

networking

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Cyber security continues to weaken in UK organisations

by Rahiel Nasir

More than a third of UK universities are hit by a cyber attack every hour, according to new research. This shock finding comes at a time when other independent studies have revealed increasingly lax IT security practices among organisations that are opening the door to cyber criminals.

In a recent survey carried out independently, VMware questioned 75 IT decision makers, including CIOs and CISOs, at around 50 universities across the country. Respondents revealed that some of the greatest threats posed by cyber attacks to the data held by their organisation come internally, with 63 per cent identifying domestic students as a risk.

As well as highlighting a growing level of cyber security threats facing the HE market, the study also looked at the kind of

data that is most vulnerable to cyber attacks. A quarter admitted to having critical intellectual property (IP) data infiltrated. This relates to highly confidential and valuable data including national defence, social, economic and medical research. Forty-three per cent confirmed they have had student IP infiltrated, including dissertation materials and exam results.

In response to these rising incidents, 85 per cent of universities agreed that more funding must be given to IT security to protect critical research IP. More than a quarter said that the security of their private on-premise data centre – in which a lot of their critical data sits – is “inadequate” and in urgent need of being updated.

VMware says many universities face falling behind in terms of IT security,

UK universities are failing to learn their cyber security lesson with more than a third apparently coming under attack every hour.



and nearly two thirds of the respondents in its survey don't believe their existing IT infrastructure will be sufficient in protecting against cyber attacks in the next 12-18 months.

Meanwhile, in a survey conducted at RSA Conference 2016, infosec specialist

Lieberman Software polled almost 200 cyber security professionals. More than three-quarters think passwords are failing IT security, and 53 per cent said that modern hacking tools could easily break passwords within their organisations.

(Continued on page 2)

Network managers struggling to cope with 'patch fatigue'

IT professionals are struggling to keep up with enterprise patching. That's according to research carried out by endpoint protection specialist Tripwire which evaluated the attitudes of more than 480 pros involved in patch management.

While patch management plays a critical role in minimising security risks for enterprises, the firm found that 50 per cent of the respondents in its survey admitted there are times their teams have been “completely overwhelmed” by the volume of patches.

Tim Erlin, director of IT risk and security strategist at Tripwire, says the relationship between patches and vulnerabilities is far more complex than most people think. “Sometimes, patches fix multiple vulnerabilities on specific platforms but not others. There can be confusion between patches and upgrades, or patches

and upgrades may address different, but overlapping sets of vulnerabilities.”

Erlin reckons that as the complexity of patch management continues to evolve, it has become more difficult for enterprise patch management teams to achieve and maintain a fully patched state.

Fifty per cent of respondents in the study also believe that client-side patches are released at an unmanageable rate. The same number feel their IT teams don't understand the difference between applying a patch and remediating a vulnerability.

Almost seven in ten also admitted that at times they have difficulty understanding which patch needs to be applied to which system. For 86 per cent, embedded products such as Adobe *Flash* patches released with Google *Chrome* updates make it more difficult to understand the impact of a patch. ■



201604

Breaking News

New Product Launch

“Cloud-integrated unified storage”

Enjoy the power of consolidated file, block and cloud storage with EonStor GS Family

Basingstoke, UK, 2016 – Infotrend® Technology, Inc. (TWSE: 2495) today released a brand new family, a cloud-integrated unified storage designed to deliver efficiency and power in a single consolidated file, block and cloud storage system at Cloud Expo Europe. Thanks to this integration and unified infrastructure, EonStor GS delivers cost-effective flexibility for both structured and unstructured data, as well as unlimited scalability through cloud solutions.





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Cyber security failing UK organisations

(Continued from page 1)

Lieberman Software believes that if the vast majority of respondents reckon passwords are failing, then it's time to rethink how we're using them.

"Attackers use automated methods to brute force credentials and gain privileged access to enterprise networks – often in a matter of minutes," says the company's CEO Philip Lieberman. "To counter this threat, organisations should take the same automated approach and apply it to their privileged credentials. Changing credentials continuously in a non-disruptive way would go a long way toward keeping the bad guys from gaining unrestricted access on the network."

The study also showed that 45 per cent of respondents think that even with all the security technology deployed in their organisations, they're still unable to defend against cyber attacks. This comes as no surprise to Lieberman: "Today's advanced threats can defeat the conventional perimeter security tools that organisations rely upon. Once the attacker gets past the perimeter, all they need to do is compromise just one privileged credential to move from system to system on the network, extracting sensitive data along the way. This comes back to the notion that passwords are failing IT security."

Citrix has also found what it describes as an "alarming disparity" in employee attitudes toward work and personal data.



While 45 per cent of respondents were prepared to take responsibility for their internet security at home, many were content to rely on their company for security at work.

In its independent poll, the company questioned 2,000 full-time workers in the UK. It revealed that 45 per cent of respondents regularly used passwords to secure home documents, but only 35 per cent do so at work.

According to Citrix, this suggests employees expect an IT safety net to protect them at work, but are more willing to take responsibility for their own security at home. It believes this gap highlights that more needs to be done to both educate employees about their security obligations, as well as informing IT strategies about the behaviour they should be prepared for.

Citrix chief security architect Chris Mayers says: "Despite many individuals being well aware of basic precautions for handling their own personal data, too many are not so conscientious at work. Employers have a responsibility to provide the tools and safeguards: employees need to use them. Protecting a company's digital assets is a two-way street."

Salford pioneers Gigabit broadband

Salford Council says it will be the UK's first local authority to roll out gigabit broadband across its housing portfolio.

Under a supply deal with fibre provider Hyperoptic, thousands of residents will have access to the fastest broadband speeds in the country. Installations are currently under way at eight buildings in Pendleton which are due to go live by the summer.

Hyperoptic claims that because of its "true fibre approach" that uses FTTP rather than FTTC, users benefit from much faster symmetrical broadband speeds and never have to worry about peak-time slowdowns, buffering or timeouts.

The company adds that residents will be able to choose from a number of "affordable" broadband and landline packages, including a 100Mbps, 20Mbps or full gigabit service. It says they can all be ordered on a contract-free basis without any need for credit checks. A free 100Mbps broadband service will also be available in communal areas.

The deal supports Salford Council's 'Digital Together' campaign which aims to get more people online in a drive to improve their job and life chances. It is being supported by a programme where residents are rewarded with free equipment and services if they volunteer to train neighbours on how to use the internet effectively.

Paul Dennett, assistant mayor for innovation, growth and prosperity for



FTTP installations are currently under way at eight council housing properties in Pendleton, including Spruce Court shown here.

Salford Council, says: "Council-owned homes aren't often seen as being ahead of the technological curve, but in Salford we realise technological developments are critical to creating vibrant communities, whilst ensuring the sustainability of regeneration."

The evolution of metropolitan area networks – feature pp10-13



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long ago before the dawn of html in the time of the great abacus, machines were simple and obedient to man. Then came the great processor and man could no longer guard against failure - the tears of helplessness flowed endlessly as critical system failures rained down on the backs of engineers throughout the galaxy..

