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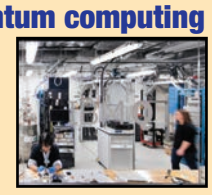

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From K6 to Wi-Fi: BT unveils the "phonebox of the future"

by Rahiel Nasir

Residents, visitors and businesses in the London borough of Southwark are set to benefit from the fastest free public Wi-Fi available, free calls, and a range of other free digital services on the street, following a partnership between BT, Intersection, and outdoor advertising company Primesight.

Southwark is home to a number of London's most iconic tourist attractions, such as Tower Bridge, the Shard skyscraper, the Tate Modern art gallery, amongst many others. It will join Camden as one of the first areas where BT's new *LinkUK* service will be rolled out in the capital.

The sleek looking *Links* kiosks will be installed on high streets across the borough and will take up less space than the payphones they replace. BT says hundreds of users within their range will be able to access free ultrafast Wi-Fi on the move, with speeds of up to 1Gbps – the fastest free public Wi-Fi service available. Other free services will include UK landline and mobile calls, rapid mobile device charging, online maps, directions and local information.

BT says all these services will come at no cost to users or taxpayers as they will be funded by revenues from advertising on the *Links*' digital displays. Each kiosk will feature two 55-inch HD screens that can display public service announcements as well as advertising for businesses.

They will also feature sensors that can capture real-time data relating to the local environment. This could include, for example, air and noise pollution, outdoor temperature and traffic conditions.

(continued on page 2)

Left: the familiar K6 telephone box or 'Jubilee Kiosk' was designed by English architect Sir Giles Gilbert Scott and first introduced in 1936 to commemorate King George V's Silver Jubilee. There are still around 8,000 of these traditional red phone boxes in the UK of which 2,400 are designated as grade II listed buildings. Right: at least 750 Links kiosks will be installed across central London and in major cities across the UK over the next few years.

UK's first 5G fixed wireless trial

Arqiva and Samsung Electronics are working in partnership to develop what they say is the first field trial of 5G fixed wireless access (FWA) technology in the UK.

Set to take place in the second half of 2017, the trial will involve the deployment of an end-to-end 5G FWA network operating in the 28GHz band. Arqiva owns the national licence for this spectrum which is also the standard band being used for 5G trials in the USA, Japan and South Korea.

Samsung's 5G base stations will use high-frequency mmWave spectrum and technologies such as beamforming to provide high-density coverage and ultra-high-bandwidth connectivity to customer premise equipment installed in nearby locations. The partners say these can be self-installed, therefore limiting costs, and can bring a subscriber online in a matter of minutes. They also claim this gives 5G FWA considerable advantages over comparable FTTH or FTTB deployments in terms of service rollout times and the costs to both the service provider and the subscriber.

The equipment will be based at locations in central London, including Arqiva's offices at Percy Street, and will provide ultra-high speed connectivity to multiple devices. The locations will be selected based on the wide range of customer groupings in business and residential premises.

Arqiva CEO Simon Beresford-Wylie says the trial will demonstrate the "enormous potential" of 5G FWA as an alternative to fibre for delivering ultra-high speed connectivity to homes and businesses.

He adds: "Our experience of running critical communications networks places us in a strong position, alongside a number of our operator customers, to take the lead in shaping how this country prepares itself for the introduction of 5G. ■

The phonebox of the future

(continued from page 1)

BT says this offers the potential of introducing a new range of smart services to local councils and communities based on the Internet of Things.

"This is the phone box of the future," says Nick Hale, MD Ventures, BT Wholesale and Ventures. "We're evolving the phone box to make it relevant to people in the 21st century."

At least 750 *Links* kiosks are expected to be installed across central London and in major cities across the UK over the next few years. More than 100 will be installed in Southwark, with the first ones due to appear later in 2017. All the partners are working with councils and local communities to determine the best location for each Link.

Links were first installed in New York City early last year as part of *LinkNYC*. The leading consortium behind this venture is Intersection. It describes itself as "an urban innovation company that integrates data, connectivity, and media in public spaces to drive revenues efficiencies and better customer experiences for cities, citizens and brands".

Intersection is run by a group of investors led by Sidewalk Labs which is in turn owned by Alphabet, Google's parent company.

With more than 600 *Links* now operating, *LinkNYC* recently reached the milestone of more than one million registered users connected to its ultrafast Wi-Fi service. ■

IBM to build world's first universal quantum computing systems

IBM is claiming an industry-first initiative to build commercially available universal quantum computing systems.

Technologies that currently run on classical computers can help find patterns and insights buried in vast amounts of existing data. But according to IBM, quantum computers will deliver solutions to problems where patterns cannot be seen because the data doesn't exist, and the possibilities that need to be explored in order to get to the answer are too big for classical computers to process.

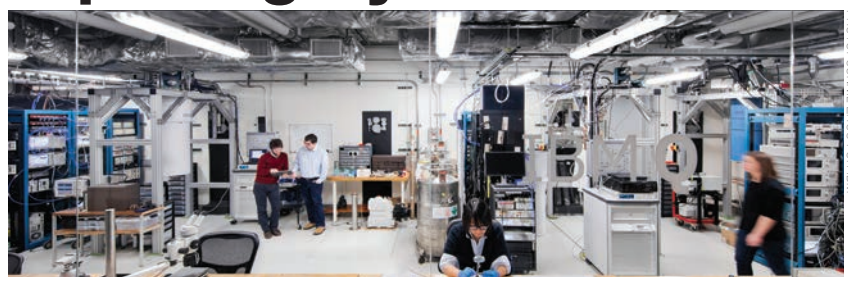

PHOTO: CONNIE ZHOU FOR IBM

The Q Lab where IBM is building commercially available universal quantum computing systems.

IBM intends to build its *Q* systems to expand the application domain of quantum computing. These along with their associated services will be delivered via the IBM Cloud platform.

A key metric will be the power of a quantum computer expressed by the 'Quantum Volume'. This, says the company, includes the number of "qubits, quality of quantum operations, qubit connectivity and parallelism". As a first step to increase Quantum Volume, IBM aims at constructing commercial systems with ~50 qubits in the next few years to demonstrate capabilities beyond today's classical systems. It plans to collaborate with key industry partners to develop applications that exploit the quantum speed-up of the systems.

IBM has also released a new API for its 'Quantum Experience'. This enables developers and programmers to begin building interfaces between its existing five qubit cloud-based quantum and classical computers, without needing a deep background in quantum physics. In addition, the company has unveiled an upgraded simulator on the Quantum Experience that can model circuits with up to 20 qubits. In the coming months, IBM plans to release a full SDK for users to build simple quantum applications and programs.

"We believe that quantum computing will provide the next powerful set of services delivered via the *IBM Cloud* platform, and promises to be the next major technology that has the potential to drive a new era of innovation across industries," says Arvind Krishna, SVP of hybrid cloud and director for IBM Research. ■

Six HPC centres launched across the UK

Six high performance computing centres that will give academics and industry access to powerful computers to support research in engineering and the physical sciences have been officially launched The centres are located at universities around the UK including: Cambridge, Edinburgh, Exeter, London (UCL), Loughborough and Oxford.

They are funded by £20m from the Engineering and Physical Sciences Research Council (EPSRC).

Its chief executive, Professor Philip Nelson, says: "These centres will enable new discoveries, drive innovation and allow new insights into today's scientific challenges. They are important because they address an existing gulf in capability between local university systems and the UK National Supercomputing Service, *ARCHER*."

The council says the new centres provide a diversity of computing architectures, which are driven by science needs and are not met by the national facilities or universities. It says this is because the National HPC Service must meet the needs of the whole UK community and so cannot specialise in specific novel architectures or novel requirements.

Among the facilities offered by the new centres are: *Isambard*, the world's first large-scale, production, ARM-based supercomputer; petascale data intensive computation and analytics; and JADE (Joint Academic Data science Endeavour). The latter is said to be the UK's largest GPU facility. It features compute nodes with eight NVIDIA *Tesla P100* GPUs tightly-coupled through the high-speed *NVlink* interconnect.

