networking

FIXED & WIRELESS NETWORKS FOR ENTERPRISE USERS

Server rooms "ill-equipped" to keep pace with technology

by Rahiel Nasir

Enterprise server rooms will be unable to meet the compute power and IT energy efficiencies required to meet the demands of fluctuating technology trends, warns The Green Grid. It says this will push a higher uptake in hyperscale cloud and colocation facilities.

The Green Grid is a global consortium of companies, government agencies, educational institutions and individuals dedicated to advancing resource efficiency in IT and data centres. Citing the latest IDC research, which predicts a growing fall in the number of server rooms globally, the organisation believes that legacy server rooms are failing to keep pace with new workload types and causing organisations to seek alternative solutions.

Roel Castelein, customer services director at The Green Grid, says: "It wasn't too long ago that the main data exchanges going through a server room were email and file storing processes, where 2-5kW racks were often sufficient. But as technology has grown, so have the pressures and demands placed on the data centre. Now, we're seeing centres equipped with 10-12kW racks to better cater for modern-day requirements, with legacy data centres falling further behind."

According to Castelein, the IoT, social media and the number of personal devices now accessing data are just a handful of factors that are pushing the demands of compute power and energy consumption. This is causing further pressures on legacy server rooms used within the enterprise.

The Green Grid says we're now seeing data centres equipped with 10-12kW racks to support modern-day requirements, with legacy data centres falling further behind.

CTIL and O2 to build City of London Wi-Fi network

The City of London Corporation has named the companies it will work with to deliver the public access Wi-Fi network it announced earlier this year *(see News, Jan 2017 issue)*.

Under a multimillion pound project, which is said to be one of the largest investments in wireless infrastructure ever seen in London, Cornerstone Telecommunications Infrastructure Ltd (CTIL) has been awarded a 15-year contract to roll out and manage the network in conjunction with O2. They will deliver wireless services across all mobile networks for businesses, residents and visitors within the Square Mile.

According to the City of London, "state-of-the-art" equipment will provide gigabit speeds and see users able to enjoy high bandwidth services like video-calling and video on demand.

Reading-based CTIL will build 4G small cells which will be housed on street furniture such as lampposts, street signs, buildings and CCTV columns. It's claimed this will provide "enhanced" mobile coverage at street level, and ensure that the City is best placed to become an early adopter of 5G which is widely expected to become available in 2020.

"Small cells will be key as operators look to support the growing needs of customers," says CTIL MD Malcolm Collins. "We will offer an innovative wholesale solution that will enable them to do so efficiently and effectively."

The firm will partner with O2 in building the network which will be free to use. The project will replace the current service provided by The Cloud, and will be fully operational by Autumn 2017. ∎

Innovation outpacing the server room

(continued from page 1)

"As a result, more organisations are now shifting to cloud-based services, dominated by the likes of Google and Microsoft, and also colo facilities. This trend is not only reducing carbon footprints, but also guarantees that the environment which organisations are buying into are both energy efficient and equipped for higher server processing."

In its *Worldwide Datacenter Census and Construction 2014-2018 Forecast: Ageing Enterprise Datacenters and the Accelerating Service Provider Buildout* report, IDC claims that while the industry is at a record high of 8.6 million data centre facilities, there will be a significant reduction in server rooms after this year. It says his is due to the growth and popularity of public cloud-based services, occupied by the large hyperscalers including AWS, Azure and Google, which is expected to grow to 400 hyperscale data centres globally by the end of 2018.

"While server rooms are declining, this won't affect the data centre industry as a whole," says Roel. "The research identified that data centre square footage is expected to grow to 1.94bn, up from 1.58bn in 2013.

"And with hyperscale and colo facilities offering new services in the form of high-performance compute and the Open Compute Project, more organisations will see the benefits in having more powerful, yet energy efficient IT solutions that meet modern technology requirements." ∎

Riverbed plans to take SD-WAN to network edge with Xirrus acquisition

Riverbed Technology has signed a definitive agreement to buy Xirrus in a move that will create what's claimed to be the world's first SD-WAN solution that covers the network from core to the edge. The financial terms of the deal have not been disclosed.

Riverbed says the acquisition will expand its *SteelConnect* SD-WAN and cloud networking platform with the integration of a "proven" suite of high density and cloud-managed Wi-Fi solutions.

It claims this will offer customers and partners the "power" of unified connectivity and policy-based orchestration that spans the entire distributed network – WAN, LAN/WLAN, data centre and the cloud. Riverbed will also continue to offer

Riverbed CEO Jerry M. Kennelly believes a fundamental rethink is required to deal with today's "complex and unpredictable" networks.

Xirrus as a stand-alone enterprise WLAN solution.

"In today's digital, cloud and mobile world, enterprise networks are more complex and unpredictable than ever before, and IT is struggling to manage all of this," says Riverbed chairman and CEO Jerry M. Kennelly. "A fundamental rethink to networking is required, and with this acquisition Riverbed and our partners are uniquely positioned to provide CIOs and businesses with a software-defined networking approach that delivers unified connectivity and orchestration across the entire network."

Paul O'Farrell, the firm's SVP of the Riverbed SteelConnect, SteelHead and SteelFusion business unit, adds that legacy approaches to network management have become untenable. He says: "IT must move beyond the days of managing individual network devices using arcane CLI commands and scripts, and instead move to software-defined approaches that are based on global policies, automation and orchestration." ∎

Ofcom agrees future governance of Openreach

BT and Ofcom have reached agreement on a long-term settlement that will see Openreach become a distinct, legally separate firm with its own board within the BT Group. The move follows the regulator ordering the two companies to split late last year *(see News, Dec 2016 issue)*.

The agreement is based upon voluntary commitments submitted by BT that meet Ofcom's previously stated competition concerns. Once it is implemented, around 32,000 employees will move to the new Openreach Limited following Transfer of Undertakings (Protection of Employment)

consultation and after pension arrangements are in place. Openreach will have its own branding which will not feature the BT logo.

The deal builds on changes that BT has already made to the governance of Openreach in recent months. These include the creation of an Openreach board with a majority of independent members.

The board will set the company's medium term and annual plans, and determine which technologies are used. This will be done within a strategic and financial framework defined by BT. Openreach will be free to explore

alternative co-investment models in private with third parties. Ofcom adds that hundreds of telecoms companies already use Openreach and its national network on an equivalent basis, and many others are competing with them. It says this will continue with "enhanced safeguards" to ensure all customers are treated equally.

Openreach's CEO will report to the Openreach chairman with accountability to the BT Group chief executive with regards to certain legal and fiduciary duties that are consistent with BT's responsibilities as a listed company. ∎

MIGSOLV becomes second data centre to launch Janet services

Ultra-fast network Janet is now available from a second data centre in the UK – MIGSOLV's high security Gatehouse facility in Norwich.

Janet (originally the 'Joint Academic Network') comprises more than 5,000km of fibre and has more than 18 million users. Its backbone runs at 100Gbps with an interconnect capacity of around 40Gbps.

While the service has been developed over the last 30 years primarily for academic and research institutions, this latest agreement means SMBs and public sector bodies can now connect to the network by placing their IT in the Gatehouse.

MIGSOLV's Janet connection provides links into the PSN, N3 and Police National Network. The company says this opens up a

large public sector marketplace for SMBs, and reckons its will be of particular value to suppliers on the government's G-Cloud scheme. In addition, resellers can now offer colo services with a Janet connection under their own brands.