Then came the mutiny of man, and failures became detectable and could no longer hide from the great guardians and all became calm.



www.mutiny.com

Connected traffic cones protecting road crews

An EU-funded project is leveraging the Internet of Things (IoT) to help save lives during roadworks in the UK.

Using motion sensor devices that are placed on existing traffic cones, highways contractors can monitor the location and status of the cones on a map, as well as receive alarms when one has been struck and workers may be in danger.

'Intellicone' is the result of a unique collaboration between New Wave Innovation, Highway Resource Solutions, ETI Software Solutions, Philips, Eldes, and Colas which is a major contractor for highways maintenance in the UK.

ETI's Beamfly software is used to manage Intellicone. The remote device management system provides a web portal which logs the status of each device as well as its location and displays this on a map in real time.

The vendor says remote monitoring and automatic reporting features make it simple to obtain accurate time and date stamps for any incidents, as well as providing a rich data set to report on deployments.

Most importantly, ETI says alarms are instantly activated when a cone is struck,



Intellicone is claimed to be easy to deploy because it operates in conjunction with existing traffic cones.

improving the ability of workers to move to safety. In addition, near misses can be investigated in further detail to improve future working conditions.

"This is a timely example of how the Internet of Things can impact an industry," says Nick Wilcox, CEO of the UK division of ETI Software. "It is more than making a 'dumb' traffic cone 'smarter'; it's the ability to use the data collected to affect the greater good."



THE WORLD ACCORDING TO...

Ash Ashutosh, CEO, Actifio

How can you save money in 2016? Try data virtualisation

You've heard of server virtualisation and network virtualisation. But have you considered virtualising your data yet?

Server and network virtualisation has brought huge benefits to those who have adopted them, and they are now commonplace in enterprise IT departments. We'll soon be seeing the same for data virtualisation.

Copy data virtualisation – freeing organisations' data from their legacy physical infrastructure – is increasingly seen as the way to deal with the huge amounts of data that are produced within organisations by data copying every day. Benefits include increased data protection, instant data access and mobility, but perhaps the most attractive one is the millions it can potentially save organisations.

According to IDC, enterprises have an average of 13 physical copies of critical databases and file systems, all taking up storage space. With virtualisation, they are able to eliminate the need to have multiple physical copies, reducing to the essence of one set of production data and one 'golden copy' that can be virtually provisioned when needed. A smaller storage footprint means a smaller storage bill.

To adhere to data protection standards, IT departments adopt overlapping technologies, such as software for backups, snapshots and disaster recovery. Virtualisation removes the need for these redundant technologies by creating virtual data copies from a central golden copy.

According to Gartner, businesses can lose an average of \$5,600 per minute in an outage. Dated backup and DR systems are slow to recover data in an outage, taking days or weeks. But when data are virtualised, recovery times drop to minutes or hours, resulting in less risk for the business.

As virtualised data require less maintenance, there is no longer the necessity for a large IT team to manage data. The time freed up by adoption means the team can focus on important projects that move the business forward.

Virtualisation slashes provisioning time for data required during test and development to less than a minute. With the development team able to focus more on application development and less on the process waiting for the operations team to produce test data, organisations can enjoy faster time-to-market.

The Nationwide banks on Wi-Fi



Arqiva's public and enterprise Wi-Fi system covers the Nationwide Building Society's administration and data centres as well as its 700 High Street branches across the UK.

The Nationwide Building Society has deployed unified public and enterprise Wi-Fi services across its network of around 700 branches, 16 administration centres and two data centres.

The implementation of the system, which was delivered by Arqiva in collaboration with its strategic partners

Aerohive and Mobciti, is part of the company's ongoing initiative to improve and streamline the digital banking experience of its customers and employees. The rollout took place between March and August 2015.

According to Paul Hellings, Arqiva's director of Wi-Fi and small cells, the

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networking is published monthly by: Kadium Limited, Brassey House, New Zealand Avenue, Walton-on-Thames, Surrey, KT12 1QD, United Kingdom.
Tel: +44 (0) 1932 886 537
Fax: +44 (0) 1932 886 539
www.networkingplus.co.uk

Annual subscription: £80 (UK); £95 (Europe), £100 (USA and the RoW) airmail. Cost per single copy is £8.25.

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ABC audited circulation: **19,679**
1 Jul 2011 – 30 Jun 2012

"beauty" of the solution that has been put in place for Nationwide is that it is both fully resilient and standalone, meeting the needs of staff and customers as well as ensuring a PCI compliant failover from the corporate LAN.

He adds: "We are also able to provide Nationwide and our other customers with additional security capabilities such as rogue access point detection that

are so essential for financial services organisations today."

Under a five-year contract, Arqiva will provide an ongoing service desk for Nationwide and has also supported delivery of the company's 'Innovation Lab'. This was set up to test new technology-based products, devices and ideas in support of the building society's next-generation digital banking strategy.

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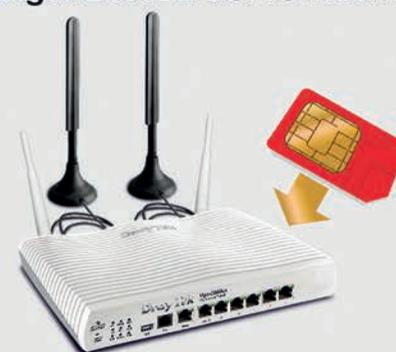
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Protecting SMEs from software flaws

A new government-backed initiative has been launched to give small businesses free guidance on how to reduce software flaws and cyber attacks that exploit insecure software. Trustworthy Software Essentials has been drawn up in consultation with universities, multinationals and government bodies. It aims to help the many SMEs which are said to be vulnerable to critical software glitches and cyber attacks because they increasingly depend on web-based tools for critical business operations, but lack the knowledge, time and resources to ensure their software is designed and maintained to a high standard. According to a 2015 government report, small businesses are putting a third of their revenue at risk because of failure to take basic security precautions including updating and patching software. ■

ANSecurity meets university challenges

ANSecurity has transformed networking infrastructure at Oxford University's Balliol and New colleges. It used technologies from Ruckus and Juniper to upgrade the core network, links into the university WAN, and the legacy Wi-Fi system. Each college has around 1,000 network users, but they were struggling with poor bandwidth and limited reach, and were unable to meet increasing demands for secure mobile access. After overcoming the challenges of working in grade 1 listed buildings, outdoor areas, and the fact that the campuses are in constant use, ANSecurity installed 140 APs and upgraded several core switches over a three-month period, and all without hitches. ■

Surf CESG certified

Surf Telecoms has been awarded CESG Assured Services (Telecommunications) certification. The government-approved accreditation confirms that the company can provide its data services secured against cyber threats across the country. The requirements for the certification are set by the Communications-Electronics Security Group (the information security arm of GCHQ) and the National Technical Authority for Information Assurance. Surf says the award follows a major investment programme and a rigorous audit process in which many aspects of its network and practices were scrutinised, revised and tested. The certification is the one of its milestones towards full PSN compliance. ■

Capturing data at more than the speed of sound

X-IO Technologies storage systems will be used to capture data from the jet- and rocket-propelled *Bloodhound Super Sonic* car that will attempt to set a new land speed record next year.