Some of the centres will be available free of charge to any EPSRC-supported researcher, and some will also give access to researchers within UK industry. ■

Bolton College gets flash storage

Bolton College has replaced its Dell storage arrays with a single, multi-tiered, flash system from Tegile Systems.

Prior to the deployment, the college used eight Dell *EqualLogic* arrays and periodically added more as required. This approach was inefficient as the data were spread across multiple SANs, making their management unnecessarily time-consuming, and leading to higher power consumption as well as greater floor space requirements.

By the time the Dell system reached end of life, it was holding around 43TB of unstructured raw data. It was replaced bt Tegile's *T3630* platform. Thanks to the data deduplication and inline compression technologies of its flash-driven hybrid arrays, the company says the college has realised a 57 per cent reduction in its storage requirements, from 43TB down to 19TB. This saving includes a drop from 4TB to below 1TB of primary storage that is needed to support the college's virtual desktop infrastructure.

Bolton Colleges' senior infrastructure engineer Irfan Patail believes the new solution will be scalable over a five-year project period to meet future demands.

"Our VMware VDI environment is currently running 450 VMs. With Tegile's flash array we could easily double that figure without any impact on user experience and storage performance whatsoever, both in terms of IOPS and latency.

"We are so confident in our Tegile system that, in addition to migrating all of our VMs from the old storage, we have also migrated footage from our 170 onsite CCTV cameras to the array's spinning disks which would have led to serious IOPS and latency issues with our old Dell storage arrays."

Tegile adds that its array is vendor agnostic and integrated "seamlessly" with the college's new Fujitsu servers and VMware hypervisors. ■

Tegile Systems says its arrays have enabled the college to consolidate its data volumes and free-up half its existing storage capacity.

THE WORLD ACCORDING TO…

Dirk Gates, co-founder, Xirrus

From 2.4GHz to 5GHz: switch with confidence

2.4GHz spectrum is reaching its limits for Wi-Fi networking. But despite the availability of 5GHz, many IT administrators still believe switching is complicated, favouring instead a 50:50 network design.

2.4GHz is the original standard from 1997. It provides just three channels and is now congested, causing interference and dropped connections. According to Gartner, there will be more than 20 billion connected devices by 2020. If 2.4GHz is to support the ever-increasing volume of connected devices, the industry needs to move beyond a technology developed in the era of the cassette player.

While IT admins may not be ready to make the switch, devices are – 90 per cent of phones, laptops, and tablets are already 5GHz-capable. 5GHz offers eight times more capacity and is in reality easier to deploy. It supports far more data, is the only band that can leverage the 802.11ac standard and – with up to 24 channels – is significantly less congested.

While integrating 5GHz into consumer devices has been a no-brainer for vendors, the same cannot be said for the enterprise. Here, many believe that installing dual-radio APs provides enough 5GHz coverage. Others are 'adapting' by switching off their 2.4GHz radios. In reality, neither option will work – 5GHz needs a new configuration.

The 50:50 ratio is often deployed where network admins do not have a clear picture of the capability and number of devices accessing the network. Network management tools tend to display association tables rather than client capabilities, which can mean hosting far more 5GHz clients than expected. This causes 5GHz radios to become oversubscribed, resulting in poor service and dropped connections.

The greatest barrier to 5GHz adoption appears to be more about misconception than technicality. IT admins want their networks to be flexible, but designs need to be adapted to the new generation of users. Choosing the right Wi-Fi network requires a carefully thought-out strategy. 2.4GHz is not going away all together, but it was not created to support the volume enabled by today's ubiquitous Wi-Fi connectivity.

IT admins need to ask whether the evolving demands of the network warrant giving the 2.4GHz band 50 per cent of the AP radios. Can it provide the performance required as more devices crowd into this band? For many businesses the answer to this question is no. Some level of 2.4GHz support is undoubtedly still required. But over time, its limited capacity will make it increasingly inadequate.

Grosvenor to invest £2m in "single largest estate upgrade"

International property group Grosvenor plans to invest around £2m over the next five years in what's claimed to be one of London's single largest estate upgrades in broadband, Wi-Fi and mobile connections.

Despite their wealthy profiles, Belgravia and Mayfair are said to be among the UK's worst performing areas for digital connectivity. Grosvenor is planning an infrastructure upgrade that will see local residents, visitors and businesses benefiting from a new free public Wi-Fi network. It is due to be piloted later this year and is said to have the potential to cover half a square mile in the next three years.

As well as Wi-Fi, Grosvenor's digital upgrade plan includes installing FTTC to deliver superfast broadband up to 78Mbps, and FTTP to deliver ultrafast broadband up to 1Gbps. It says this will reach more than 70 per cent of its London estate which includes over 2,000 properties. In addition, five new 4G masts will be installed in the next three years to improve coverage for all operators and eliminate 4G blackspots.

Grosvenor is working with Openreach, open access fibre specialist Ventura Next,

WiFi SPARK CEO Matt O'Donovan says the area will move from the bottom to the top five per cent in the country for connectivity.

and WiFiSPARK on the upgrade. The latter has been appointed as the preferred Wi-Fi supplier and will provide branded engagement portals to enable users to get online in three key areas on Grosvenor's estate: Motcomb Street and Eccleston Place, both in Belgravia, and Brown Hart Gardens in Mayfair. Following the success of the pilot projects, Wi-Fi access will be rolled out across other key areas over the next five years.

WiFi SPARK CEO Matt O'Donovan says: "We will be providing superfast Gigabit Wi-Fi, making a huge difference to residents and businesses in the area. The fact that the area will move from the bottom five per cent to the top five per cent in the country in terms of connectivity highlights just what a change this investment is going to make." ■

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KADIUM

The ESA's Copernicus mission is based on two identical satellites – Sentinel-2A and Sentinel-2B i – which cover all land surfaces, large islands, inland and coastal waters every five days. Working in unison, the two satellites optimise global coverage and data delivery for numerous applications.

Data from beyond the cloud shared via Interoute

Spacemetric will use Interoute's cloud to support its data storage and distribution needs. The secure solution will be integrated with the web-based *Swedish Earth data Access* (*SWEA*) platform developed by Spacemetric on behalf of the Swedish National Space Board.

Spacemetric specialises in software which streamlines the transformation of raw data from satellite and airborne sensors into imagery ready for analytics. It developed *SWEA* as part of *Copernicus*, the EU Earth observation programme that comprises two identical *Sentinel* satellites managed by the European Space Agency (ESA).

ESA's image archive is widely shared across the world via Interoute's private cloud network. As well as scientists and governments, it can also be accessed by companies looking for ways to turn the data into business opportunities.

Spacemetric will use a hybrid solution which combines physical storage with the Interoute Virtual Data Centre in Stockholm. The latter was launched six months ago and is one of 17 global zones that make up Interoute's private networked cloud.

"As a result, we are guaranteed secure storage of local data as well as superior access due to low latency," says Mikael Stern, CEO, Spacemetric. "It also means that the development process is more agile, making it possible to quickly and easily scale our efforts up or down depending on demand."

Interoute says it was the first global cloud provider to launch a zone in the Nordic region that offers both public and private cloud on one platform. The company claims to own and operate one of Europe's largest networks, and has a global cloud services platform encompassing 15 data centres, 17 virtual data centres and 33 colo centres. ■

CSsquared builds Europe's first Open Lab

Europe's first Open Lab will be launched in London to accelerate the adoption of Open hardware and software for companies in Europe.

The facility is aimed at organisations needing to plan a migration to super-efficient and highly cost effective open compute and open stack technologies, as first pioneered by the Open Compute Project (OCP). Service providers and enterprises will be able to deploy and test their compute workloads on OCP-approved hardware and software, in a controlled, independent and collaborative environment.

Volta Data Centres will house the lab at its London facility in Clerkenwell. The facility will be built and operated by CSsquared, an open stack and open hardware integrator. It will use 1U, 2U and 4U open compute servers, HPC servers, JBOD/JBOF storage devices, and bare metal Ethernet switches.

It's claimed the lab will bring together all the "major players in the open world", including Canonical, Redhat, Cumulus, QCT, Wiwynn, EdgeCore Networks, amongst others.

Volta will house the facility at its London data centre in Clerkenwell.

