measures to boost technology education announced in last month's budget, chancellor Philip Hammond said the government planned to establish the world's first national advisory body for AI.

Citing estimates in PwC's *The economic impacts of artificial intelligence on the UK economy* study published in June, the government said AI could increase GDP by 10 per cent and benefit UK households by up to £2,300 per year by 2030.

The Centre for Data Ethics and Innovation will work with government, regulators and industry to lay the foundations for AI adoption, and set standards for the use and ethics of the technology and data. The government will invest more than £75m to take forward key recommendations of the independent review on AI, including exploratory work to facilitate data access through 'data trusts'.

In other initiatives, the government will invest £21m over the next four years to expand Tech City UK's reach to become 'Tech Nation'. This will support regional tech companies and startups, and roll out a dedicated sector programme for specialist innovations such as AI and fintech. Regional hubs will be located in Cambridge, Bristol and Bath, Manchester, Newcastle, Leeds and Sheffield, Reading, Birmingham, Edinburgh and Glasgow, Belfast and Cardiff.

The chancellor also promised that the number of fully qualified computer science teachers will increase from 4,000 to 12,000. He said the budget will ensure that every secondary school has a fully qualified computer science GCSE teacher by committing £84m to upskill 8,000 computer science teachers by the end of this Parliament. The government will also work with industry to set up a new National Centre for Computing to produce training material and support schools.

Cloud specialists to launch new analytics academy

AWS, Looker, Snowflake, Talend and WhereScape have teamed up to launch the Cloud Analytics Academy, a training programme for those who want to advance their skills in data analytics.

The academy provides online training courses for technical experts, enterprise leaders, analysts and business intelligence professionals from all levels or backgrounds.

There are three courses currently available: the *Executive Fast Track* where candidates learn the key technologies and techniques to foster an effective cloud analytics team; the *Cloud Foundation Track* which teaches participants how to become proficient with the fundamental building blocks of cloud analytics; and the *Modern Data Analytics Track* which provides advanced technical concepts.

Each track includes four to five 20-minute courses and takes around one to two hours to complete. Students simply watch each course and then take the corresponding quiz. Those who successfully complete a track will receive a Cloud Analytics Academy certificate, while anyone who completes all three will achieve *Academy Master* accreditation.

New courses and certifications are expected to be added in the coming months.

As well as featuring experts from the founding companies, the curriculum also includes specialists from Duo Security, Age of Learning, Sharethrough and YellowHammer. Acclaimed author and professor Tom Davenport will present the opening keynote on the growth and current landscape of cloud analytics.

Kent Graziano, Snowflake's chief technical "evangelist" and Cloud Analytics Academy curriculum designer, says: "The [academy] is the perfect environment for high achievers to sharpen their skills, expand their knowledge and become go-to experts in building data solutions for the cloud." *www.cloudanalyticsacademy.com*

IN BRIEF...

■ Excel Networking Solutions will be hosting a series of *Consultant Briefings* across the country in February 2018. The agenda will include presentations on industry standards and regulations (including the latest updates to CPR), the Excel's *Enbeam* fibre range, and how the company can support their consultants. The events will be held across the UK, covering London, Birmingham, St. Neots and Scotland. Further details will be announced nearer the time, but those who want to register to secure their place should visit *www.excel-networking.com*

■ Nexans has released four new structured cabling tender books for *Enterprise*, *Data Centres*, *Fibre To The Office* and *Harsh Environments*. They're aimed at helping designers in their response to project requests, and feature the most recent products and accessories, generic descriptions, images, and tables. Each book consists of a single file containing all possible versions. All chapters and sub-chapters are formatted using the multi-level list feature of *MS Word*. To quickly create a tender book, users can simply delete the unrequired chapters using *Word*'s 'outline view' mode. *https://tinyurl.com/y8csppen*

■ Daisy Group has launched a Digital Apprentice Programme to give those who are interested in IT and technology an opportunity to start a new career with the firm. Roles include network engineer, project manager, service analyst, IT apprentice and HR apprentice. Roles open to external applicants will be advertised on the National Apprenticeship Register.

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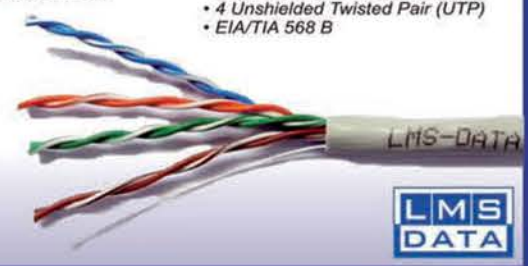

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SW80010-D	Dynamode 8 Port SOHO 10/100 Switch N-Way Desktop	£5.00
SW160010-R	Dynamode 16 Port 10/100 Switch N-Way Rackmount	£20.15
SW240010-RV	Dynamode 24 Port 10/100 Switch N-Way Rackmount	£23.00
Product Code	**GIGA Switches**	**Price**
SWG50010-D	5 Port Gigabit Switch - Desktop	£11.50
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