Data from the vehicle will be stored on the *Intelligent Storage Element (ISE)*, X-IO's modular and scale-out storage system. Two ISEs will be used to capture and share data from the 500 sensors on the *Bloodhound* using a combination of wired and wireless technologies. The storage platforms will also be used to stream real-time video data and footage from the car.

Following test sessions, heat, airflow and stress data will be downloaded from the sensors onto X-IO storage. The data will then be analysed by various tools, including computational fluid dynamics, to help identify any issues or indicate any

improvements that should be made.

Bloodhound Project director Richard Noble – who held the land speed record of 633mph between 1993-1997 – said: “We had to have a reliable storage system that could not only capture the car data, but do it in the very challenging conditions of the dusty dried out lake bed.”

The record attempt takes place next year at the Hakskeen Pan in South Africa when the *Bloodhound* will try to go faster than 1,000mph. It will be driven by RAF pilot Andy Green who holds the current land speed record of 763.035mph (Mach 1.02) which he set in *ThrustSSC* in 1997.

X-IO adds that the ultimate aim of its partnership with the Bloodhound Project is to help it in inspiring the next-generation of scientists and engineers.



Designed to go faster than the speed of sound, the Bloodhound Super Sonic Car will cover a mile in just 3.6 seconds.

Stephen Ashurst, the vendor's EMEA general manager, says: “The bigger picture is that the storage industry, like all technology industries, will only continue to innovate and advance if we can keep encouraging young people to take an interest in technology and in STEM subjects in general.” ■

Mutiny takes the helm for car and yacht retailer

Mutiny is helping prestige car retail group Rybrook Holdings to monitor its network across 21 sites in the UK and internationally. This also includes centralised and on-location monitoring across Rybrook's sister company, Princess Motor Yacht Sales.

Founded in 2000 at Manchester University's computing lab, Mutiny has developed a centralised monitoring appliance which is being used by Rybrook for complete visibility across its infrastructure. It currently covers 310 devices which include routers, switches, printers, servers and other infrastructure technologies.

In addition, the appliance is being used to monitor SIP trunks and IPT systems, as



Rybrook's WAN covers 21 sites in the UK and abroad, and includes its retail operations in the prestige car and yacht sectors.

well as uptime on non-SNMP compatible devices. Mutiny's platform was even able to provide remote monitoring of systems on Rybrook's stand at the International

Boat Show held earlier this year.

The company uses a number of customised Mutiny dashboards to provide an overall view of network performance covering CPU, disk and memory utilisation, and WANs. Each local site also has a web dashboard that tells users when devices are offline, thus removing pressure from the central team.

According to the vendor, its system's scalable architecture means that when Rybrook opens three new sites later this year, these will also be monitored by the single appliance. It also plans to use more product features, such as SMS alerts and environmental monitoring, following previous overheating issues in its server rooms. ■

Furniture seller gets comfy with unified comms

Cookes Furniture is said to have enhanced its customer service operations thanks to a unified communications system from Birmingham-based telecoms and IT specialist Intercity Technology.

As well as managing two retail stores in Birmingham and Dorset, Cookes also runs a self-storage site, and a large warehouse and distribution centre.

Intercity delivered an on-premise IP-based UC system, and claims this “drastically” improved call handling and management for the company from day one.

It adds that by converting the retailer's ISDN interface to SIP, line rental rates and call spend have also been cut. “Our line rental has reduced by half, resulting in very impressive cost savings,” says Chris Draper, digital executive manager at Cookes. “Plus the enhanced speed of the communication has unquantifiable value from a customer experience perspective.”

According to Intercity, the company had previously operated without call reporting in place, and suffered from slow and costly support system. It has provided the new

solution with a comprehensive support and staff training package, and says this is helping Cookes to make the most of its new telephony.

It's claimed the company is now able to provide a hugely improved experience for customers calling its outlets. Will Kennedy, sales director at Intercity, says: “Customer communications are everything in a business that not only sells products directly, but also provides ongoing services, so we knew the impact we could deliver by shifting its customer service up a gear.” ■

Breaking News 201604

New Product Launch

“Cloud-integrated unified storage”

Enjoy the power of consolidated file, block and cloud storage with EonStor GS Family

Basingstoke, UK, 2016 – Infortrend® Technology, Inc. (TWSE: 2495) today released a brand new family, a cloud-integrated unified storage designed to deliver efficiency and power in a single consolidated file, block and cloud storage system at Cloud Expo Europe. Thanks to this integration and unified infrastructure, EonStor GS delivers cost-effective flexibility for both structured and unstructured data, as well as unlimited scalability through cloud solutions.

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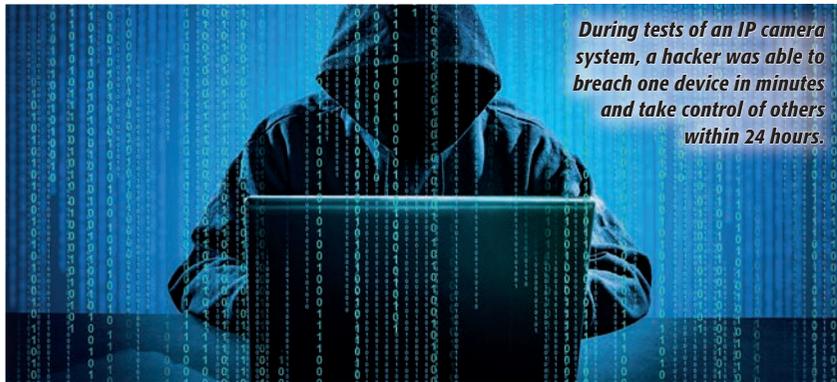
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During tests of an IP camera system, a hacker was able to breach one device in minutes and take control of others within 24 hours.

Are CCTV systems really keeping us safe?

New research has shown that many CCTV systems are wide open to cyber attack. During tests, several systems were controlled by an unknown attacker in just 24 hours and all had security flaws, thus providing an open door to the rest of an organisation's network.

The test was carried out by independent consultant Andrew Tierney on behalf of cloud-based video surveillance start-up Cloudview. As part of the research, five routers, DVRs and IP cameras running the latest software were placed on the open internet. One device was breached within minutes and within 24 hours two were under the control of an unknown attacker, while a third was left in an unstable state and completely inoperable.

Tierney found that security flaws inherent in both DVR-based CCTV systems and cloud-based video systems make it easy for intruders to hijack connections to the device's IP address, putting people,

property, data and entire enterprises at risk while leaving operators in breach of Data Protection regulations.

Vulnerabilities in traditional DVR-based systems ranged from their use of port forwarding and Dynamic DNS, to a lack of firmware updates and the existence of manufacturer 'back doors' which are often revealed on the internet. Tierney said: "Any insecure embedded device connected to the internet is a potential target for attacks, but organisations don't seem to realise that this includes their CCTV system."