Users will be able to evaluate the performance of Open hardware running Open Stack software; migrate, validate and certify applications and workloads into an Open Stack environment running on Open hardware; and develop and refine software-based outcomes.

Open data centre initiatives have been mostly taking place in North America, but this is the first of its kind in Europe. CSsquared MD Keith Sullivan says: "Our vision is to bring the huge benefits of the open compute ecosystem – conclusively proven in the hyperscale environment – within reach of European organisations.

"It's new and that can be a bit scary, especially if you've committed to the world view of one of the traditional hardware vendors. We're here to help organisation prove the benefits for themselves, and then to make a planned, insight-driven migration to the 'world of open'." ■

Metronet acquires Venus

Metronet has acquired fibre network provider Venus Business Communications. The connectivity and internet infrastructure specialist says the move gives it access to the strategically important London market as it seeks to build a national "disruptive" platform with last-mile control, faster connectivity and communications to end users, and a "powerful" transit network across Europe. Venus will add six new data centres to the Metronet Group's network which is now said to be connected to all key strategic UK data centre locations as well as 14 of the world's largest and most important internet exchanges. This latest acquisition for Metronet follows its £47.5m buyout of hosting company M247 in October 2016. ■

enet enters UK market

Ireland's largest open-access network operator is entering the UK market. Enet has signed a deal to use SSE Enterprise Telecoms' 13,700km nationwide network which includes a full range of dark fibre, Carrier Ethernet, and optical services. It also gains access to more than 265 POPs. Separately, at the end of March, the company announced a £175,000 network investment into Belfast and its surrounding areas. It combines enet's wireless network with a fibre presence covering all of the main business districts, including the city centre. ■

Acuity buys 500 Ltd's resellers

Acuity Unified Communications has purchased 500 Limited's reseller contracts. The deal also includes access to the secure SIP trunking specialist's self-service provisioning portal. Acuity says it can now offer a fraud protection software portfolio delivering security for mobiles and SIP connectivity, while meeting the suite of telecoms service standards defined by the Federation of Communication Services. Jonathan Rodwell, 500 Ltd's MD, adds: "We can now focus on being a pure software house and provide best of breed service providers such as Acuity provisioning portals that offer the innovation, flexibility, robustness and security to meet the needs of any enterprise." ■

Battery could power PCs for over seven years

A north west technology firm has produced a new battery system which it claims can power a suite of computers for almost eight years.

Tests conducted over a five-month period by engineers at the University of Manchester showed that the *POD* developed by Formby-based Extreme Low Energy (ELe) could power 30 computers for seven hours a day over 2,830 consecutive days (i.e. 7.75 years) before the battery capacity dropped.

Dr. Rebecca Todd from the university's School of Electrical and Electronic Engineering says: "We applied our findings specifically to consider the use of the *POD* in educational establishments, and concluded that an average school should be able to use the system for over 14 years before the battery reaches 80 per cent capacity."

According to ELe, POD stores energy in high-performance lithium-ion batteries, charging overnight to make use of off-peak energy tariffs. When used in conjunction with low energy PCs and monitors, the company says the battery can help organisations save at least 70 per cent in energy costs.

ELe founder Mark Buchanan says: "We're sure that the results of these independent tests will help prove the value of our DC-power solutions and technologies to potential customers both in the UK and overseas."

The ELe POD could help organisations save at least 70 per cent in energy costs.

The firm adds that its low energy system can also act as a backup generator and is attracting interest from schools in developing African nations.

Founded in 2014, Extreme Low Energy is a specialist manufacturer of patent-pending power infrastructures utilising energy storage solutions and alternative energy generation. The company says it offers a range of "unique and innovative" end-to-end DC solutions, including ICT systems, which allows its customers to operate partially or fully off-grid. ■

Firstnet to launch first Tier III data centre in Leeds

Leeds-based IT managed service provider Firstnet Solutions has opened its first data centre in the city.

The company says the new facility has been designed as a bespoke data centre and is not a building conversion. It is carrier agnostic with multiple redundant connections, and is also said to feature multiple hardware failover, physical security, and a low carbon footprint design.

With an existing phase one 400 rack data hall and parallel redundant engineering infrastructure, including 24/7 security and technical support, Firstnet reckons its facility will offer a level of service and quality which, following its planned upgrade to Tier III, will not be found elsewhere in the region.


Firstnet Solutions is managed by husband and wife team David and Angie Cusworth.

The company is also simultaneously launching its own enterprise cloud solution, powered by Nutanix, which is particularly aimed at SMEs. Firstnet Solutions' MD David Cusworth says "Our customers will now have access to managed services and a host of additional support, including a 100+ desk office space for workplace recovery and relocation needs. The opening of the data centre will also enable us to offer vital disaster recovery services to businesses using data centres outside the area."

He adds that the facility is anticipated to create more than 100 new jobs over the next two years. ■

TES helps Northern Ireland college call for backup

South West College (SWC) in Northern Ireland has overcome its comms challenges with the help of Leyland-based TES Radio.

The college's campuses in Cookstown, Dungannon, Enniskillen and Omagh are around 35 miles apart and host more than 500 staff and 25,000 students. All this meant the logistics of managing the IT department were daunting.

SWC technical supervisor George Frazer says: "The campuses are also quite large with big buildings and set in hilly terrain, so communication-wise, the traditional radio equipment we had was inadequate in terms of site coverage and signal."

TES specialises in secure wireless communications systems and was accepted as member of the North Western Universities Purchasing Consortium last year. After winning the tender, it has deployed a multi-site radio solution to SWC. The firm says it did not use repeaters or a DAS (distributed antenna system) which would not only have proved costly but also tricky to install as some of the college buildings have listed status.

Instead, TES opted to overlay an IP-based radio system across SWC's existing multi-vendor Wi-Fi system. It used radio over IP (RoIP) equipment from Icom, including the *VE-PG3* RoIP gateway, two *IP1000C* system controllers each capable of supporting 20 handsets, and 18 *IP100H* WLAN radios which feature push-to-talk functionality over IP. TES pre-configured the college's IP radios, which meant reduced engineering time for the college, and integrated them into the existing IP network.

"Previously, I had to phone the IT offices at the other campuses and hope someone was there or available on Skype," says Frazer. "Now I can pick up the radio to call another campus and know that they can hear me, or I can do a general call to everyone on that campus."

He adds that the new system supplied by TES will greatly improve workflow and operational efficiency. "We now have a speed of communication that we simply didn't have before," says Frazer.

TES was formed in 1991 following a management buyout of the Communications and Engineering Services Department of North West Water (now United Utilities). ■


PHOTO: © CANARY WHARF

The art of the Internet of Things


Featuring around 1,000 light bulbs, Bloom was on display at Canary Wharf (top). Inside each bulb is equipped with Wi-Fi, GPS and IoT intelligence which makes it location-aware.

Xirrus provided the wireless hardware and software infrastructure for a recent and innovative art installation in London.

Created by digital art group Squidsoup, *Bloom* was initially launched at Kew Gardens as part of its Winter Trail and Christmas events. It then transferred to Canary Wharf and is now expected to make its international debut in Mexico City this summer.

Bloom comprises around one thousand individual Wi-Fi-enabled IoT light bulbs that sway in the wind and spread a gentle glow each evening. Each light contains a GPS chip, accelerometer and speakers. These combine to create what's described as "a digital symphony" of light and sound set against a backdrop of iconic or historic landscapes.

Squidsoup founder Anthony Rowe explains that the combination of Xirrus Wi-Fi, GPS technology and IoT intelligence in each light makes every bulb location-aware. "This allows them to receive commands from a central digital hub, while bringing subtle choreography and control to the whole installation. The Xirrus Wi-Fi network plays a critical part in this installation, and allows each light to communicate over the network."

Among the challenges faced by *Bloom*'s designers was the pressure of maintaining a strong and resilient Wi-Fi signal. They needed a single wireless network with the capability to reliably connect more than a thousand IoT devices across an open outdoor space, while also providing the consistency needed to ensure a stunning display each evening.