The connection is delivered in partnership with Next Connex which designs, builds and supports high-performance network infrastructure. Next Connex operates its own UK core fibre network, providing services to systems integrators, service providers, IT companies and telco carriers.

By providing a commercial Janet connection, MIGSOLV says its Gatehouse facility becomes second only to Goonhilly Earth Station, the satellite and space centre based in Cornwall. ∎

MIGSOLV operates The Gatehouse data centre on a nine-acre site in Norwich. The facility is said to incorporate rigorous security measures including access by iris recognition, CCTV coverage of every square inch, microwave intruder detection, and advanced fire protection systems.

ON THE NETWORK

Rahiel Nasir, editorial director, Networking+

Does the IT pro have to change as part of a 'digital transformation'?

There has been a lot of emphasis on 'digital transformation' this month with many organisations issuing warnings to enterprises to skill-up or else.

These organisations range from the Cloud Industry Forum *(p6)* and Brocade *(p15)*, to Axians *(see p4)* and now, even as I write this, project management practitioner PRINCE2. It has just added its tuppence by saying that if PMs fail to adopt generalist business skills, they risk becoming dinosaurs in the "new transformation economy". In its view: "Only supercharged project managers who can drive business transformation will be able to benefit from higher earnings in the gig economy, or be rewarded with senior management roles and board positions."

So why is this latest bandwagon currently trundling through the industry? None of this is new. For many years now, we have been hearing how IT pros need to put down their patchcords, come out of the IT closet, embrace their colleagues in other departments, and get savvy with their organisation's business needs.

Arguably, that may be fine for the IT pro that has his or her sights set on the CIO's chair – although it is vital to understand that IT is just a means to an end, and in a business environment that end means commercial success.

But in the rush to acquire business acumen, what should be emphasised is that such skills should are secondary to the hard-core technical knowhow that is needed now more than ever to support these so-called 'digital transformations'. Yes, the network manager needs to be more than just a patcher or troubleshooter. But at the same time, without that technical wizard in the IT closet, that transformation ain't gonna happen.

Employees are "stressed out" by mobile not-spots in the workplace

Unreliable mobile coverage in the workplace is increasing employee stress levels, hurting productivity, and driving a wedge between employees and employers, claims new research.

According to a survey of 994 UK office workers conducted by Zinwave, 69 per cent complained that they either "frequently" or "sometimes" had problems with poor mobile coverage in the workplace. The respondents included those who work in a variety of commercial premises, such as urban offices, shopping centres, industrial facilities and medical buildings.

The study revealed that workers aged 18-34 are 45 per cent more likely to complain of "frequent" problems than those 35 and older.

Of those who complained, just over a quarter said the problem increased their stress levels, 18 per cent said it decreased their productivity, and 15 per cent said it made their company "look bad" to those on the other end of the phone. More than 27 per cent said that they were sometimes forced to make calls outside because of poor in-building coverage.

Staff in healthcare facilities, such as hospitals and medical offices, had the most complaints, with 82 per cent having bad experiences and more than 35 per cent describing these as "frequent." This was followed by employees in retail facilities, such as shopping centres where 76 per cent complained of bad experiences and 30 per cent described these as "frequent."

Zinwave also notes who employees blame for their mobile troubles. While 45 per cent point the finger at their operator, an equal percentage expressed frustration with their employer and/or the owner of the building where they work.

"Mobile networks were originally designed for outdoor use, and most commercial buildings have not been constructed with mobile coverage in mind," says Zinwave CEO Scott Willis. "Today, an estimated 80 per cent of cellphone calls take place indoors. In the workplace, this creates an enormous disconnect between employee expectations and what most employers are able to deliver. Dropped calls and interrupted data connections are hurting productivity and morale." ■
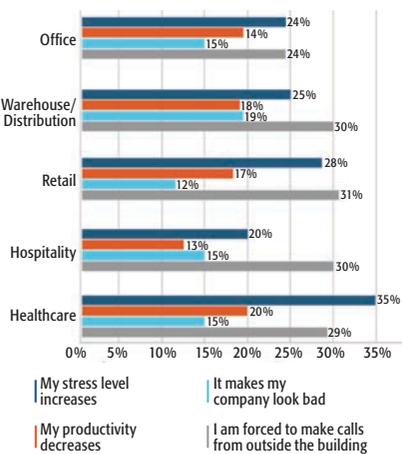
Impact on stress, productivity and reputation by industry. SOURCE: MOBILE COVERAGE IN THE WORKPLACE SURVEY 2017, ZINWAVE

Legend:
- My stress level increases
- My productivity decreases
- It makes my company look bad
- I am forced to make calls from outside the building

Office: 24%, 14%, 15%, 24%
Warehouse/Distribution: 25%, 18%, 19%, 30%
Retail: 28%, 17%, 12%, 31%
Hospitality: 20%, 13%, 15%, 30%
Healthcare: 35%, 20%, 15%, 29%

Honeywell secures USB devices for industrial use

Honeywell Process Solutions (HPS) reckons it's come up with a new security solution for industrial sites using USB devices.

According to BSI publications, malware spread through USB devices was the second biggest threat to industrial control systems in 2016, and uncontrolled USBs have taken power plants offline, downed turbine control workstations, and caused raw sewage floods, among other industrial accidents.

"Industrial operators often have hundreds or thousands of employees and dozens of contractors on site every day," says Eric Knapp, cyber security chief engineer, HPS. "Many of them rely on USB-removable media to get their jobs done. Plants need solutions that let people work efficiently but don't compromise cyber security and, with it, industrial safety."

Honeywell says its new *Secure Media Exchange (SMX)* protects facilities against current and emerging USB-borne threats without the need for complex procedures or restrictions that impact operations or industrial personnel.

Upon arrival at the site, contractors 'check-in' their USB drive by plugging it into an *SMX Intelligence Gateway*. HPS says this ruggedised industrial device analyses files using a variety of techniques included with its Advanced Threat Intelligence Exchange, a secure, hybrid-cloud threat analysis service. The company claims ATIX provides continually updated threat information and sophisticated analytics to help detect advanced, targeted and zero-day malware.

Upon arrival at an industrial site, contractors 'check-in' their USB drive by plugging it into the SMX Intelligence Gateway.

Once the user's device is cleared, it can be safely used in the facility. HPS adds that *SMX* client software installed on *Windows* devices at the site provides another layer of protection. This controls which USB devices are allowed to connect, preventing unverified removable media drives from being mounted, and stopping unverified files from being accessed. It also provides auditing by logging USB device connectivity and file access.