Cloudview's co-founder and CEO, James Wickes, adds: "DDoS attacks are now being triggered through CCTV cameras, showing that cyber criminals have identified them as vulnerable."

Wickes recommends the use of secure user names and passwords, as well as encryption of CCTV data both in transit and storage. ■

CSA to develop new software defined perimeter for IaaS

The Cloud Security Alliance (CSA) says security teams are encountering familiar problems in their IaaS environments, including an inability to keep pace with a dynamic environment, users with over-privileged network access, and an inability to easily perform compliance reporting. As a result, it has formed a new software defined perimeter (SDP) for IaaS initiative.

According to the CSA, adopting an SDP approach can enable secure, efficient, dynamic and precise control of user access to IaaS environments. It hopes the new initiative will demonstrate how an SDP can better protect IaaS services for enterprise usage, and deliver uniform, seamless protection of on-premises and IaaS resources.

Under the initiative, the alliance aims to document specific security, compliance and architecture challenges that arise from enterprise adoption of IaaS. It will explore how an SDP solution can solve these problems, provide deployment guidelines along with best practices for secure IaaS (including the impact of DevOps initiatives), and influence the SDP specification to address IaaS-specific requirements.

The CSA's EVP of research, Luciano 'J.R.' Santos, says: "By understanding and leveraging an SDP model, organisations can then enable hybrid or multi-platform clouds by abstracting provider-specific configurations, and leveraging consistent policies, identity stores, and processes across their environments." ■

Two thirds plan to move to cloud

The number of UK companies that adopted cloud services in 2015 has remained the same as it was in 2014. But according to the latest research from the Cloud Industry Forum (CIF), around 63 per cent of enterprises expect to move their entire IT estate to the cloud in the near future.

As part of its regular annual study looking into the levels of cloud adoption in the UK, the CIF polled 250 senior IT and business decision-makers from the public and private sectors.

It found that while the adoption rate of 78 per cent is the same level as the previous year, the number of organisations using cloud services is likely to increase to 85 per cent by 2018.

Of those organisations currently in the cloud, three quarters use at least two services and one in eight (12 per cent) have deployed five or more. The CIF says these figures represent a "healthy" increase in service

penetration in businesses from the levels reported in 2014, suggesting that enterprise engagement with cloud is "deepening".

The applications most likely to be hosted in the cloud today include: web hosting (57 per cent); email (56 per cent); e-commerce (53 per cent); and collaboration services (52 per cent).

The CIF believes the IT landscape is clearly shifting as businesses become more open to receiving IT as-a-service and arrive at their natural technology refresh cycles. It points out that the proportion of organisations operating on-site servers/data centres has dropped from 85 per cent in 2014 to 76 per cent today.

Cloud Industry Forum CEO Alex Hilton says: "This change could be attributed to the increase in those organisations that consider infrastructure refresh to be an opportunity to adopt alternative deployment models such as cloud, which has risen to 85 per cent from 71 per cent a year ago." ■

The CIF says a healthy increase in service penetration suggests that business engagement with cloud is "deepening".

RaaS solves the headache of "maxed out" rendering resources

Exponential-e has developed a new cloud-based platform to deliver hybrid render services at scale to industries such as architecture, manufacturing, visual effects and scientific research that utilise 3D modelling.

The firm has come up with "Render-as-a-Service" (RaaS), claiming it will provide private rendering capabilities that can be matched to project delivery time scales and spend. RaaS will be delivered over Exponential-e's wholly-owned 100GbE network, and via private or hybrid LANs that connect the customer's on premise data to the raw compute power offered by Microsoft's Azure hyper-scale infrastructure.

Exponential-e claims its platform will enable organisations to bid competitively for larger projects that have bigger batch compute requirements. It says that while

RaaS is currently in beta testing, visual effects studio Jellyfish Pictures is already utilising the service to flexibly scale resources on demand and significantly reduce production times, streamlining its entire business model.

According to Exponential-e, steadily rising image resolutions means rendering now requires more computing horsepower. It says the limitations of power, space and cooling for in-house render farms also means they are increasingly more expensive and complex to run.

The company reckons its unique collaboration with Microsoft Azure solves the headache of restricted resource on "maxed out" internal render nodes, adding that the service is managed as one environment via a single self-service pane of glass. ■

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A trust based on IT networking

Given their size, complexity and mission-critical roles, deploying ICT systems and services can seem like brain surgery when it comes to NHS trusts.

Ensuring network security doesn't flatline

NHS Dumfries and Galloway is responsible for providing medical care to more than 148,000 people living across a 2,400 square-mile area in southwest Scotland.

The IT department manages systems for around 4,500 staff as well those used in medical facilities in the region. This includes servers and network devices in data centres, servers and desktops in hospitals and clinics, as well as fixed and mobile devices used by medical staff on wards and in GP surgeries.

As more data is stored electronically rather than in physical files, having proper data security practices that comply with regulations becomes essential to mitigating the risk of breaches.

According to Andrew Turner, head of information assurance and security at

NHS Dumfries and Galloway, the number of fixed and mobile electronic devices used by medical staff has dramatically increased during recent years.

"With the number continuing to grow and our remit soon expanding to include IT systems for social care services, we wanted to find a way to safeguard patient data more effectively and efficiently. Our aim was to switch from a reactive to a proactive approach to protecting patient information."

After evaluating a range of available solutions, the IT team realised that many vulnerability management tools could only generate reports regarding each individual machine, rather than giving a clear overview of an entire environment.

But with the *Qualys Cloud Platform* and its integrated suite of security and compliance solutions, the organisation found it could continuously monitor essential parts of its environment to pinpoint potential weaknesses, scanning around 1,000 end-points including servers, PCs, medical devices, telephony systems, shared terminals and mobiles.

According to Qualys, the initial discovery scan highlighted a high number of previously undetected vulnerabilities. With automated weekly and monthly scans and reports, the organisation can now identify and address new threats as they emerge.

Asset scans also enable IT staff to detect any new devices on the network and assess their vulnerability. The Qualys solution informs them of instances of guest and administrator accounts left on machines, enabling corrective action to be taken promptly.

Doctors on the go

Based at the Queen Alexandra Hospital, Portsmouth Hospitals NHS Trust employs more than 6,000 staff and serves a local population of over 650,000 people. Every year, it handles 132,000 emergency patients, conducts 44,000 day-surgery procedures and delivers 6,000 babies.

Making effective clinical decisions requires having all relevant information for each patient to hand as quickly as possible. However, clinical staff at Portsmouth relied on desktops with outdated *Windows XP* which, at the time, was coming to the end of its supported life.

Not only was it extremely slow for staff to log on to the system and access data, but their profile data was frequently corrupted. PC terminals were often locked unintentionally by users who had been called to other areas and, due to the limited number of desktops available in clinical areas, this frequently delayed access to information. Furthermore, certain applications were only available on particular PCs, adding to the difficulty.

A new solution was needed but it would be subject to some constraints: it had to be deployed quickly with a small team, and the implementation could not disrupt clinical work or adversely impact essential legacy systems.