The installation also required a management system that could centrally control each Wi-Fi device and fully-utilise the IoT technology present in each node. ■

Boston begins to upgrade Angus Council with new wireless WAN

Boston Networks has just started a project to design, supply and install a new wireless WAN to provide advanced connectivity to towns and rural schools across the Angus Council area.

The firm will use wireless technology instead of traditional leased circuits to deliver what is says will be a "truly scalable and flexible carrier class, high performance network". It's also claimed Angus Council will benefit from significant cost efficiencies and the savings made will then be reinvested in value added cloud-based services.

The upgrade will include the provision of wireless connectivity to a number of schools to deliver the higher bandwidth required to facilitate the delivery of the Curriculum for Excellence programme.

Boston says the WAN will deliver both high speed line-of-sight and challenging non-line-of-sight connectivity to schools, such as Arbroath Academy and Carnoustie High, and to towns, such as Arbroath, Forfar and Montrose. It says the network will have the added advantage of featuring set upgrade paths to increase throughput and extend range and coverage to meet future demand.


There will be no compromises on the network's quality or technological benefits, promises Boston Networks' Anne Donnelly.

The company will also provide support and maintenance services to ensure the key towns and schools have continuous access to high capacity, reliable connectivity.

Boston will work closely with Angus Council's IT team to deliver the project as part of the local authority's *Digital 2020* strategy. It will help Angus to enhance infrastructure and connectivity in the county, a key driver of economic development.

Anne Donnelly, client operations manager at Boston Networks, says: "Working in close partnership with the council, we will undertake the planning, design, delivery and support of the wireless WAN utilising our experienced in-house technical team to deliver cost efficiencies, including reducing the total cost of ownership, without compromising on either the quality or the technological benefits." ■

Imperial War Museums win storage battle with Spectra Logic

The Imperial War Museums (IWM) has deployed a large-scale data archiving solution across its sites in England to more reliably store and manage its critical, wartime history data.

The organisation's museums include IWM London, IWM North, IWM Duxford, the Churchill War Rooms and HMS Belfast. It houses a collection of more than 10,700,000 items and manages a total of more than 550TB of data, including up to 10TB of new video footage each month. Exponential data growth is anticipated over time.

Previously, IWM used a disk-based system to preserve its digital assets. But this lacked durability and scalability, was difficult to manage across the five sites, and proved to be extremely expensive. As a result, the IT team replaced the system with tape-based solutions from US-headquartered storage specialist Spectra Logic.

Two of the vendor's *T950* tape libraries – one with Linear Tape Open-5 media and drives, the other with IBM *TS1150* tape technology – were deployed. Spectra's *BlackPearl* converged storage system and *ArcticBlue* object storage based disk platform were also installed.

According to the vendor, the *T950*s provide the capacity, reliability and affordability IWM needed, while the *BlackPearl* and *ArcticBlue* appliances enable the storage of assets on multiple storage mediums. It claims that by storing multiple copies of its data on genetically diverse media, the museum benefits from "optimal" digital preservation and protection.


Two Spectra Logic T950 tape libraries have been deployed. One features LTO-5 media and drives, while the other is equipped with IBM TS1150 technology.

Ian Crawford, IWM's chief information officer, adds: "Following the deployment, we can reliably store large ZIP files of our DPX data using *BlackPearl*, safe in knowing that one copy of our data is stored on disk, and two copies on differing tape technologies." ■

OBS and Riverbed bring SD-WAN to hybrid networks

Riverbed says SteelConnect improves application performance by real-time routing using the optimum links available between different networks.

Orange Business Services (OBS) is strengthening its hybrid network offering with SD-WAN technology from its partner Riverbed.

The mobile company claims the new solution will enable its customers to simplify the management of their hybrid networks and optimise the performance of both corporate and cloud applications. The launch is a key part of Orange's network-as-a-service strategy announced last year *(see News, Nov 2016)* and will be available globally.

To deliver its SD-WAN service, Orange will integrate Riverbed's *SteelConnect* platform into its hybrid network portfolio. The two companies are working together to develop a VNF that customers will be able to deploy on universal customer premise equipment at their site. The partners say full compatibility will be maintained with existing services as enterprises transition applications to the cloud.

The first Orange pilot customers will be connected using managed *SteelConnect* appliances during the second quarter of this year. The VNF of the service is scheduled to be available at the end of 2017. Orange says it will provide full virtualisation and orchestration managed through an "easy-to-use" 'self-care' portal to administer and prioritise applications.

According to Riverbed, *SteelConnect* provides an "intelligent and simplified" approach to designing, deploying and managing hybrid networks. It claims application performance is improved by real-time routing using the optimum links available between different networks.

The vendor adds that *SteelConnect* also enables zero-touch provisioning, allowing enterprises to set-up global networks "quickly with easy management, providing a cost effective and superior end user experience". ■

Curtain falls on MS Exchange at National Theatre

As part of its continuing migration to the cloud, the National Theatre (NT) has chosen Navisite to help with the implementation and management of *Microsoft Office 365*. The deployment replaces an on-premise *Exchange* platform which had capacity issues.

By migrating its Microsoft systems to the cloud, it's claimed the NT will be able to quickly scale email storage according to demand and ensure critical emails are delivered. Navisite says the switch to *Office 365* will also enable better internal communication for the organisation as well as collaboration using a new mobile toolset.

A large proportion of the NT's staff are craftspeople, designers and technicians, and their work is often removed from a traditional desktop PC environment. Despite this, Navisite says the National Theatre's legacy solution was not suited for mobile. With more collaborative, mobile-friendly software environments and reliable email services, it's claimed the organisation will be better able to improve employee engagement and unify a diverse workforce across departments.

Microsoft Office 365 has made its debut at the National Theatre. The cloud system aims to improve internal communications as well as staff collaboration using a new mobile toolset.

"We wanted to take advantage of the fact that cloud computing now makes it possible to put data, servers and compute facilities off-premises, with someone else managing it," says Jon Cheyne, IT director at the National Theatre.

"Implementing *Office 365* is the next step in our cloud journey. It will help shift the role of our in-house team from trying to keep up with and maintain technology to actually operating and looking at how the benefits of the technology can be utilised."

Navisite also offered the NT *Proofpoint* as part of its solution to meet business continuity needs. ■

6DG delivers hybrid cloud through Cloud Connect

UK-based hosting and managed services provider Six Degrees Group (6DG) will use Interxion's *Cloud Connect* platform to build and manage private connections to multiple public cloud providers.

Interxion provides carrier and cloud-neutral colo data centre services, serving customers through 45 data centres in 11 European countries. Its *Cloud Connect* platform is said to provide secure and high performance interconnections to multiple clouds from one physical connection.

London-based 6DG says the platform will enable it to deliver the benefits of a hybrid cloud strategy to its customers, without the performance and security concerns associated with using the public internet to do so. The firm reckons UK organisations can now easily leverage its expertise and network coverage to extend their IT to the public cloud.

"Interxion's platform is a key enabler for our *Cloudhop* service that provides secure and private network connectivity to hyperscale public cloud services," says Richard Norman, head of data product at Six Degrees. "We provide managed hosting services on Amazon Web Services and *Microsoft Azure,* and *Cloudhop* allows us to [deliver] end-to-end solutions spanning network, infrastructure, platform and application management."

Norman adds that *Cloud Connect* was chosen because of Interxion's data centre location in central London. "As an organisation based in London and working with businesses also based in the capital, proximity was an important factor to minimise latency. We can also flex in real-time with customer workload demands."

6DG says it has already successfully connected customers to the public cloud through Interxion's platform, with more planned for later this year. ■

Nomad Digital already provides Wi-Fi on board Translink Group's trains in Northern Ireland.

More on board Wi-Fi for Translink

Translink Group, the main public transport provider in Northern Ireland, will offer Wi-Fi on its buses and coaches following a renewed partnership with Nomad Digital.

Translink is made up of three companies: Metro, Ulsterbus and Northern Ireland Railways. Fleet connectivity specialist Nomad Digital already provides Wi-Fi on board the firm's trains. Under the latest deal, it will also introduce Wi-Fi on buses, coaches, and Translink's new, rapid transit vehicles.

Nomad says its *R4500* series of routers will be deployed across the firm's trains, buses and coaches to create a "common and consistent product family, generating operational efficiencies and cost savings".