Honeywell says *SMX* was developed by its cyber security experts based on field experience across global industrial sites and feedback from customers. The company reckons it has one of the largest industrial cyber security research capabilities in the process industry, including an advanced cyber security lab near Atlanta in the US. ■

Eurotech and VMware partner for IoT

IoT specialist Eurotech will use VMware's technology with its multi-service gateways and edge controllers. It claims this will enable more efficient and deterministic resource allocation in high performance industrial and mobile networking applications. The two companies will also integrate "state-of-the-art" monitoring and management of edge nodes. This will combine VMware's experience and technology for securing, monitoring and managing Edge infrastructure with Eurotech's *Everyware IoT Integration Platform* for the remote management and access of applications on IoT gateways. Initial target systems will include Eurotech's latest gateways such as the *ReliaGATE* and *BoltGATE 20-25*, and *ReliaCOR* and *BoltCOR 30-17*. ■

Secure cloud platform for emergency response

UKFast will supply the Cabinet Office with a cloud platform for its emergency ResilienceDirect service, which supports effective response to incidents like natural disasters, terror attacks and power outages. The platform delivers a suite of preparation, response and recovery tools, supporting a co-ordinated and efficient response by organisations ranging from COBRA and the emergency services, to local councils and utility providers. The £250,000 deal for UKFast follows its acquisition of public sector specialists Secure Information Assurance and a £2.3m upgrade to its government data centre space earlier this year. ■

Synaxon and Wavenet team-up

Synaxon UK has teamed-up with Wavenet, giving its members the opportunity to offer the company's range of data and voice connectivity services to their customers. Wavenet provides unified communications services across the UK and runs its own carrier-class network infrastructure. The company claims it offers competitive rates on BT Ethernet circuits and other services, and can offer high capacity connections to support high bandwidth demands and scalable solutions. Wavenet's VoIP solutions are built on Broadsoft's *Broadcloud* platform. All initial Ethernet and broadband connections sold through Synaxon members will also include free DDoS attack prevention. ■

"Unloved networks" are main casualty in race to digital future

Many network managers believe that their organisation's network doesn't fully meet the needs of the business and say major improvements must be made if companies want to improve their customers' experiences.

According to ICT solutions specialist Axians UK, customer experience is crucial to long-term business success and many firms are achieving this through a digital strategy.

But in a recent survey of 250 network managers, it found that while 67 per cent of network managers agreed that a digital strategy is important to reduce commercial threat from competitors, almost half added that legacy technology is still holding back the organisation.

Furthermore, 44 per cent said their company struggles to find the IT skills or talent in areas that can't be automated, and 27 per cent questioned whether their company has enough bandwidth to achieve its digital strategy.

To successfully implement a digital strategy, respondents identified the following top eight factors: network management; security; network visibility; trained staff; flexibility/agility; application performance; scalability; and automation.

Axians UK MD Russell Crampin believes a change of mindset and education is critical for long-term success: "Organisations are currently risking reputation and can't always obtain the adequate skills in the network, causing disparity between the long-term vision of the business, and the reality of the here and now for network managers."

Legacy technology is holding back their organisation's digital strategy, according to many of the network managers questioned.

He adds that CIOs must look beyond software and focus on utilising people internally and externally to address the digital strategy and secure long-term success. ■

GCI and Highlight partner to enhance customer service

Managed service provider GCI is using real-time monitoring, measuring and reporting software to achieve deeper application visibility, and improve the health and performance of its customers' infrastructures.

Designed to enable GCI's offering to go beyond traditional infrastructure monitoring and SLA reporting, it's claimed *Highlight*'s "enhanced" capabilities make it possible to see issues arising and treat problems before conditions worsen.

In addition, the company will proactively use the software's historical data trending analysis capability with customers to create closer business partnerships, and improve handling of capacity planning and infrastructure optimisation.

GCI says all this will enable it to improve the management of more than 10,000 devices within its customers' infrastructures, as well as troubleshoot issues far more effectively.

Mike Ayres, the firm's CCO, says: "We had been using Solarwinds but it was not easy for customers to use, since they had to jump straight into the detail, plus it didn't deliver the range of value that they were after. With *Highlight*, customers can see that both GCI and the infrastructure supporting their core business applications, are performing as desired."

As an example, Ayres says he recently visited a client and opened the *Highlight* portal to display its 66 locations. "Four sites were in red and having issues. We could then click a red location to see if too many services were being used, or if there were any issues on the infrastructure and applications which GCI manage. It was immediate, with the answers at our fingertips." ■

Ineffective use of email is a "productivity killer"

What's been described as "sub-standard" communications and collaboration practices are costing UK businesses around £8,000 per employee every year, and up to £4m annually for a company of 500 employees.

In an independent study carried out on behalf of Mitel, Webtorials and Opinium surveyed more than 250 business professionals across the UK and analysed the ways in which they interact both inside and outside their organisations. It revealed an "over-reliance" on traditional communications tools which are costing businesses thousands of pounds each year in lost productivity.

For instance, the study found that employees lose nearly one day a week from poor communications capabilities, and that "ineffective" use of email alone costs

Despite chat and IM being embedded in everyday consumer devices, low adoption in the workplace suggests enterprises are not offering a cohesive comms experience.

£2,000 per worker annually. Staff lose on average 20 per cent of their workday writing and responding to emails, yet 80 per cent believe it is still an efficient form of communications.

Commenting on the results, Nick Beardsley at Olive Communications says:

"Email overload is certainly something our customers consistently reference as a productivity killer. Too often, people default to email for conversational collaboration. Simply taking this sort of communication out of email and into a unified application enables teams to realise the productivity benefits of real-time collaboration."

The survey found that 44 per cent of workers over 40 "choose to hide" behind email over all other methods of communicating, while 80 per cent of respondents under the age of 30 prefer using the telephone for communicating at work. Additionally, chat and collaboration tools appear to be overlooked with just nine per cent using them regularly. ■

Skills shortages hampering digital transformation

Organisations will need to focus on upskilling the workforce if their digital transformation efforts are to be a success, warns the Cloud Industry Forum (CIF).

In February, the industry body surveyed 250 IT and business decision-makers in large enterprises, SMBs and public sector organisations, and discovered that 44 per cent currently have a digital transformation strategy and a further 32 per cent plan to implement one.

However, 94 per cent reported facing barriers to this transformation. Fifty-five per cent stated that their organisation did not have the skills needed to adapt to digital transformation, 48 per cent cited privacy and security concerns, while 47 per cent were worried about legacy IT systems. Worryingly, the CIF says just 17 per cent were completely confident that their senior leadership team would be able to deliver digital transformation.

"The results from our research indicate that many organisations lack the strategic thinking, direction, and support needed to make a success of digital transformation," says the forum's CEO Alex Hilton. "UK business and technology leaders need to

The CIF's Alex Hilton says businesses need to invest in skills development and training schemes for staff to help drive digital initiatives further.

consider the digital imperatives and look at how they support their businesses with technology to meet them. Moreover, they need to invest in skills development and training schemes for staff to help drive digital initiatives further.

According to Hilton, digital transformation is about more than just turning legacy processes into digital ones, and looks at how an organisation interacts and engages with its employees, partners and customers.

"Having the right skills in the broader workforce to deliver digital transformation is critical, and the research revealed that just 45 per cent of respondents believe that their organisation has the skills required to adapt," he says. ∎

UK IT leaders 'ill prepared' for digital transformation – Network knowledge, p15

Amido claims containers not "hype" following successful deployment

Uxbridge-based industrial thread-maker Coats has become one of the first companies to use *Azure Container Services* in a customer facing environment.

The company has successfully launched a web portal on a container-based platform after working with vendor-agnostic technical consultancy Amido. It recommended the solution in order to meet Coats' requirements for an adaptable, scalable and easily manageable platform that would adhere to the strict regulations of international trading.

With large investments from Amazon, Google and Microsoft, Amido reckons the option of containers is becoming a viable solution, even at this early stage. Over the next three years, it predicts there will be a large rise in their implementation.

"Containers give you more control over the infrastructure you are deploying," says Chris Gray, technical director, Amido. "This is because you are not creating a VM for every instance of an application, meaning deployments are rapid and the overhead of the operating system is significantly lower. This combination is powerful as it means that we can issue an upgrade/change that will take effect almost immediately, without disruption to the general use of the portal."