The trust's IT operations manager Jonathan Murden approached a number of software providers to develop a solution. Together, they defined *iDesktop*, a hosted shared desktop solution built on Citrix's *XenApp*, *XenServer* and *NetScaler* for secure remote access and load balancing across the network.

The system supports delivery of a *Windows 2008 R2* hosted shared desktop to around 2,000 thin-client terminals. Legacy applications are delivered using *XenApp 5* and *Microsoft Application Virtualisation 4.6*.

iDesktop is available to authorised users from any terminal within the hospital. Clinicians gain access by tapping their security card on a terminal's RFID reader, and can instantly retrieve a working session from another ward.

In addition, all relevant applications are available from all terminals which are never locked out by absent users – new users can simply tap over to another on any available device. They can also access *iDesktop* securely from any location via any device which has *Citrix Receiver* installed.

Some clinicians at Portsmouth have estimated that the new platform has saved them up to two hours a day from their 12-hour shifts. They say that before *iDesktop*, it could easily take five to 10 minutes per case simply to access medical records, and that 20 to 25 cases are typically seen during each shift.

Murden adds that IT support has also become more effective: "Our service desk



is more proactive now, finding problems in advance and noticing trends. We can focus on key areas rather than fire-fighting the end-user experience."

Old age a real problem for hospital staff

Royal Brompton and Harefield NHS Foundation Trust (RBHT) undertakes more than 144,000 outpatient appointments a year and had a vision to employ better end user computing to enable superior clinical outcomes and patient care.

However, its workforce of around 3,000 employees were reliant on ageing devices and a legacy operating system. As a result, administrative and clinical staff were encountering IT system availability and performance issues that prevented them from accessing information in a timely manner.

RBHT therefore needed a computing device strategy that would enable employees to spend less time on IT, and was flexible so that they could access IT services anywhere, any time.

Computacenter offered the trust its impartial workplace advisory services. As part of the engagement, it talked to more than 80 members of RBHT's staff to understand their IT challenges and requirements. This enabled Computacenter to define five core work styles and recommend different devices for each group along with other workplace transformation activities.

RBHT went on to source 1,500 new Lenovo desktops, laptops and all-in-one devices from Computacenter. These were rolled out during 2014 along with *Windows 7* which replaced a legacy *XP* environment.

More efficient end user computing has enabled the trust's staff to deliver improved patient care. With a future-proofed, end-user computing strategy in place, it will be able to ensure its staff are equipped with the right devices for their role while reducing IT support costs and complexity.

RBHT also maximised its IT spend by leveraging Computacenter's vendor relationships and bonded stock capabilities.

"Computacenter has helped us get better value from our end-user computing devices," said RBHT CIO Joanna Smith. "With a variety of defined work styles, we can make better choices of device for our employees so they can deliver the best outcomes for patients."



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MAN about town



Gone are the days when metropolitan area networks required the clout of the big telecoms companies or city councils to build costly physical infrastructure such as fibre cabling.

A new breed of opportunistic start-ups has helped redefine the meaning and nature of the metropolitan area network. JAMES HAYES looks at the latest developments.

In the 1990s and 2000s, the metropolitan area network (MAN) model was one that organisations with a requirement to link multiple office sites around large built-up areas viewed with favour. The rampant technological proliferation of the time decreed that no LAN remain an island, while the joys

of corporate connectivity had won over many a board's approval for greater networked IT investment.

Options for connecting enterprise computing resources beyond the local area were, however, still prescriptive and pricey, and had to be bought from telecoms companies. For city councils especially,

who might wield clout enough to build-out their own physical infrastructures by laying fibre through existing municipally-owned ducting routes, MANs promised ongoing operational expenditure efficiencies, extended ownership of ICT estates, and a basic blueprint for future network development.

In the pre-high-speed broadband era, the opex gain alone was sufficiently compelling for all the private and public sector organisations whose LANs otherwise had to be linked via expensive, enterprise-strength leased lines or ISDN circuits; the desire to get away from the telco's (i.e. BT's) clutches was a prime

motivating factor behind many MAN implementations.

A 'datacoms rings main'?

Then as now, definitions of what a MAN is (and is not) varied, and in these days of doctrinaire technological convergence, the kind of network design that the acronym might now be applied to probably obfuscates as much as it illuminates.

Back in the day, for instance, MANs were sometimes described as datacommunications 'ring-mains', i.e., being of looped, circular configuration. But this is not necessarily a defining characteristic.

Neither, for that matter, is the use of 'metropolitan area', notes Matt Yardley, partner at Analysys Mason: "MANs have never really been city-wide. They were generally built in very specific geographic areas targeting certain customer segments – for example, COLT focusing on financial institutions in the City of London.

"Newer network operators, like CityFibre, are now constructing MANs connecting public sector buildings as well as targeting businesses. [So for] business connectivity, MANs can still be important as they can lower the cost of service provision."

Arguably, although several old-school metro networks are almost certainly still chugging away around the country, the heyday of the telco-busting MAN was relatively short-lived. By the late 2000s, maintaining and managing even these sizeable network infrastructures (which could, of course, extend over miles) became rather onerous for network managers, especially as the telecoms industry unbundling and other pro-competitive regulation resulted in the availability of more affordable broadband connectivity options that could service their core applications' basic communications needs.

The issue for MAN owners appeared to turn full circle: in many TCO cases it was more cost-effective to outsource inter-office datacommunications to service providers. More recently, wireless communications media – such as mobile data and Wi-Fi – have undermined the case for embedded and enclosed city-scale network infrastructures of the older variety.

According to Falk Bleyl, product director at Updata, the world simply changed around first-generation MANs, leaving them often under-utilised or even unused. "MANs have typically been deployed to provide high-capacity connectivity between an organisation's sites within a relatively confined geographic area," he says. "Organisations benefited from the higher bandwidths, but then faced challenges due to changing organisational needs, network estate changes and rationalisation, as well as continued budget pressures."

Bleyl adds that long-term MAN ownership means that organisations could also face challenges in terms of security and segmentation of VPNs, as well as attracting and retaining the engineering skills needed to operate the network – especially if the asset is based on technology that's now showing its age and is not cost-effectively upgradable.

By the start of the 2010s, MAN appeal had started to fade. And where they were kept running, their fibre capacities were utilised to fairly minimal degrees.



"MANs can still be important as they can lower the cost of service provision"

Matt Yardley,
Partner,
Analysys Mason

So the term 'metropolitan area network' is not one that Chris Wade, commercial director at TNP (The Networking People), says he and his colleagues hear too much these days: "Where it is used is in the context of what would now be more closely defined as a 'community of interest network'. And in this context it should aspire to deliver pervasive high-speed connectivity to a city's municipal infrastructure, plus support digital outreach in areas of poor connectivity or usage."

Standard virtual networking solutions supporting business applications have also rendered the physical MAN's attractions less compelling. As Yardley says, although MANs now tend to be thought of as being built and operated by newer entrants to the market, it is important to note that established players, such as BT and Virgin Media, also serve the business market. But here, he points that the architecture of their networks does not follow the 'typical' MAN setup, mainly because their networks are much more extensive geographically.

If you build it...