It reckons this will allow Translink to take full advantage of the "very latest" Wi-Fi router architecture, incorporating new technologies such as integrated next-generation modems and APs, providing the transport company with a scalable, future-proofed solution.

Founded in 2002 and based in the UK, Nomad was recently acquired by France-based transportation company Alstom *(see News, Jan 2017)*. ■

Comms365 and Everynet partner to enhance IoT capabilities

Managed solutions provider Comms365 will integrate Everynet's network platform into its own infrastructure and offer LoRaWAN-based services in conjunction with its M2M and 4G offerings.

London-based Everynet has a portfolio of products and solutions which are said to include advanced capabilities for firmware over-the-air updates and precision geo-location. It builds, manages and supplies WANs that use the LoRaWAN system – the long range, low power wireless platform used for connectivity in the Internet of Things.

According to Comms365, "one size does not fit all within the IoT market". By partnering with Everynet, the company says it will now offer a full suite of connectivity options and services for all application verticals.

In addition to purchasing shares in Everynet, Comms365 plans to provide essential services for deployment scalability, installation support and additional connectivity services to the company and its customers.

Comms365 claims it already has customers "lining up" to discuss how LoRaWAN technology can save money versus more traditional M2M services.

MD Mike van Bunnens says: "Through our partnership, we will be providing increased functionality and enabling customers to manage their devices and data at a granular level that has previously been unachievable." ■

Comms365 MD Mike van Bunnens says customers are already "lining up" to see how LoRaWAN compares to M2M.

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How IT networks are helping to keep the transportation sector connected and on the move.

Sailing and surfing: free Wi-Fi for ferry passengers

Each year, Red Funnel Ferries carries nearly 3.5 million passengers between Southampton and the Isle of Wight. Its fleet comprises six vessels: three high-speed catamarans for foot passengers take 25 minutes to travel the 11 miles between the city and West Cowes, while three conventional ships, which carry both foot passengers and vehicles, make the journey to East Cowes in 60 minutes.

Having made the decision to offer customers high-speed internet access on board, Red Funnel knew that demand would be high – at any one time, more than 3,000 people would be travelling, with peaks during events such as the Isle of Wight Festival.

TrellisWorks, which has worked for Red Funnel for a number of years, carried out site surveys and field trials and then

installed eight base stations on shore and six antennas on each of Red Funnel's vessels. It used the *InfiMan* 2x2 point-to-multipoint radio device from fixed wireless broadband specialist InfiNet Wireless, coupled with the vendor's *InfiMux* switch designed for moving vessels.

TrellisWorks says multiple wireless connections ensure "make before break" – as the signal weakens with distance, a second radio connects the next base station before the initial connection drops. It adds that the client radios provide 100Mbps throughput, with a minimum of 20Mbps full duplex.

As a backup, and for when vessels were not ready for radio installation, TrellisWorks installed *Pepwave* wireless routers from US company Peplink.bUsing SIMs from a number of networks for both 3G and 4G services, TrellisWorks says these routers are able to seamlessly take over in case of a fault with the radio link with no noticeable effect for users.

In a separate project, Red Funnel upgraded its CCTV system which covers five sites. Here, TrellisWorks chose IP-based cameras from Axis, a Swedish company. The vandal proof models feature mini-dome designs and fish-eye 360º lenses, both for indoor use, and external, static devices including one for ultra low light conditions. In all, 110 cameras were installed and connected to one of three recording sites by cable or – where not possible and to save costs – by wireless link.

Images from each major group of cameras are stored on a Hewlett Packard server with UPS backup. TrellisWorks chose *qulu*, from Vista, as the platform to control live image viewing and playback.

Ain't no mountain high enough...

More than 300 trains a day now pass under the Swiss Alps at 155mph – and passengers have 4G mobile coverage all the way.

The Gotthard Base Tunnel is 35 miles long and took 16 years to construct at a cost of £8.2bn. It means that a Lugano-Zurich journey now takes two hours, cutting 45 minutes off the time taken in the old rail tunnel which opened in 1882.

Named after an 11th century bishop, the new tunnel is the world's longest and, at a maximum of 1.5 miles, the deepest of its type. Its twin bores were cut with four machines – named Sissi, Heidi and Gabi I and Gabi II – each nearly the length of six London buses (1,400 feet).

Mobile communication in the tunnel is through a distributed antenna system (DAS), designed and commissioned by CommScope. The challenge was to support a number of different networks: the railway's GSM-R system for train drivers, dispatchers and on-board staff; two public GSM networks; a UMTS network; and a PMR public safety network. In addition, the system supports LTE public traffic.

CommScope says it decided to assign the higher reliability GSM-R and PMR networks to a main system while the others would be supported by a parallel system. It installed a DAS called *ION-M* which has 31 master control units – 17 on the main system and 14 on the parallel system – connected to nearly 700 remote repeaters. The signals from the repeaters are distributed throughout the main and access tunnels by 93 miles of *Radiax* radiating cable made by Andrew, a company bought by CommScope in 2007.

Fixed network equipment was supplied by Alcatel-Lucent (now part of Nokia) and installed by Zurich-based Alpiq InTec. It has been in use since tunnelling began and now features 450 of Alcatel's *OmniSwitch 6855* Ethernet switches as part of a LAN to control tunnel lights, racks, power systems, doors, drainage and ventilation. In addition, they connect the video surveillance systems to control centres at each end of the tunnel.

Alcatel says the switches were chosen because of their reliability in rugged conditions: temperatures in the tunnel can reach 40ºC while humidity can hit 70 per cent. Maintenance therefore needs to be minimal.

The network is controlled by two of the company's *OmniVista* network management systems.

New IT keeps them flying around the world

With a fleet of 500 helicopters, Bristow Group is headquartered in Houston and has 3,500 staff. It is organised into four regions, Europe, Africa, Americas and Asia Pacific, and has operations around the world, including servicing North Sea rigs and search and rescue for HM Coastguard.

The company needed a cost-effective way to standardise application delivery to its devices and to ensure that each was fully up-to-date with security and compliance patches. Bristow's technical lead, client computing, Darren Linsdell, says: "Traditionally when it came to application deployment we used scripts, which was a very manual, time consuming process. To create and test a new script and then push it out to all our clients could easily take up to four weeks, with only a 75-80 per cent success rate.

"In many of our global locations, network speeds are very slow due to their remote situation, and one site still relies on a satellite connection. There was a need to limit and control the amount of data we send at one time".

Bristow's client computing team selected Microsoft's *System Center Configuration Manager* (*SCCM*) as the solution. It was implemented by Huntingdon-based EACS. In the design phase EACS and Bristow's team gathered details, including client devices, network capability and locations. EACS says the task was complicated by the remote location and communications infrastructure at many Bristow sites. As a result, it recommended *HEAT Software* (previously Lumension) to work in conjunction with *SCCM* to patch non-Microsoft applications.

The main implementation took place over five weeks, while the remaining servers were installed over subsequent weeks due to the location of some of the sites. In total, Bristow installed 50 servers, which look after 2,500 clients. EACS says they were all configured and prepared in the UK prior to shipping. Once each server arrived on site, staff just needed to plug in the power and switch on. It was decided to use scheduling and data rate facilities within *SCCM* to control and limit the amount of data sent at one time to a location.

EACS says Bristow has standardised the client configuration and can deploy new software globally within days. And it is also using *SCCM* to improve security with updated security patches. In addition, if a user requests a new application, the IT team can deliver it in hours.

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United we stand

Using instant messaging, presence, video, web meetings are now all common ways to connect with co-workers and customers. UC is therefore said to be a reality and represents the way most people work.

No longer just a 'marketing buzzword', unified communications are now considered to be the norm for enterprise communications. But there are still challenges ahead, as JAMES HAYES finds out.

Start spreading the news (via your messaging medium of choice) that unified communications has at last established itself as the core enterprise application it always wanted to be.

It's taken time. Only a year ago *Networking+* reported that UC's prospects for mainstream take-up were still uncertain *(see 'Unifying UC' feature, Apr 2016)*. But successively upward market forecasts, along with a stream of customer contracts, indicate that investment in UC solutions has grown across a range of public and privates sector verticals, and that demand is worldwide.