He adds that for firms where cost of ownership is severely monitored, this advantage of application upgrades and changes is vital, especially when an organisation is committed to digitally transform its services, without the added costs legacy systems can bring.

However, Amido warns that containers are not a "magic fix" for all legacy or single solutions, and that the decision to containerise software needs to be considered carefully.

"Containers are valuable when monolithic applications can be split into smaller components which can be distributed across a containerised infrastructure," states the firm. "But this is not to say that any application will work, just that care needs to be taken to see if it is suitable for containerised deployment."

It adds that with this in mind, Coats' new container-driven customer portal exposed a real need for DevOps skills, emphasising the shift and increasing demand for IT skills in the market today. ∎

Pulsant expands footprint as part of £20m upgrade project

Pulsant has opened a new data centre hall in its South London facility. Hall 7 is the latest development in a planned £20m investment across the Tier 3 equivalent site, and features more than 400m² of new data floor space to accommodate almost 200 racks.

According to the specialist provider of hybrid cloud services, the hall was designed as a minimum to be a fully maintainable N+1 configuration across power and cooling. It is said to offer direct connectivity to five major London POPs, as well as direct connections to major exchanges outside the capital.

Pulsant claims the new hall also features the latest design innovations on both plant and materials. It says this includes Eurobond insulation to reduce temperature increases as a result of environmental changes, dynamic thermodynamic monitoring technologies for heat and cooling optimisation, and the latest rack containment systems to maximise efficiency across all areas of the environment.

CTO Matt Lovell says: "The construction of Hall 7 is just the latest step in our plan to expand the capacity and services delivered from our South London data centre site to include eight purpose-built data halls,

Hall 7 at Pulsant's South London facility features more than 400m² of new floor space to accommodate almost 200 racks.

bringing the total area to 3,300m²."

Pulsant's South London data centre is one of 14 sites owned and operated by the company. ∎

NGD switches on to BT services

Next Generation Data (NGD) says it has become one of the first data centres outside London to go live with BT's new *Wholesale Optical and Optical Connect National* service which delivers 10Gb, nx10Gb and 100GbE symmetric point-to-point connectivity.

Located in the Cardiff Capital Region, NGD is said to be a purpose-built carrier-neutral Tier 3 facility offering 750,000ft² of "highly secure and cost-effective" space housing up to 22,000 racks. The operator says these can be arranged into self-contained and colocation data halls of various sizes all with independent services, resilient power and cooling systems.

NGD says it is using BT's new optical service to support "unprecedented" growth in network traffic created by a "major surge" in its cloud-based offerings. With a direct connection to its data centre, the company claims BT's high-performance optical solutions will support demand by offering customers a flexible, scalable and resilient solution including secure, uncontended bandwidth with zero jitter and packet loss.

Next Generation Data CEO Nick Razey says the service is in line with his firm's commitment to providing customers the maximum choice of low latency fibre connectivity solutions.

He adds: "Our data centre is relied on by a rapidly increasing number of enterprise cloud users and service providers which makes the availability of high-speed, highly resilient and secure network services a top priority." ∎

NGD says the high-speed connection at its Cardiff data centre addresses growing network traffic from cloud customers.

Retailers go shopping for IT

Online or in-store, innovative IT ideas are making shopping easier and faster

Click and collect firm saves space and money

With their distinctive purple shop fronts, more than 80 'click and collect' stores have been opened by Doddle since the company was formed in mid-2013 in a joint venture between Network Rail and the founder of Travelex, Lloyd Dorfman.

They are sited in railway stations, universities, shopping centres, business parks and inside shops such as B&Q, Cancer Research UK and Morrisons. Doddle says customers at its stores – most of which are open all week – can collect or return a package within three minutes. Retailers who list Doddle as a delivery option include Amazon, Asos, and Missguided.

The company sought to replace its existing routing platform, which required a 12-week wait for a fixed data line, with equipment that saved space in its small stores and allowed for a number of different types of connection. In addition, it needed to cope with expansion with just a small IT team.

Doddle opted for Cradlepoint's *AER1600* router with *Enterprise Cloud Manager (ECM)*, the network management service available in the vendor's *NetCloud* platform. It's claimed Doddle can now run sites from a single in-store connection, bringing together routing, multi-WAN support, advanced security, private network support, and high-performance Wi-Fi in a platform that it can deploy, manage and optimise via the cloud.

Doddle's CTO Gary O'Connor says: "We are looking to grow our store estate tenfold in 2017. To be able to do this successfully we had to make sure our network was able to manage connectivity for a growing number of locations and be flexible enough to keep up with our rollout pace."

The *AER1600* offers cloud-managed networking and built-in connectivity for DSL, Ethernet (four LAN ports and one for WAN), Wi-Fi, and dual-modem, multi-carrier cellular support.

O'Connor says the new equipment has freed space for parcel storage: "Where previously we needed to accommodate a metre-high cabinet, now we're able to open new locations with a device the size of a box of chocolates."

Cradlepoint says the changes have saved Doddle 50 per cent in operating and capital spending. It adds that the company can now operate from even the busiest places and set up a shop in hours with a minimal footprint, using one or more handheld computers, label printer, tablet and a payment device alongside the router.

New WAN solves problems for pet store chain

Britons own nine million cats and a similar number of dogs, a market served by Pets At Home from 430 stores, many with vet practices and grooming areas. And this year, the firm plans to open a further 15-20 stores.

Based in Handforth near Wilmslow, Pets At Home has warehouses in Stoke and Northampton, and in addition it owns Ride-Away for horse owners, is trialling Barkers (high street shops for dog owners), and owns the Whiskers N Paws retail brand.

The company has introduced an in-store *iPad* system (*Pet Pad*) which is designed to eliminate the need for customers adopting animals to fill out paper forms at the till, and to support staff in providing better pet welfare advice and services.

Business systems director Suzie Williams says: "We wanted to completely transform the customer experience, doing away with cumbersome processes and pen and paper forms. However, we immediately faced a number of obstacles with network and Wi-Fi coverage issues causing regular dropouts, adversely affecting the *iPads*' ability to process transactions."

Williams says this undermined staff confidence in the *Pet Pad* system, and also frustrated customers who found themselves spending time on the tablets only to have to fill out paper forms to complete their transaction.

"The seamless shopping experience that we had envisioned was being undermined by our connectivity issues, and we needed focused and dedicated support to provide the infrastructure necessary to make *Pet Pad*s work," she says.

The issue was compounded by the fact that the firm's network requirements were split between two separate providers. "This meant working with different service levels and leaving notable gaps in our provision, so we decided to move everything to one provider to make management smoother," says Williams.

Claranet rolled out a new WAN to more than 400 sites and 340 vet surgeries nationwide. In addition, it plans to add integrated 3G MPLS connectivity so that Pets At Home can securely process transactions in the event of a network outage.

Claranet has also installed a dedicated *Microsoft Exchange* hosted email platform, including Symantec's anti-virus and archiving services, and a backup service to securely store data from the retail units.

The new system has helped Pets At Home rollout more *iPad* applications, such as its *VIP* (*Very Important Pet*) loyalty programme, which is claimed to have around 3.2 million members.

Sky-high IT in the heart of the City

Known as the 'Walkie Talkie', 20 Fenchurch Street is a £239m, 34-storey office building in the City of London, occupied mainly by insurance and legal firms.