The service propositions from new market entrants referred to by Yardley have renewed interest in the MAN concept over the last three years. These arriviste network operators – and names such as Commsworld, Hyperoptic and the aforementioned CityFibre and TNP spring to mind here – have been re-energising the MAN idea.

Although these 'metro area nets' represent a different commercial proposition to their antecedents, their general principle remains the same.

Among their objectives is the introduction of a new competitive front in the high-speed, high-capacity broadband stakes. Their operators can also be motivated by an interest in accelerating the speed of digital change mandated by government for the UK's regional metropolitan centres.

In addition, some of these new networks offer multi-play service offerings for businesses and home customers on top of basic connectivity, sometimes featuring voice and video into

the bundle mix. They compete against each other and against bigger incumbents like BT Openreach (which has responded with copper boosting techniques such as G-FAST) and Virgin Media (which is exploring opportunities afforded by hybrid coaxial/fibre networks). But the driving differentiator is their aim to deliver up-to gigabit speed broadband services to cities where, hitherto, business customers needing those top speeds would have been left wanting.

Gigabit connection speeds might at first sight seem over-egged for general business applications. But there are also many vertical sector applications where such capacity is standard for a range of applications and workloads. These may be for companies in small, specialised scientific and media fields which are locating away from the high rent/high business tax south-east, and are focused on taking advantage of financial incentives to base their operations further north. With gigabit speed broadband access options they have everything they need and can get in and around London.

The new fibre networks have moved fast to establish their own all-fibre infrastructures, partly by build-outs and partly by acquisition of existing fibre optic network assets, such as CityFibre's £90m acquisition of KCOM's national fibre and duct network assets at the end of 2015.

The arrivistes' ambitions are founded on the notion of 'if you build it, they will come', a belief shared by the plentiful venture funding that's underwritten their strategies. Investors are betting on the viability of these new players ability to attract new customers, pull existing subscribers away from the incumbents, and then perhaps go on to become significant forces in challenging the incumbents in higher-value regions of the market.

In the space of two or three years, some have established estimable market presence and customer names. A signature factor here has been their support for, and championing of, the 'Gigabit City' concept. The term 'Gigabit City' has been talked-up by technology providers and municipal agencies as something akin to a hallmark of civic achievement, although whether gigabit

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MANs will deliver on their promise, and repay their investment, has yet to be ascertained.

Gigabit cities

Strategies vary, but a unifying objective is the creation of a string of UK gigabit cities – places where symmetrical access speeds of 1,000Mbps are available. Cities so far named as possessing Gigabit status include: Aberdeen, Bristol, Edinburgh, Glasgow, Coventry, Liverpool, Nottingham, Peterborough, Reading, Sheffield and York.

Coventry's Gigabit ambitions are of particular interest in the old MAN/new MAN context, because they are founded on 142km all-fibre network commissioned by its City Council to serve its public sector estate back in 2008. By 2010, it had



“True MANs, built on an independent basis, should be the prototype for the Smart City as they will reach locations that commercial models do not hit.”

Chris Wade,
Commercial director,
TNP

to all main council buildings and local schools in the wider Coventry area.

The Coventry Council MAN infrastructure was sold to CityFibre in June 2014, and the network will still be available for the council to continue to use until 2029. The council says that

connected some 306 buildings, including public sites such as municipal offices, libraries and community centres, and replaced leased lines and data circuits

it was always a secondary ambition of the project to commercialise any spare capacity, although in real terms, the sale commercialises nearly all capacity. In the intervening years Coventry City Council attempted to resell spare MAN capacity, but with limited success. It has only been with the arrival of opportunistic small network companies such as CityFibre, who were interested in buying its MAN outright as a way of ensuring that the asset was developed, that its full potential to benefit the city's commercial needs have been fulfilled.

So does the Coventry experience suggest that other semi-lit or dark MANs could be dusted down, sold off and switched on again under new commercial ownership? Probably not, says Jon Lewis, director of strategy at Telensa: “It is often difficult to resurrect old networks. The expertise needed to manage them is hard to find, and replacement parts may simply not still be available.”

Besides, as Lewis suggests, the cost of new networks is “an order of magnitude cheaper” than reviving old infrastructure. However, Analysys Mason's Yardley thinks that it's possible that there are public authorities around the UK who own telecoms infrastructure for internal network purposes – CCTV, for example – and may consider offering those assets to the market.”

The necessity for any new MANs to have opportunities for monetisation built into their *raison d'être* will be another signifier of change for the MANs of the future, according to Alastair Williamson, head of global sales at Ranplan. He believes the potential for monetisation via supported services or applications absolutely must be factored into new-build or revitalised metropolitan area networks.

“As an example, the planning of networks has traditionally been coverage-driven. In the data-limited paradigm we now live in, planning networks needs to take into consideration the different types of revenue-generating services that customers will be using to ensure that the capacity delivered through the network will meet the end-user requirements.”

Telensa agrees. Any revitalised or new metro-scaled network certainly needs to be “built on a commercial foundation”, says Lewis. Telensa provides wireless remote control of street lighting. As Lewis explains, it connects the lights and associated sensors (parking, motion, weather) wirelessly across cities or wider regions, using its own ultra-narrow-band technology, running in unlicensed ISM (industrial, scientific, medical) bands.

He says: “Telensa's wireless network uses tiny amounts of data; it utilises the city's own infrastructure and it is owned by the city. So this is a very low-cost network. But it has to be because the solution has to be paid for by street light energy and operational savings.”

Lewis says the reason for this detail is to make it clear that MANs are deployed where a business case can be made to support their deployment and operational costs. “And because business cases vary, so different network technologies with different costs and capabilities will inevitably co-exist.”

Smart City MANs

This same potential exists for MANs, wired and wireless, to facilitate Internet of Things (IoT) applications as they come forward, and especially IoT data backhaul and front-end processing.

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as 'high-capacity connectivity between a single organisation's sites within a relatively small geographic area', for instance, MANs can be seen as a prototype of the Smart City ideal, extending the single organisation benefits to a wider geographic area, and to many organisations and even individuals."

TNP's Chris Wade agrees: "The true nature of Smart Cities is that the underlying networks must be pervasive, and most carriers who use the 'build it and they will come' model are not able to do this. They are limited by commercial models that insist on strict return-on-investment."