Analysts' predictions for growth are upbeat. Grand View Research expects the worldwide UC market to be worth $143.49bn by 2024, with uptake propelled by factors such as international enterprise expansion, public sector efficiency drives, and increased needs for real-time inter-organisational information exchange.

Rival research firm Global Market Insights takes a slightly conservative view of growth. It expects a rise in mobile device uptake to drive UC demand over the next five years and forecasts a market value of $96bn by 2023 – still a figure that other application sectors would envy.

"There are multiple business factors driving UC adoption," says Phil Mottram, director of enterprise at Vodafone. "These can include the need for efficiency gains, greater workforce agility and collaboration, as well as requirements for consistency and compliance across the business. Another added benefit is 'true' convergence – one system that knows who you are, where you are, and what device you're on, irrespective of network connectivity."

But UC still faces challenges – some new, some old. Despite suggestions that the drive toward cloud-hosted or managed services have driven UC's recent fortunes, a significant number of adopters want to overlay platforms on existing or enhanced network infrastructures. Questions can arise over the quantification of UC's tangible ROI in such environments, especially with respect to scalability: in short, will UC continue to justify its capex and opex as it is deployed to expanded workforces, especially internationally?

"What gives well integrated UC solutions an edge is when they get out of the way of the users' core activity and fade into the background."

Craig Walker,
Head of cloud services,
Alcatel-Lucent Enterprise

Leap of faith

There is also the question of whether unified communications constitute a defined technology or even industry, where solutions providers seem content to sell platforms that provide limited interoperability between proprietary systems, and thereby mimic the supplier lock-in that non-unification, arguably, is supposed to be an antidote to.

It also seems strange that, in view of the evidence of a multi-billion-dollar market, UC is still called a 'marketing buzzword' in some quarters. Todd Carothers, marketing and sales EVP at Canadian UC software specialist CounterPath, says this is not a fair way to describe communications that are truly unified. "The word 'unified' is a strong one, suggesting across-the-board collaboration, and I understand the cynicism surrounding these terms considering how many tools have been defined by vendor lock-in, hardware replacement, or expensive software licenses."

Carothers believes that a new and truer breed of UC solutions are now entering the marketplace, offering solutions that integrate more flexibly with existing servers and hardware, and making a more flexible, 'pick-and-mix' style user experience possible.

For Greg Zweig, director of solutions marketing at US-based IP-based communications software provider GENBAND, the term 'UC' no longer matters: "The reality is that UC, at least the way the industry conceived it 20 years ago, is now how most people work. Instant messaging, presence, video, web meetings – these are all common ways to connect with co-workers and customers.

Unfortunately, many of these solutions are still silos with separate passwords, directories, user interfaces. But the basic elements of UC are the *de facto* norm for communications."

As well as these silos, another integration issue that has hampered UC is that, while some features may add value to user needs, others seem superfluous or already performed by diverse incumbent applications, apps or services. The justification for UC therefore becomes 'bitty'.

In order to gain full value from UC, Carothers believes you need a leap of faith in the whole kit-and-caboodle, and to own up to the limitations in the use of non-unified comms options.

"There are multiple vendor offerings that all provide slightly different applications, between many of which there is crossover. Skype, for example, offers something like UC, but in a Skype way. What if a customer wants to customise and add the functionality of a disparate platform? It won't work."

Adrian Hipkiss, VP and MD at ShoreTel, insist that quality of service is

"VoIP can easily be integrated into almost any application on the planet."

Todd Carothers, EVP marketing & sales, CounterPath

the big issue here. "Getting good voice and video quality, and how this is seamlessly integrated with all the other ways you need to interact, is so important. There are other [non-unified options for] setting-up these interactions, sure, but dropping in and out of these adds-up in lost time and productivity on a scale that matters – especially if you are a service business.

"You can try using consumer UC apps, but these fall down on the quality issue again and on the basic phone functionality businesses now need. Try to transfer a Skype call to a colleague, for example, and tell me how easy that is."

Zweig agrees that it would not be sensible to suggest that consumer apps are appropriate for business: "Would you be happy if your bank used *Skype* to manage your accounts? Would it be okay if your local hospital used *Facetime* to manage medical records?"

He also seems to sound a note of exasperation when he says that the ROI conversation is getting "tired" as it suggests that putting a traditional phone on employees' desks is sufficient. "We can't rant about the fact that no-one uses their phone anymore and then suggest that modern UC features are superfluous. Users need mobility, they need presence and messaging, to be productive."

Craig Walker, head of cloud services at Alcatel-Lucent Enterprise (ALE) suggests that business requirements will eventually reach levels of complexity that even enterprise-class diversified solutions are not designed to cope with – which is why perspicacious organisations go UC sooner rather than later.

"In an increasingly-mobilised workforce, the deployed solution needs to be as intuitive as possible – just work (without having to think about it) and preferably be embedded into the business applications and processes used. What gives well integrated UC solutions an edge is when they get out of the way of the users' core activity and fade into the background. Only when IT departments start to think about deploying unified communications and not a UC solution will businesses create real ROI."

For Mark Russell, director of operations at Swyx, this element of integration with business applications is another key attribute in UC's favour, because network managers like technology that reduces the number of critical integration management points for them to deal with. He reckons that the UC solutions that stand out are those that can provide full integration with third-party applications and data sources.

"The promise of what's being coined 'contextual communications' enables users to not only converge different communications types on a single platform, but also support more 'intelligent' conversations because they have the relevant CRM data in front of them on a single display. These forms of true UC, that tap into external information or other cues such as location, more readily support personalised interactions and a better customer experience – a priority for the C-suite."

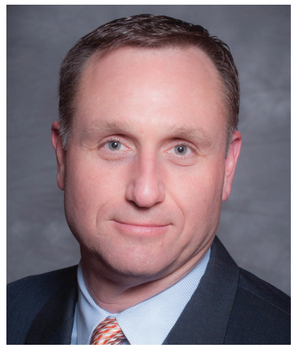
Other UC observers flag-up security as an issue that should not be underestimated in the quest to unify a panoply of communications endpoints which may have relied on their own device-specific safeguards.

Kevin Baynes, UK and Ireland country manager at Sonus, points out that UC is often the forgotten application among CISOs, and warns it will be more vulnerable and open to attacks in 2017: "UC is not just the voice call anymore – it's video, file sharing, messaging, etc. And now that it's moved to IP, [it is] inherently more vulnerable to being exploited."

In-house or in cloud?

In the meantime, one of the most challenging decisions UC adopters have to make is whether it is best to deploy a platform over an existing or upgraded on premise network infrastructure and manage it in-house; or host it in the cloud or to outsource it completely as a managed cloud-based service.

The percentage of organisations that prefer to keep things in-house remains high: UC solutions accounted for some 60 per cent of the overall market share in 2015-2016, according to Grand View Research reports, due to factors like ease



"We can't rant about the fact that no-one uses their phone anymore and then suggest that modern UC features are superfluous."

Greg Zweig, Director of solutions marketing, GENBAND

of customisation and control, and security. But of course, in-house means having IT personnel on 24x7 stand-by to ensure the system delivers to expectations.

"Businesses face the choice of where to deploy a UC system, who manages it, and how it is acquired," says ALE's Walker. "The vast majority will not be able to simply rip-and-replace existing [network infrastructure] investments to add-in UC capabilities."

He goes on to predict that most UC solutions deployed over the next few years will end up being a hybrid of on-premise and cloud-based systems.

Jon Seddon, head of product at managed service provider GCI, says cloud has made the deployment of UC easier for the simple reason that it has become easier to integrate systems with existing solutions.

"Very few customer sites are

'greenfield', and organisations are typically not keen on a 'rip-and-replace' strategy – at least not straight away. Cloud has helped by making the old and new work together, until the customer can fully migrate. Being able to deploy directly to multiple devices, and keep them constantly updated and patched, is a undoubtedly a lot simpler when they are cloud-connected."

Seddon continues by claiming cloud service providers have built a "rich ecosystem" of interlocking elements. "Many of the previous hurdles of UC adoption – from integration with legacy systems to providing fully-fledged contact centre functionality – are no longer present."