It is topped by a three-floor 'Sky Garden' where visitors can wander around the landscaped gardens, observation decks, a shop and an open-air terrace in what is the capital's highest public garden. It includes three event spaces available for hire and two restaurants, two bars and a private dining room run by Rhubarb Food Design.

Rhubarb specified that the IT infrastructure was to be based on proven, quickly available and cost-effective technology. In addition, it had to be flexible enough to meet both current and future needs and had to be ready for the public opening.

Fibre optic specialist Corning teamed with the IT services division of NG Bailey and Cisco Systems to design, supply and install the infrastructure to allow Sky Garden to operate and communicate internally with its offices, the basement and outside world.

The system is a combination of fixed point cabling and Wi-Fi access points which, as well as aiding management, allows diners to see the food on offer on wireless tablets and for waiting staff to transmit orders to the kitchens.

NG Bailey installed Corning's optical fibre and copper cabling together with a wired and wireless networking system from Cisco which connects Rhubarb's offices in the basement and with the Sky Garden on level 20.

The cabling comprises Corning's shielded *FutureCom* copper, which is said to provide enhanced performance over Ca 6, and diversely routed, low-loss, bend-insensitive *ClearCurve* multimode OM3 cable. Corning claims *ClearCurve* can support tighter bend radii without affecting performance, and minimises the cost of installation and saves space.

The fixed and wireless IT access points connected to a server in the Sky Garden are waterproof and concealed amongst the boulders, plants and trees throughout the area. Six LAN patch panels support a total of 140 outlets for Gigabit Ethernet applications which are achieved, says Corning, by its Cat 6 connection technology, cables and patchcords.

Helen Bowey, retail director of Rhubarb Food Design, says the system has lived up to promises that it is able to handle the intense traffic generated by the company's operations.

Life in the trenches: while 'fibre everywhere' is the endgame, industry debate centres around the best way to get there and whether the government needs to do more.

Buried treasure

Will the government's spending programmes unearth the promise of 'superfast' broadband across the UK? JAMES HAYES finds out.

The government's interventionist stance toward superfast broadband provision has met mostly with approval by fibre network operators and service providers. And with its Broadband Delivery UK (BDUK) change programme set to end in eight months' time, plus newer initiatives getting ready to be introduced, speculation over whether governmental appetite for state-sponsored investment in fibre to support its Digital Strategy and forthcoming Digital Economy Bill, seems answered.

With BT, government finance is designed to stimulate commensurate commercial stakes: the telco has had to match the government's £530m funding for regional 'superfast'* broadband projects with its own money to similar orders of magnitude.

[*In its *Connected Nations 2015* report, Ofcom defines 'superfast' broadband as fixed line download speeds of between 30-300Mbps. Speeds greater than this are said to be 'ultrafast'. However, different definitions of how fast 'superfast' should be – and whether it qualifies for the

epithet if it runs over souped-up copper at any point – have been a bone of contention for some in the industry.]

Now thoughts are turning to how far government-backed schemes will extend to other players in superfast/ultrafast rollouts, and in what form the extra funds announced in the March Budget will be made available (i.e. loans, grants, vouchers, business rate relief, or even public investments).

> ## "The economics of full fibre, particularly outside the high-density areas, can be very challenging, and it's not totally clear to me how the new announcements will address that (if at all)."
>
> *Matt Yardley,*
> *Partner,*
> *Analysys Mason*

The BDUK programme, which has been coupled to around £1.6bn of public monies, is already rolling out fixed line superfast broadband to reach 95 per cent of the UK before the end of 2017. Since 2013 when BDUK began, new firms have joined the fray, and some of these have since become significant drivers of

fibre broadband provision. They include independent network operators who have tended to focus on opportunities for metropolitan area build out (based on new-build and appropriated fibre networks) but who would like incentives to extend their fibre reach into suburban and/or rural locations. Meanwhile, so-called 'altnets' – superfast broadband providers who may use alternative delivery technologies such as satellite and wireless – are also minded to find out what public funds could go their way.

A billion for fibre and 5G

BDUK was a torchbearer scheme that demonstrated government commitment to a recognition of the importance of high-quality broadband availability throughout the British Isles, as the potential benefits of broadband as a business enabler for industries in less populated areas (such as farming and agriculture) became evident.

Sean Royce, EVP of technology, service and operations at KCOM, believes it is important to judge BDUK

against its stated intervention objectives, which was never to guarantee seamless superfast broadband. "Rather, it was to use a given funding envelope to deliver the maximum amount of incremental superfast coverage, and to ensure that the Universal Service Conditions were met. The timelines for the superfast coverage targets were used as a delivery constraint to help deliver the social benefits from the public investment as quickly as possible to those residential and business customers in the 'final third' of the UK."

According to Royce, the UK does "comparatively well" on superfast coverage, and there is an expectation that 95 per cent of premises will have access to broadband download speeds of at least 24Mbps by the end of 2017. That's on top of the country having met its secondary main objective of ensuring everywhere else has access to broadband speeds of at least 2Mbps, as specified by the Universal Service Conditions.

As well as BDUK, Whitehall has also been funding broadband rollouts and take-up via other various initiatives and schemes – the most recent being the £400m Digital Infrastructure Investment Fund (DIIF) allocation announced in the last budget. But here, the question of whether allotted sums are adequate to the task at hand is not clear-cut, nor is how the total will be divided between component DIIF change objectives.

In his pre-emptive autumn statement, chancellor Philip Hammond announced that government will invest more than £1bn by 2020-2021, including £740m through the Northern Powerhouse Investment Fund, targeted at supporting the market to roll out full fibre connections and 5G. This will be delivered through the £400m allocated to the promised DIIF to invest in new fibre networks over the next four years – as matched by private finance – helping to boost ambitions to deploy full-fibre access to millions more premises by 2020. A new 100 per cent business rates relief for new full fibre infrastructure for a five-year period from 1 April 2017, was also promised.

But the chancellor did not make clear how the headline figures were arrived at, and the industry is still discovering how it will be made available.

The funding support initiatives announced by Hammond last autumn and re-articulated in his March Budget, indicate that the government is not satisfied by the rate of change.

Julian Cowans, programme manager at the Superfast Cornwall partnership initiative, says: "This is a recognition that the job isn't done. Most of BDUK's programme, which has had an emphasis on providing 'gap-funding' to the private sector to enable it to rollout to commercially-unattractive areas, seems to be coming to an end. And yet almost every day, I hear from businesses and people who are desperate for better connectivity. There needs to be

something in place to ensure that further rollouts continue."

Cowan's phrase, 'better connectivity', has a double resonance in the broadband delivery context. Although the debate is couched around buzzwords such as 'superfast' and 'ultrafast', reliability of connection is just as important for customers – it's no good having
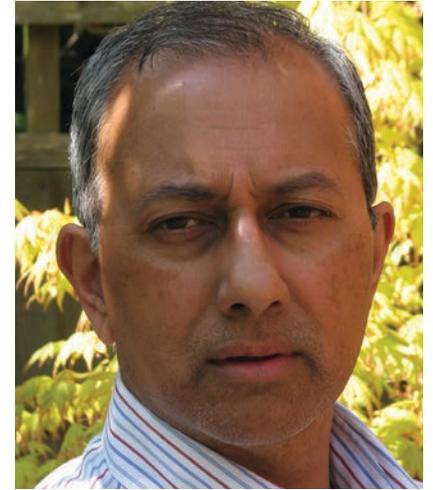
access speeds in excess of 24Mbps if the connection is regularly lost due to technical glitches.