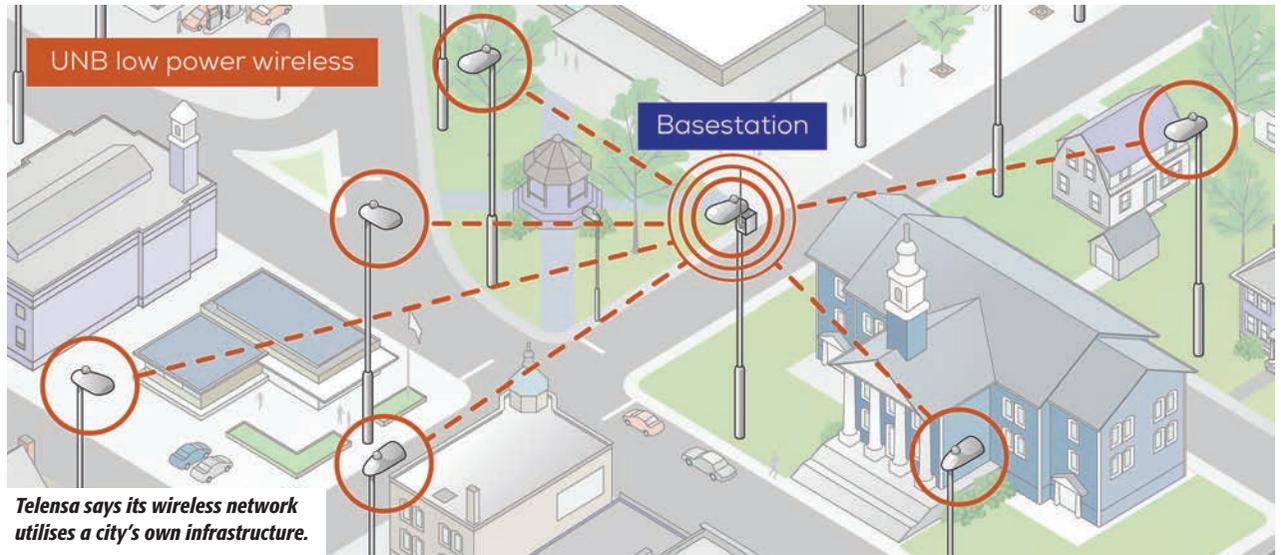
"Our experience is that true MANs, built on an independent basis should be the prototype for the Smart City as they will reach locations that commercial models do not hit."

Meanwhile, Lewis reckons new models are emerging in which cities can control their infrastructures over the full duration of its lifetime. "Telensa provides wireless networks to cities which they then own. This means that the city avoids the potential for stranded assets, and can monetise the networks as it sees fit."

The investment case for a MAN would also be improved if certain customer types – mobile operators, for example – were willing to sign long-term backhaul contracts. Analysys Mason's Yardley says there is some limited evidence of this happening: "CityFibre clearly believes that there is a case to build new MANs, and their acquisition of KCOM's assets is an indication that they are stepping-up their game."

A final point worth highlighting is the importance of the regulatory environment in the entire context of MANs which should not be overlooked. For instance, Yardley says Ofcom is considering forcing BT to provide access to its passive assets (e.g. ducts) on a much more extensive basis than is currently the case.

While he suspects this could stimulate new investment in MAN-like networks, he reckons it would most likely result in 'cherry picking' – i.e., operators targeting the most lucrative areas – rather than any large-scale, city-wide deployments. ■



Telensa says its wireless network utilises a city's own infrastructure.



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"Planning networks needs to take into consideration the different types of revenue-generating services that customers will be using to ensure that the capacity delivered through the network will meet the end-user requirements."

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According to Belden, the devices are "versatile and flexible", enabling network managers to use them as access clients or APs operating as a router or a bridge. It says they are highly configurable with a range of connection interfaces, including WLAN, WWAN, Ethernet and cellular options.

The WLAN radio versions comply with IEEE 802.11 a/b/g/n, and also enable data rates up to 450Mbps at both 2.4GHz and 5GHz via 3 x MIMO antenna technology.

Belden reckons the APs' dual-band radio will be of particular benefit to the transportation industry as it allows for simultaneous voice and data communications on board trains, as well as in between rail cars by using the coach-to-coach coupling functionality.

The *BAT450-F* devices are ready to support future WWAN and IIoT technologies such as ISA100.11a, ZigBee, Bluetooth, Wireless HART, etc.



Digi International has developed a ruggedised version of its commercial-grade *WR11* cellular router. It says the temperature hardened *TransPort WR11 XT* provides a secure and reliable LTE connection for industrial and retail

applications in harsh environments. The new router is built upon the capabilities of the *WR11*. Digi says these include global cellular carrier certifications, license-free enterprise software, PCI-ready security features,

small form factor, dual SIM capabilities, and what's claimed to be "advanced" network management via the *Digi Remote Manager* system.

The *TransPort WR11 XT* features a ruggedised aluminium enclosure and DIN-rail form factor, an increased operating temperature range from -30°C to +70°C, flanges for shelf- or wall-mounting, and a

screw-down SIM cover.

The device comes with Digi's license-free enterprise routing and security software, and models are available that offer support for LTE, LTE with 3G fallback, as well as global HSPA+.



DrayTek has unveiled the latest router in its flagship business class *Vigor 2860* series.

With increased coverage, faster speeds and more competitive offerings available from service providers, DrayTek says LTE is now a "realistic and practical" option for either augmenting or replacing fixed-line applications. Its new *Vigor 2860Ln* features a rear-mounted SIM slot so that users can simply insert a 3G/4G standard card from the mobile operator of their choice.

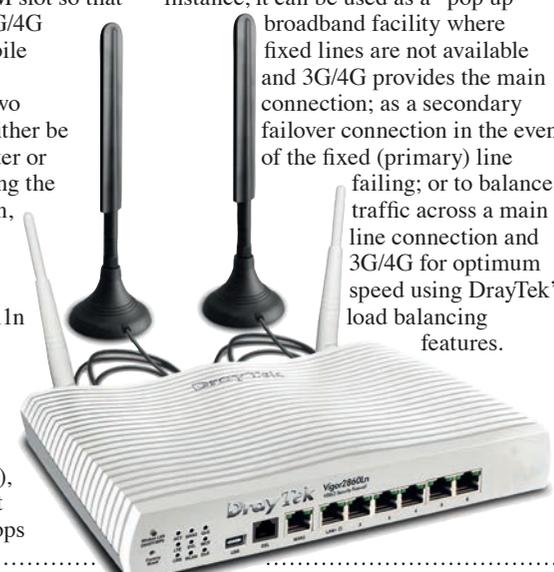
The product ships with two LTE antennae. These can either be attached directly to the router or positioned away from it using the supplied magnetic extension, allowing users to fine tune the exact position for optimum signal strength.

As well as providing 802.11n Wi-Fi, the *2860Ln* features four WAN connectivity methods which include ADSL/VDSL, 3G/4G/LTE (internal SIM slot), 3G/4G/LTE (optional USB modem), and Ethernet. It can support LTE speeds of up to 150Mbps

for downloads and 50Mbps for uploads.

Along with LTE connectivity for data, DrayTek reckons the *Vigor 2860Ln* makes "good use" of SMS. Texts can be sent to the router to check its status or even reboot it with an appropriate command.

The vendor adds that the router can utilise 3G/4G in a number of ways. For instance, it can be used as a "pop up" broadband facility where fixed lines are not available and 3G/4G provides the main connection; as a secondary failover connection in the event of the fixed (primary) line failing; or to balance traffic across a main line connection and 3G/4G for optimum speed using DrayTek's load balancing features.



Westermo has expanded its range of industrial M2M 3G gateways/routers with the introduction of the *MRD-305-DIN*. It says the new cost-effective device provides access to remotely located machines, SCADA systems, PLCs and HMIs using a wide variety of communication methods, eliminating the need for time-consuming site visits.