Vodafone's Mottram says there are a number of benefits to running UC in the cloud. For instance, software upgrades can be managed centrally, and services can be scaled up and down much faster. As a result, network managers can then focus on the business requirements, service innovation roadmap.

But Zweig is not so sure about a UC future in the cloud. He reckons the majority of new deployments are being driven from the cloud. While there are exceptions here, such as hospitals, banking and defence, he believes cloud is quickly taking over as the deployment model of choice. "That said, regardless of where the session control is based, media is still going to travel across the LAN and WAN."

VoIP – the 'petrol in the UC engine'

Some experts point out that network readiness is often-overlooked in a UC transition. They warn that no matter how much you invest in applications, if the connectivity on which they run is impacting quality, you're going to have problems created by, for example, rising volumes of traffic running between regions on different networks, or employees increasingly using video for internal calls.

"Voice and messaging are rarely a major threat to network capacity," says Zweig. "If an organisation is undergoing a major upgrade to its communications, the variable to watch is desktop video-conferencing. These sessions can easily use 1-4Mbps of bandwidth, creating congestion on lower capacity WAN links as well as a strain on internet capacity."

Even so, when it comes to bandwidth availability, every little helps. What happens when network managers anxious to extract maximum value from their UC investment consider moving voice traffic entirely to mobile networks? Would UC still qualify for the nomenclature without a VoIP component? Not according to CounterPath's Carothers.

"VoIP is a key component as it ties in directly to the IP-based architecture of UC, plus it enables voice to be leveraged in a different way. Regarding the latter, it enables users to engage with UC in a way you cannot do with non-VoIP services. For example, datagrams can be sent with valuable information about a UC session that includes specifics about the meeting, such as calendar, participant, location, etc. VoIP is important because it is based on IP – and therefore can easily be integrated into almost any application on the planet – UC and beyond."

Swyx's Russell agrees that it's "crazy" to talk about UC without a VoIP component, despite the ubiquitous and growing use of mobiles for business communications. "Having VoIP as part of your corporate infrastructure ensures that all calls are controlled centrally and directed to the most appropriate department or individual, not to mention giving you the ability to contextualise calls with back-office applications. While devices used for communication will change over time – mobile phones are soon likely to become 'VoIP phones' – VoIP is essentially the 'petrol' in the UC 'engine' and cannot run without it."

But Patrick Harper, CTO with web conferencing and collaboration technology specialist PGi, is less dogmatic about the possibility of VoIP-less UC. He believes UC is all about taking a strategic and diversified approach to enterprise collaboration and communication tools. "While VoIP isn't going away anytime soon, with advancements towards 5G and HD calling becoming the standard, we'll see a shift towards a mobile preference for conference communication."

ALE's Walker concurs: "UC does not need to contain VoIP. The telephony aspect can be analogue, digital, or IP or GSM voice (not over the data channel), as well as VoIP. UC absolutely needs to have real-time communications – voice and or video – to qualify for the 'unified' nomenclature, otherwise it's just 'Asynchronous Communications'." ■

Latest products for UC and IP telephony – Off-the-shelf, p14.

The shape of things to come: what to watch out for in UC this year

KEVIN BAYNES, UK and Ireland country manager for Sonus, predicts what to expect in unified comms during 2017.

Session Border Controllers offer real-time security platforms that are application aware.

SIP trunking gets the respect it deserves

Last year, BT made a bold statement announcing that by 2025 it will switch off ISDN trunking in favour of adopting SIP trunking. While SIP trunking has already taken off in the US, European enterprises have yet to make the investment. With a huge, untapped market for SIP trunking services, especially for enterprises that are looking for ways to unify communications and cut costs (i.e. just about every enterprise), I predict that SIP trunking will get the attention it deserves in 2017.

Microsoft's cloud PBX is set to take off

In 2015, Microsoft rolled out PSTN calling. While its initial country availability was limited, today it's growing thanks to *Microsoft Cloud Connector Edition* (*CCE*). This solution is providing businesses, whose countries don't have PSTN calling, with an option to adopt cloud PBX and integrate local PSTN services. I predict enterprises will begin rapidly deploying *CCE* to enjoy the benefits of hybrid cloud communications instead of waiting for a PSTN calling option to become available in their country.

I also think they will look for integrated vendor solutions that let them migrate seamlessly to cloud PBX while they sweat legacy investments they aren't ready to get rid of.

Increased need for security

UC will be more vulnerable and open to attacks in 2017. UC isn't just the voice call anymore – it's video, file sharing, messaging, etc. – and now that it has moved to IP, it provides a much richer set of capabilities and is inherently more vulnerable to being exploited. To protect and secure UC, firms need a new application-aware solution – a real-time security platform purpose-built for real-time services known as a Session Border Controller.

off-the-shelf: UC & VoIP

Talk of the town

Some of the latest gear to help you get the best out of IP telephony and unified communications

Software-based IP PBX specialist **3CX** has introduced *PBX Express*. Featuring a web-based wizard, it's claimed users and resellers will be able to easily set up a complete *PBX system* in a cloud of their choice and within minutes.

3CX reckons *PBX Express* is ideal for small businesses that need a fully functioning PBX that can run in the cloud and still give complete control at a fraction of the cost of other cloud solutions.

Customers, it says, have complete flexibility in their choice of SIP trunks and devices, together with features such as softphone and smartphone clients (*pictured*); for *Windows*, *Mac*, *iOS* and *Android* presence, chat and integrated video-conferencing.

Also included are unlimited extensions; eight simultaneous calls (up to 25 extensions); and five web conferencing participants for free. In addition, 3CX offers one year free DNS hosting and SSL certification, along with free software and security updates.

Users are guided through an eight step process which will create a brand new PBX installation hosted on Google Cloud, Amazon or any Openstack VPS provider. And users are promised the same features, settings and management offered with the company's existing on-premise and cloud versions.

3CX says its resellers can also benefit by setting up and managing *PBX Express* at a cloud provider for their customers, eliminating the need to invest in hardware and dedicated servers to set up a complex multi-tenant installation.

Yamaha subsidiary **Revolabs** has introduced a portable conference phone which it says is optimised for use by small groups.

Unlike many other user-carried devices, the company claims the *YVC-300* delivers ample sound to fill huddle rooms and small conference spaces so that participants do not have to hover around the phone struggling to hear. It is said to deliver the highest volume in its class among USB powered speakerphones.

Revolabs reckons the device is a perfect choice for organisations that want to offer high-quality group communications without the cost of dedicated equipment for every conference room or open collaboration space. Users can simply borrow a *YVC-300* from an available supply and return it at the end of the meeting.

There are three connection options: PC-based audio, video and web conferencing supported over USB; analogue audio input and output terminals linked to video conferencing systems; and smartphones and tablets connected over Bluetooth to use the *YVC-300* as the microphone and speaker. It also supports fast pairing for NFC-enabled devices. Calls placed simultaneously over any of the connection interfaces are bridged into a single call.

Revolabs says that Yamaha's sound processing technologies ensure clear, stress-free audio for meetings. They include: adaptive echo cancellation; automatic gain control which adjusts loud and quiet sounds to the optimal volume; automatic tracking of the direction of the voice of the speaker; background noise reduction (for example, from a projector or air conditioning); and automatic voice detection.

The recommended range for microphone pick up is 1.5 metres up to a maximum of three metres. The *YVC-300* measures 235mmx226mmx46mm and weighs 800 grams, and is supplied with a three metre USB cable.

NetScout Systems (now part of Fluke Networks) has added VoIP monitoring to its SaaS product, *TruView Live*.

The company says its platform now monitors VoIP services, SaaS, on site, and hybrid applications giving IT teams complete visibility to pinpoint and resolve problems rapidly.

Although the use of VoIP is increasing rapidly, NetScout says the quality and availability of VoIP services, especially hosted VoIP, can be inconsistent.

It claims *TruView Live* makes it easy for IT managers to routinely and continuously test the quality and availability of VoIP capabilities, and offers a dashboard that tracks testing results. The new VoIP monitoring capability uses active, synthetic testing to let customers check their SIP-based VoIP systems for call availability quality.