> "The schemes appear to be built by those who simply have no understanding of the broadband marketplace."
>
> *Steve Waters,*
> *Networks manager,*
> *IDNet*

> "If the government's efforts to incentivise broadband coverage were starting today rather than four years ago, I suspect that full fibre networks and ultrafast technology would now be the focus, with speeds of 100Mbps or greater."
>
> *Sean Royce,*
> *EVP of technology, service & operations,*
> *KCOM*

Life after BDUK

There's no doubt that government is aware of the interdependency between business productivity, economic well-being and broadband quality.

"There is new ministerial interest in full fibre, and Ofcom also wants to promote it," says Matt Yardley, partner at Analysys Mason. "There also seems to be a desire to stimulate fibre investment from network operators less well-established than BT and Virgin Media – I presume this is seen as a way to stimulate further competition in the market.

"However, the economics of full fibre, particularly outside the high-density areas, can be very challenging, and it's not totally clear to me how the new announcements will address that (if at all)."

Mason believes DIIF is going to need a significant number of investment opportunities to assess if it is targeted at the smaller players and he predicts that while it may not have a major impact on coverage, it could serve as a stimulus.

DIIF's emphasis on full fibre – which is interpreted to mean FTTP (fibre-to-the-premises) – has been good news for network operators who advocate that full fibre infrastructure is necessary to support 'smart cities' and IoT network fabrics. How much funding might be available for FTTC (fibre to the cabinet) infrastructure to be regraded to FTTP going forward is unknown. This issue could turn out to be important in terms of how some of the Digital Strategy change agenda funds should be spent.

In terms of geographical coverage, KCOM's Royce says the UK's superfast availability has largely been achieved using FTTC and cable (via DOCSIS) as the dominant transmission solutions, rather than the full fibre infrastructures some politicians are talking about: "Full-fibre networks are more costly to deploy, and take more time to deliver. But [we] consider them to be the only solution capable of delivering the superfast/ultrafast service businesses and consumers will demand, and for providing tomorrow's 'gigabit society'."

FTTC/FTTP debates aside, another funding-related factor is the question of how much broadband speed most businesses will actually need in order to optimise applications as they move into the next decade. Is there a cost-justifiable point in the provision of higher Mbps speeds where they are not really needed, or where customers are unwilling to pay a premium for them?

"It is great to see that public money is being put behind a coherent plan to address the full fibre gap," says Mark Collins,

director of strategy and policy at CityFibre. "While FTTC has brought us a long way, government has recognised that now is the time to start work on building the networks that will take us into the future."

Collins believes that national impacts such as Brexit, the need to catch-up with international competitors on FTTP differentials, and the advance of the '4th Industrial Revolution' (e.g., IoT, smart cities, etc.) have informed this decision. He adds: "A critic would argue that focus on the importance of creating the right incentives to invest and to innovate has been lax in recent years, and that is why the UK so shamefully lags behind [on FTTP deployment]. The new direction now signalled by the government is a very welcome change."

With respect to whether levels of government investment to date have been appropriate to promoting its declared objectives, opinion divides – largely because estimated costs and ROI are so speculative.

The BDUK programme is close to full maturation, and both the requirement and the industry that seeks to service it have undergone changes since 2013. There are some factors that govern the pace of change that governments are not savvy to, but remain everyday business realities for network operators and service providers. For instance, they have to maintain current services while building-out or re-purposing fibre that also, to an extent, replaces copper links still in use. Skills shortages and wider disruptions, such as economic stability, Brexit, and regional development, also play a part.

Royce points out that BDUK has also been a product of its times, and that things move quickly in the broadband industry: "If the government's efforts to incentivise broadband coverage were starting today rather than four years ago, I suspect that full fibre networks and ultra-fast technology would now be the focus, with speeds of 100Mbps or greater. This would follow more closely the ambitious targets stated in the EU's 2010 *Digital Agenda for Europe* report."

But Analysys Mason reckons government expenditure has in fact been proportionate. Yardley says: "We've got good levels of coverage with modest levels of public funding: £1.7bn to push coverage to 95 per cent [of the country] equates to just £27 per head – and that's a one-off investment, rather than a recurring, annual amount."

He goes on to state that no-one knows what would have happened if there hadn't been post-2008 austerity, and if the government had had more funds available over the last few years, things may have been quite different.

It's claimed that while other countries plough "billions" into their fibre-to-the-premise programmes, the UK has the lowest FTTP deployment amongst OECD nations.

What's needed for a high fibre diet?

Of course, there is no point dwelling on what could have been. So for now, while a promise of funds totalling more than a billion pounds is one thing, ensuring that they are delivered as required is another. The last budget did not set out explicitly how the money will be made available, and what terms and conditions might apply.

"We are still waiting for details," says Cowans at Superfast Cornwall. "It is fair enough that the government is given time to develop these because the Budget has, after all, only just happened. The fund managers for the £400m DIIF to help finance full fibre networks, for instance, are being appointed, and these things do not happen overnight. When these new programmes emerge we will need a very clear and articulate explanation of what they offer, and of what part of the coverage jigsaw they aim to fill."

Until this is clarified and agreed, the adequacy of the £400m remains uncertain. Cowans goes on to warn that, in his opinion, the £400m investment fund for full fibre will not necessarily help much with an ambition to complete superfast deployment.

"This is a loan scheme to assist commercial deployments, so investors will be looking to maximise rates of return," he says. "It is likely to mean delivering more full fibre ultrafast solutions in the most commercially lucrative areas – like cities – where superfast is already available, rather than pushing out into the very rural areas."

While this will may benefit 'UK plc', Cowans believes what's needed is a model

that facilitates co-investment between the network providers, government and communities to tackle the remaining, very difficult areas. "It's an economic challenge rather than a technical challenge."

Collins is likely to agree with some of this. He acknowledges that there are still "plenty of wrinkles" to iron out in terms of how the policy is executed and the money is made available, but he adds that the government departments involved in boosting broadband have been keen to reach out to alternative infrastructure firms: "What is heartening is that the government is not just listening but pulling together all the relevant parts of Whitehall to its plan."

However, Hertfordshire-based internet and communications services provider IDNet is less favourably disposed toward the government's actions. Steve Waters, the company's networks manager, would like to see investments in better-informed interfaces with government in addition to funds. He says: "Ministers are simply not in touch with what is going on. They could try harder, and engage better with those on the frontline."

Waters calls for the appointment of a UK 'broadband tsar' who is knowledgeable about the realities and challenges faced by users and suppliers alike. He points out that financial assistance schemes, while not unwelcome, sometimes impose a cost that the beneficiary has to bear if they want to take advantage of them. "Grant schemes can be unnecessarily complex and onerous for something that is not difficult to deliver. The schemes appear to be built by those who simply have no understanding of the broadband marketplace."

Hyperoptic believes government should be doing more to drive competition in the market.

Steve Holford, chief customer officer at Hyperoptic, is more upbeat about what the government has been doing (albeit a tad guardedly when he says "the devil is obviously in the detail"). But he goes on to point out that while other nations plough billions into FTTP programmes, and will soon be reaping the benefits of their enhanced connectivity, the UK has the lowest FTTP deployment in OECD countries, with around two per cent coverage. "This is at odds with stated government objectives to build a modern economy based around the internet. We need to be more ambitious and clear about the overall ROI that investment in FTTP makes to [the UK's] gross domestic product."