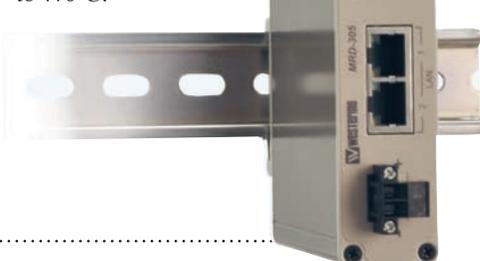
According to the vendor, the *MRD-305-DIN* is suitable for a broad range of M2M applications ranging from securely connecting simple devices to each other or a server via a VPN, to simply providing a gateway to the internet for more intelligent systems.

The device is designed for remote access across mobile networks. Westermo claims it features a "powerful" connection manager that automatically reconnects to the carrier network to ensure a constant link with any remote asset. It adds that the *MRD-305-DIN* supports many mobile standards, including GSM, GPRS, 3G,

EDGE, HSDPA and HSUPA, and is compatible with any type of SIM, such as static IP, M2M, or off-the-shelf cards.

The company says the compact router can be easily configured using its built-in web-interface, and can also be managed and monitored via SMS enabling, for example, a VPN to be started with a text message.

The *MRD-305-DIN* also has a built-in two-port Ethernet switch, a power input range of between 10 and 36 VDC, and an operating temperature ranging from -40°C to +70°C.



ZyXEL is aiming to help businesses migrate to the latest Wi-Fi standard with its new series of *NWA5123* APs. It says the devices offer reliable and fast 802.11ac dual-band Wi-Fi with a combined data rate of up to 1.2Gbps and 20 per cent better performance than previous .11n models (based on ZyXEL's own test results).

The vendor says the improved performance is all due to the exclusive optimised antenna module, dynamic channel selection, load balancing, and smart client steering technology.

ZyXEL claims the 'smoke detector' ceiling-mount design of the *NWA5120* units provide better coverage and performance. It says the PoE APs feature a multifunction design that "solves all problems" by offering internal as well as external antennas to enhance wireless performance and to eliminate coverage dead spots.

The devices can be configured as either fully functional standalone APs or as part of a network with centralised management for auto provisioning over both LAN and WAN connections.

Other features include *Dynamic Channel Selection* to avoid interference from co-channel and channel overlapping at initialisation, 802.11ac for data rates of up to 1200Mbps, and dual 2.4GHz and 5GHz radios.



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“Generous” IT firms invest in staff training

The majority of IT employers across the UK are investing in their staff by paying for training and certification exams, according to new research.

As part of a global survey of nearly 27,000 IT exam candidates in 180 countries around the world, global computer-based testing company Pearson VUE polled 738 candidates in the UK. It found that 58 and 57 per cent respectively had their training and certification exams paid for by their employers.

According to the firm, IT professionals are reaping the rewards of their employers’ investment, with more than 64 per cent stating that gaining the qualification had a positive impact on their professional profile. Over 90 per cent also said they aimed to obtain an additional certification in the next year.

Pearson VUE’s EMEA VP Matthew Poyiadgi believes that in a globalised economy, the days of completing a degree and pursuing a linear career are over.

He says: “In order to stay relevant and professionally attractive to employers, it is now considered vital for staff to re-train throughout their careers and embark on regular role-relevant training and assessment.

“Our research shows that British IT employers recognise the value of their staff gaining further qualifications as a boost to their careers, because this benefits the employer as well in terms of productivity and efficiency.”

Apprentices fill skills gaps

The Tech Partnership says the need to fill skills gaps is the key reason companies are taking on apprentices.

The findings come from a recent survey hosted by the Tech Partnership which was designed to establish employer views on digital apprentices in their organisations. Responses came from both technology and non-technology companies, ranging from

SMEs to large multinationals, and including some of the UK’s largest employers.

The survey reveals that in setting up an apprenticeship programme, the key difficulties have come from recruitment: more than half of apprentice employers said they have encountered difficulty in getting the right people. Identifying high-quality training that meets business needs has proved problematic for a similar proportion.

With 49 per cent of respondents yet to start an apprenticeship scheme, the Tech Partnership says there seem to be “substantial barriers” to moving forward. While a third of these organisations don’t believe they have a suitable role, 39 per cent simply do not know where to start. The Tech Partnership adds that worryingly, the same proportion did not believe that current apprentice frameworks meet their business needs.

To help address these issues, the organisation has developed *Tech Industry Gold* apprenticeships. It says these are designed and accredited by leading employers to provide dedicated support for businesses and apprentices alongside relevant technology training.

NEW COURSES

IBM Tivoli Storage Manager 7.1 advanced admin – S3 Training

Aimed at administrators with a fundamental knowledge of IBM’s *Tivoli* storage platform, this five-day classroom-based course uses *Storage Manager 7.1 Extended Edition* at a higher skill level. Students will learn how to control and tune the *Tivoli Storage Manager* environment and what steps to take when troubleshooting.

Lab exercises explore the DB2 database management methods and

options, using the disaster recovery plan file and SQL scripts. They involve multiple servers to simulate an enterprise environment. Students will participate in group problem determination exercises, perform backup and restore processes, and optimise data management, such as data deduplication. They will also tune the backup-archive client and the *Tivoli Storage Manager 7.1* server for optimal performance.

S3 says highlights of IBM’s *Spectrum Protect V7.1.3* have been added to the course, including deduplication technology features, enhancements to operations centre, and new command parameters.

The next guaranteed dates for this course start on 23 May at locations that include Harrogate, London, Nottingham, Reading as well as virtual classes. <http://tinyurl.com/hw7eg4j>

Junos MPLS and VPNs – QA

This five-day course is based on *Junos OS Release 12.3R2.5*. It is designed to provide students with MPLS-based VPN knowledge and configuration examples.

It includes an overview of MPLS concepts such as control and forwarding plane, RSVP Traffic Engineering, LDP, Layer 3 VPNs, BGP Layer 2 VPNs, LDP Layer 2 Circuits, and VPLS, carrier-of-carrier VPNs. The course also covers *Junos* operating system-specific implementations of Layer 2 control instances and active interface for VPLS.

As part of the prerequisites, students should have intermediate-level networking knowledge and an understanding of the OSI model and the TCP/IP protocol suite.

To find out more and to check availability at one of QA’s nationwide training centres, call 0333 130 6664.

Networking	40%	Mobility and wireless	8%
Servers	33%	Business intelligence and analysis	7%
Virtualisation	28%	Project and programme management	7%
Security	21%	Business process improvement	4%
Network management	21%	Mobile apps	4%
Cloud	19%	Leadership and professional skills	4%
Storage	18%	Initiatives (BYOD, social media, etc.)	2%
Software development (general)	12%	Video and web conferencing	2%
Enterprise architecture	11%	Other	9%
Web application development	8%		

Pearson VUE’s survey also asked 22,807 respondents what their recent training had covered. As shown here, networking and servers were the two most popular areas of study.

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