To perform this check, *TruView Live* sets up network pulses that act as a phone to place an actual call. During the call, it plays music, allowing the system to measure Mean Opinion Score (MOS), loss, latency, and jitter. IT managers can determine whether to set up the tests between two pulses or locations (a pulse-to-pulse call) or to an external number for their hosted or on-premise VoIP system.

Following testing, MOS test results are displayed in performance graphs and alerts are issued based on customer-specific thresholds.

Having launched a cloud service in the USA, **ShoreTel** has opened a data centre in the UK to offer the service here. It is available as *ShoreTel Connect* and, for larger users, *ShoreTel Connect Contact Center*.

The company says subscribers can now benefit from UC – ready made and with clear and simple pricing – offering voice, video, mobile, conferencing, messaging and contact centre services.

Connect has a client app which, says the firm, makes collaboration simple and consistent: with one click, users can escalate a conversation from an IM to a call, to an online meeting, and then to a web desktop share and video. It is said to allow seamless collaboration among internal teams, while also enabling external users to engage and collaborate without the need for plug-ins, multiple application windows, passwords or complex set-up.

Connect's user interface shows a panel as a guide to what the user may wish to do next. They include icons for calls, video, web sharing, add a participant and other actions, contact timeline, favourites, agenda timing, and integration with *Outlook* and ICS calendars.

Features include IP PBX telephony services, desk phones with function keys, and *Connect* clients for PCs and Macs for user call control, contacts, event scheduling and history and collaboration. ShoreTel claims performance is assured because it designs and develops its own phones, voice switch technology, software and other applications.

Meanwhile, *Connect Cloud Contact Center* is said to integrate seamlessly with *Connect* and enables agents to handle multiple interactions, with features such as web chat, callbacks and email routing. ShoreTel adds that supervisors can build complex call queues and IVR scripts in house, and customisable reports display immediately.

With a single device, small businesses can continue using their analogue telephones when they switch to VoIP, says **Patton**.

It has introduced a range of enterprise Session Border Controllers (eSBCs) designed for customers who need to integrate POTS trunks or legacy FXS end points into all-IP and cloud-based communication systems, including on-premise and hosted unified communications (UC).

Patton says most eSBCs are designed for SIP-to-SIP while an analogue telephony adapter (ATA) is needed for TDM-to-IP. The company says its eSBCs do the work of several network elements at half the cost of comparable alternatives

Called *SmartNode*, the new range offers two to eight built in analogue telephony interfaces. The company says they also include a stateful firewall with secure TLS/SRTP encryption for signalling and voice plus configurable mechanisms for preventing toll fraud and denial of service attacks.

Other features include failover and load-balancing mechanisms for TDM and LTE survivability, and an embedded PacketSmart probe designed to provide QoS/QoE performance metrics such as packet loss, jitter and MOS.

The range, says Patton, offers two, four or eight FXS ports for up to eight G.722/G.711 or T.38 simultaneous calls along with local call switching for soft fall back to alternative routes. It adds tat they are interoperable for voice and T.38 fax with leading SIP service providers, softswitch vendors and major IP-PBX manufacturers.

The *T46G SFB* and *T48G SFB* have become the first phones in **Yealink**'s *T4x series* to be certified by Microsoft for use on its *Skype for Business* online service platform. Offered as part of *Office 365*, the platform provides cloud PBX and PSTN conferencing functionality accessed via add-on licences.

Yealink says access to PSTN conferencing creates an effective and affordable dial-in conference service whilst the cloud PBX enables simple integration with PC, Mac and mobile devices.

The *T46G* and *T48G (pictured)* are aimed at what the company describes as the "executive and professional" sectors.

Each model features dual-port GbE connectivity as well as *Outlook* calendar synchronisation and meeting join functionality. They also incorporate colour screens with the *T48G*'s seven-inch 800 x 480 backlit display offering touch functionality.

Other talking points include Yealink's wireless *Better Together over Ethernet* (*BToE*) feature which is said to enable seamless switching between the *Skype for Business* desktop-client and the phone, *Optima* HD Voice technology for "crystal-clear, lifelike conversations", support for PoE, and a USB port which enables Bluetooth connectivity via a dongle.

Climbing a pole for the first time can be daunting for new recruits, which is why Openreach is using virtual reality to give people a real insight into what's involved.

Openreach turns to VR to expand workforce

Openreach is aiming to hire 1,500 trainees as part of a major expansion of its engineering workforce over the next eight months. The firm is seeking recruits from across the country to fill new, full-time and permanent roles to help it extend its fibre broadband network and improve customer service.

119 trainees are initially expected to join Openreach in April, followed by around 60 new recruits appointed each week through to mid-October. New trainees will embark on a tailored 12 month accredited learning programme, culminating with the attainment of an externally recognised qualification for IT, software and telecoms professionals.

Openreach chief executive Clive Selley said: "We are continuing to roll out superfast broadband services at scale and making big investments in our network to make ultrafast broadband available to up to 12 million homes by the end of 2020. We want to recruit the very best people to help us on that journey, and our new trainee engineering roles will offer people the hands on experience they need to succeed."

In what's described as a "ground-breaking" approach to recruitment, potential candidates will be able to use virtual reality to discover what life as a field engineer involves. Through the VR headset they will be able to climb a telephone pole, explore the local exchange building, or look inside a green roadside cabinet, all in immersive 3D.

"Everyone wonders what it might be like to work for a company when they apply for a job, but we're giving people the ability to physically see it and experience it for themselves," says Kevin Brady, HR director, Openreach.

"Hidden" talent pool could help IT skills gap

Many of the skills developed by graduates on non-STEM degrees can be transferred into digital roles, thereby unlocking a "hidden talent pool", says the FDM Group.

Based in London, FDM is a professional services company with a focus on IT and claims to be the UK's largest IT graduate employer. Earlier this year, it met with MPs to brief them on how non-technical students, in particular females, can be encouraged into digital roles to help fill the growing IT skills and gender gaps.

The briefing was based on insight gained from interviews the firm carried out among 400 of its female consultants. The research, which was supported by Cisco, demonstrated that given the diversity of digital roles today, a technology related degree is not necessarily required to gain employment. For instance, on its own graduate programme, FDM said the business analyst and project management streams in particular attract many non-STEM graduates, including those with degrees in classics, law, geography and politics, to name a few.

FDM COO Sheila Flavell acknowledged that while it's important to encourage more girls to study STEM subjects, there are also real opportunities to encourage them to consider a career in IT whatever they are studying. "Getting this message across to students who may be unsure if they can get into IT without a computer science degree could unlock a hidden talent pool that ultimately may help us meet the growing demand for digital skills."

If the IT sector wants to take advantage of the transferable skills of non-STEM graduates, FDM believes it needs to increase visibility of roles available and overcome the negative perceptions of the industry.

IN BRIEF...

■ On 27 March, Unite union members working for Fujitsu went on strike for the fourth time this year over plans to cut jobs and pensions. Accusing the firm of "keeping workers in the dark", Unite called on Fujitsu to share its business case for axing and offshoring 1,800 jobs. Other elements of the dispute include what the union claims is a retrospective cut to pensions for over-60s, pay inequality, and what's alleged to be Fujitsu's refusal to become an accredited Living Wage employer.

■ Education providers in the north west of England are being given the tools to deliver "cutting-edge" digital training, following a partnership between Cisco and UKFast. 73 schools have joined the Cisco Net Academy which aims to equip teachers with the skills and resources to deliver a digital programme that will be provided by the Open University. UKFast says it works with more than 57,000 children and 40 schools across Greater Manchester, "inspiring" them towards a career in technology. The cloud company adds that its training and education centre is backed by £4.5m investment.

■ Two thirds of small and medium-sized tech and telecom firms plan to grow "dramatically" or "moderately" over the next two years, according to a new report from UK venture capital investors Albion Ventures. Based on interviews with more than 1,000 SMEs, including 150 tech and telco firms, the study revealed that almost half of tech entrepreneurs plan to grow their headcount over the next two years. However, 48 per cent said that finding skilled staff was the biggest challenge they faced.

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