Holford says government needs to enable more competitiveness in the market, adding that it is only "fair and just" that it creates and maintains an environment where the alternative network companies can compete, survive and, ultimately, thrive. "To achieve this, we would like to see a suspension of all business rates on new fibre assets for the next 10 years. The government also needs to develop regulation that encourages both competition and continued private sector investment."

Cowans says BDUK is on track to reach 95 per cent of its aim, and that this "significant achievement" needs to be recognised. But his view is that the government should now get behind an ambition of virtually complete coverage of 'superfast', and only then look to see if assistance is needed to deliver 'ultrafast' broadband on top of that, and come up with the right funding package and model for this.

KCOM reckons that the suite of complementary measures proposed in the government's Digital Economy Bill and by Ofcom are designed to remove the impediments to full fibre deployment. "In the government space, these interventions are designed to address identified market failures and/or distributional concerns," says Royce. "In the regulatory space, there is strategic focus on the role of a legally-separate BT Openreach in helping to deploy new fibre networks – e.g., through co-investment – and on the relative importance of certain network access remedies – e.g., duct and pole access, and dark fibre access."

But Analysys Mason's Yardley says that concern over whether government investment levels are sufficient to maintain UK digital competitiveness are premature.

"The UK is in a good place at the moment, not just in terms of coverage of superfast, but also with plenty of new investment going in from the likes of CityFibre, Gigaclear, Hyperoptic, and others, much of which is 'full fibre'." He adds that he is not aware of any studies that demonstrate, with strong evidence, that the UK is falling behind international countries that have more fibre coverage, for example.

Yardley goes on to state that most would agree that 'fibre everywhere' is the endgame. But he says the debate is how best to get there, and whether the government should introduce additional measures to reach that destination.

"There has been a raft of policy and regulatory changes, and we should now wait and see what they promote, especially as we have many operators in the midst of making major investments.

"In parallel, we should think about potential solutions to the most difficult problems to solve: meeting the ambition of true ubiquity, how fibre and 5G will work together, and what the role of other stakeholders, such as broadcasters, will be in the future evolution of fixed and mobile networks." ■

> **"While FTTC has brought us a long way, government has recognised that now is the time to start work on building the networks that will take us into the future."**
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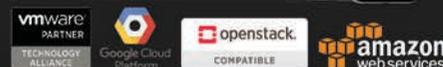
off-the-shelf: routers

The need for speed

We roundup some of the latest routers and APs to help accelerate wireless network connectivity

Aerohive Networks has added the *AP550* to its SD-LAN portfolio of cloud-managed access layer infrastructure. It claims the Wave 2 802.11ac AP is optimised for high-density, high-capacity environments, and increases network capacity by 141 per cent.

The 4x4 MIMO, dual radio device is designed to support up to four spatial streams and has a built-in BLE and a USB port to accommodate beacons and other IoT devices.

It offers software-selectable radios that says Aerohive, maximise customers' return on investment by allowing administrators to select transmission at 2.4GHz and 5GHz or to select dual 5GHz. When integrated into the overall network design, it's claimed the selection of the dual 5GHz mode can effectively double network capacity.

The *AP550* uses Aerohive's RF-IQ technology which incorporates

distributed-control radio intelligence, such as automated channel and power selection, load balancing, band steering, and other capabilities that enable complex radio functionality.

The AP also has new enterprise-grade features, such as MACsec, Air-IQ, and Zero Wait DFS. Aerhove says that cloud network management from a single pane of glass improves visibility, centralises control, and reduces cost and complexity. According to the company, SD-LAN is a more adaptable, secure, and cost-effective approach to wireless and wired access networks.

Designed for outdoor use, **D-Link**'s new dual-band wireless access point is designed to operate in temperatures from -30 to 60ºC.

The IP67-compliant *DWL-8710AP* uses 802.11ac, and supports a maximum of 300Mbps at 2.4GHz and 867Mbps at 5GHz. D-Link claims band steering ensures that 5GHz-enabled clients can achieve maximum performance without being bottlenecked by legacy 2.4GHz 802.11b/g/n devices. The firm adds that AC *SmartBeam* technology enables the AP to have greater reach.

Like other models in D-Link's range, the new *DWL-8710AP*

can be centrally managed when working in conjunction with the company's unified wireless switch or wireless controller.

It includes two GbE network interfaces which are designed to enable the administrator to easily bridge other networking devices into the network, such as a camera or another Wi-Fi access point.

Other features include support for 802.3at PoE, and mounting brackets to enable installation on a wall or pole. The *DWL-8710AP* has a metal and polycarbonate housing, weighs just over 2kg (with antennas), and measures 250x220x45mm.

Dovado has added the *Pro AC* to its range of universal access routers. It offers the choice of any broadband connection – fixed, mobile or Wi-Fi – and then distributes this to a number of devices over Wi-Fi and GbE. The device is said to support more than 300 models of 4G/3G USB modems and mobile hotspot devices.

Equipped with 802.11ac and dual radios, Dovado reckons the *Pro AC* offers performance similar to a wired Ethernet connection. It has two detachable dual-band Wi-Fi antennas to help deliver 300Mbps (at 2.4GHz) and 900Mbps (5GHz) for a combined bandwidth of 1200Mbps. A higher gain antenna is also available for locations with thicker walls.

The *Pro AC* has GbE LAN ports for local wired connectivity and a GbE WAN interface for fixed broadband access. Dovado says should the primary

internet source fail, the router can automatically redirect the traffic through a secondary/tertiary interface, regardless of source.

The device also integrates a PPTP-based VPN client, home automation, USB-based GPS positioning, SMS remote control, email/SMS notifications, 4G-bandlocking, and a mobile user interface to simplify control. There's also a second USB 3.0 port to support higher data speeds.
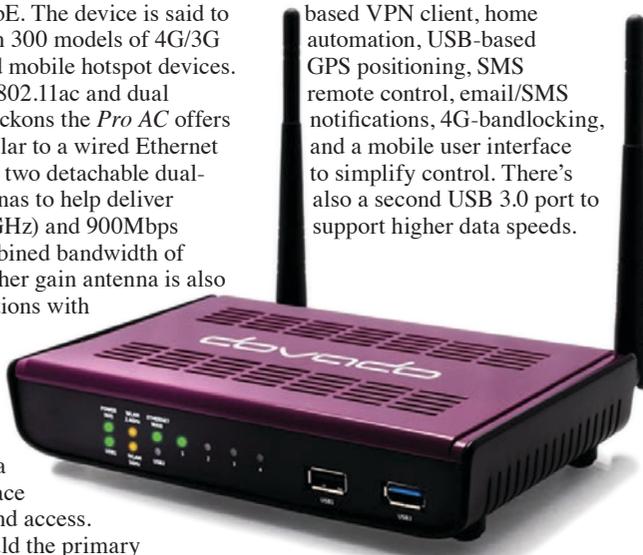
Netgear claims its *Orbi* Wi-Fi system covers up to 4,000ft² through barriers such as walls, stairs and doors.

The kit comprises a router and a pre-paired satellite device. Netgear claims it is the only system to utilise tri-band Wi-Fi, and features the unique capability of providing a dedicated wireless channel between the router and each *Orbi* satellite.

The router is said to deliver a total of 3,000Mbps over the 2.4GHz and 5GHz bands. A 1.7Gbps 5GHz band is used solely for extending internet speeds to the satellites.

Designed for large hotels, the *R80 Hotspot* gateway from **Solwise** is said to offer all the features needed to turn an AP into a fully functioning Wi-Fi hotspot.

The company says guests and visitors who require internet access can be managed via the login page, which also includes authentication, firewall, speed control, content filter, and a disclaimer file that can be edited.

Solwise says all this can be setup quickly in a six-step process. It adds that businesses that want to charge can use the PayPal and credit card billing service that is combined with the user reporting and account feature. A Facebook login option is also included.

TP-Link claims the *Archer C5400X* is the world's first 1.8GHz 64-bit quad-core router, and the fastest.

Inside it are four low-powered 28nm Broadcom *Cortex-A53* chips which, according to the firm, coordinate processes to reduce transmission delay, supporting more devices and high-speed applications simultaneously for a smooth and stable Wi-Fi network for all users.

The *C5400X* is said to offer a combined speed of up to 5334Mbps: 1000Mbps on the 2.4GHz band and two 2167Mbps 5GHz bands. It uses TP-Links' *Smart Connect* system to automatically assign each device to the best of these three bands.

The router is equipped with 4x4 MU-MIMO. This is said to serve devices four times faster than typical AC routers, while 'NitroQAM' increases maximum Wi-Fi speeds on all bands by 25

Zyxel Communications says the *LTE5366* is one of the first LTE indoor gateways with 802.11ac Wave 2 Wi-Fi technology. This offers 4x4 streams for providing higher speeds, better coverage, and support for more devices and applications.

The device is designed to provide users with mobile broadband connectivity to take advantage of the latest carrier aggregation technology compatible with LTE, DC-HSPA+/HSPA/UMTS and EDGE/GPRS/GSM.

With LTE category 6 compliance, the *LTE5366* is said to deliver downlink data rates of up to 300Mbps (at 2.4GHz) – according to the company, that's twice as fast as category 4 models and even outperforms fixed-line Ethernet.

Zyxel adds that by using the latest MU-MIMO 802.11ac technology, the gateway

Netgear says installation is simple, and can be carried out with a few clicks from any mobile device or browser.

After connecting the router to a modem or service provider gateway, the company suggests placing the *Orbi* satellite in a location that is in the centre of the building. Line of sight is not necessary.

All the devices feature four GbE ports and one USB 2.0 port. There's also IPv6 support, AP operational mode, WPA2 encryption, WMM support, QoS, MU-MIMO technology, and more.

Although the *R80* is designed for larger hotels and resorts, the company says it is also suitable for events such as large trade shows, and can be installed with multiple APs to provide Wi-Fi throughout a large venue. Any type of AP can be connected to provide a service to Wi-Fi enabled devices. Peer-to-peer file sharing can be blocked, and up to 28 days of login details can be downloaded and displayed in *Microsoft Excel*.

The *R80* has eight Ethernet ports: four 100Mb ports are dedicated to WAN connections and four to isolated LAN subnets. All port configurations can be changed as required.

per cent. 'RangeBoost' technology is also included to help connect distant or weaker devices.

Other features include 16GB of internal storage, eight Gigabit ports delivering up to 1000Mbps, and 'Link Aggregation' to enable users to connect a NAS to two Ethernet ports, creating a 2Gbps connection for fast data transfers.

doubles Wi-Fi performance of Single User MIMO in venues where concurrent wireless access activities are intensive.

IT sector sees year-on-year jobs growth

Job vacancies for IT professionals rose by 12 per cent during the first quarter of 2017 compared to the same time last year, according to Robert Walters.

In its latest jobs index, the specialist recruitment consultancy says the UK IT sector has largely resisted the slowdown in hiring seen by other sectors during political and economic uncertainty last year.

Robert Walters says demand from 'fintech' (financial technology) startups as well as large established companies investing heavily in cyber security played a significant role in the increase.

Developers and software engineers were particularly popular, and represented 14 per cent of total demand. Vacancies for IT managers made up four per cent of the total number of roles.

The index also reveals that employers are increasingly recognising the importance of IT staff who can play a critical role in ensuring IT policy is integrated with other departments across the business.

Ahsan Iqbal, associate director at Robert Walters, says: "IT professionals with strong technical proficiency are highly sought after by firms across a range of industries, but IT managers with effective communication and stakeholder management skills are in particularly high demand."

According to Iqbal, as effective cyber security policies are an increasingly high priority, the ability for IT teams to liaise with other areas of the business to develop effective strategies is becoming more crucial.

UK IT leaders 'ill prepared' for digital transformation

Research has revealed that insufficient budgets and times allocated for training are the biggest constraints on IT departments' attempts to develop skills.

In its recently published *Global Digital Transformation Skills* study, Brocade surveyed 630 IT leaders in the US, UK, France, Germany, Australia and Singapore. Its aim was to find out how well-placed respondents considered themselves and their teams to be, in terms of meeting current and future business demands. Germany was found to be the best prepared to meet its digital transformation goals, closely followed by the US, while the UK lagged well behind its counterparts.

Skills shortages, outdated skills, lack of commitment to training at board level, and the rapidly changing technology environment, were among some of the factors identified from the research.

According to Brocade, training continues to be an issue as day-to-day IT maintenance tasks take priority. Respondents reported that insufficient budget (45 per cent) and training time (45 per cent) are hampering the IT department's efforts to develop skills more than any other factor. These were most pronounced in the UK at 61 and 50 per cent, respectively.

The study found that currently, only three hours are allocated per week for learning and skills development – this goes down to one hour for UK respondents.

Forty-four per cent said gaining new skills is not seen as being as valuable as it should be by the board. This rises to 59 per cent in Australia and 50 per cent in the UK. Almost a fifth of global respondents think their boards view gaining knowledge and skills as a cost to the business, rather than an asset.

"Businesses are approaching the peak of IT strategic influence. Now is the moment that IT teams feel they have the strongest opportunity to influence the transformation of their organisations," says Christine Heckart, CMP and SVP of ecosystems, Brocade. "However, with a rapidly changing technology landscape and potential impact on international labour markets, it is critical that IT receives the right training to further develop their skills and business relevance."

IN BRIEF…

■ Under a recently signed Armed Forces Covenant, QA aims to train 1,000 service leavers, veterans, reservists, military spouses and cadet adult volunteers as part of the *AWS re:Start* programme. This includes employing at least 100 people as QA consultants. It will also promote technology apprenticeships to 16- to 18-year-old cadets, offer free and subsidised technology training to the Army, Navy and Air Force Families Federations, Officers Association and Women's Section of the Royal British Legion, and promote employment opportunities for service leavers and veterans in cyber security training through the Career Transition Partnership.

■ SAS has partnered with the University of Stirling to deliver a masters course in *Data Science for Business*. It covers statistics and statistical modelling, predictive analytics, strategic management, and business consultancy. As part of the assessment, students carry out a consultancy project with an external organisation where they tackle a critical business challenge. The full-time postgraduate course is said to be the first of its kind in Scotland. It was developed in collaboration with HSBC and The Data Lab, the international data science research and innovation centre that has hubs in Aberdeen, Edinburgh and Glasgow.

■ Independent global data security specialist HANDD Business Solutions plans to double its workforce over the next 12-24 months and ramp up UK operations. It says this in response to growing customer demand for integrated data security solutions and expertise. Driven by changes in compliance and data privacy regulations, including the EU GDPR, the Berkshire-based firm plans to invest 20 per cent of revenue in recruiting up to 25 new data security engineers and specialists. Later this year, it will also move to new premises in central Reading in order to attract fresh talent and provide better access to financial services customers based in the City.