

networking

FIXED & WIRELESS NETWORKS FOR ENTERPRISE USERS

Cold storage

Antarctic researchers using hybrid flash to store growing volume of research data

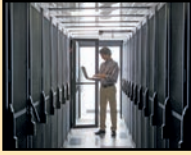
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Europe's first PoE lighting system to be unveiled

by Rahiel Nasir

What's claimed to be Europe's first true PoE lighting installation will be unveiled in the coming weeks. The deployment will pave the way for 'Lighting as a Service' (LaaS) as part of the Internet of Everything.

UK tech company amBX has been working alongside Cisco on the project since 2012 at the University of Strathclyde's Technical Innovation Centre. The company says it has developed software that delivers high-performance lighting control without the need for costly programming and complex technical interfaces.

Under its *CREATE* programme, Cisco has been collaborating with a variety of organisations to develop technologies for the Internet of Everything (IoE). At the University of Strathclyde, it is working with amBX on LaaS as part of a two-year

innovation project co-funded by Innovate UK, the government's innovation agency. Project partners also include Edinburgh-based pureLiFi which has developed visible light communications that deliver high-speed, bi-directional networked, mobile comms in a similar manner to Wi-Fi.

LaaS aims to bring to market lighting that is powered, connected and controlled by digital networks. Those involved in the project say it will create "vast capabilities" to manage smart loads, reduce costs and carbon emissions, and create new use cases for lighting. LaaS will serve as a pilot to demonstrate the IoT for power networks in commercial building management.

Cisco's involvement includes developing core protocols and integration, as well as providing feedback to standards bodies.



amBX's lighting control systems have already been used in a number of flagship commercial installations in the UK. For example last year, its Light Scene Engine was chosen for this eye-catching Christmas display in London's Piccadilly Circus. The engine was installed on a bespoke 1U rack-mounted PC which controlled the LED lights.

The company's *Energywise* systems will be used to automatically discover all devices connected to the network, manage their energy usage and report the savings in terms of costs, carbon and energy. Cisco will also consider how third-party end devices can be connected to the intelligent network.

amBX CEO John Niebel says that while PoE has been around for a while now, when it first came out around 15 years ago it only offered 15W of power. But he says that Cisco has now demonstrated PoE capabilities of 60W.

(continued on page 2)

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New global network launched for technology professionals

What's described as a unique new video collaboration network for technology professionals has been launched.

TechTank aims to break down competition barriers and enable open knowledge sharing between businesses. It offers a unified, standardised approach to the latest technology trends, and has appointed an advisory board that includes experts from Microsoft, Intel, UK Trade and Investment, Orange Healthcare and VMware.

The community is open to anybody in a tech role in any business, from CIO through to IT manager, as well as independent developers. The free platform will enable them to discuss their challenges, business priorities and discover more about the disruptive technology in their vertical market.

TechTank was co-founded by Jonathan Floodgate who has managed several

independent B2B events companies in Asia and the Middle East over the last ten years. He says part of the aim was to provide a knowledge-sharing platform that helps businesses operate in a digital age.

"TechTank will give our attendees genuine insights from their peers to ensure they are making informed choices about their next steps," says Floodgate.

All content and themes covered in TechTank's channels are directly requested by members of the community, allowing them to discuss key topics and attend the talk with peers facing the same challenges. TechTank says this 'open knowledge' approach gives every community member a say in the direction of discussions relevant to their own needs and responsibilities.

www.techtanktalks.com

Huge data surge seen in the Antarctic region

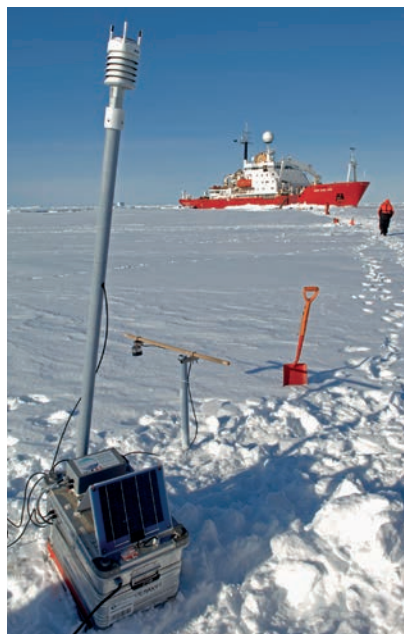
The British Antarctic Survey (BAS) is using hybrid flash storage to deal with a surge in research data.

BAS collects and preserves vast amounts of critical data about what exists above and below the seafloor. Additionally, as the European hub of SuperDARN – a global project focused on measuring and modelling the impact of atmospheric conditions on the Antarctic ice-shelf – BAS is responsible for sharing massive amounts of data with the global research community.

Faced with collecting 10 times more data than a decade ago, the organisation needed high-performance storage that could grow in place at its space-constrained data centre in Cambridge. As a result, it now uses DataDirect Networks' (DDN) SFA7700X hybrid storage appliance which combines both spinning disk and flash media.

"Over the last 10 to 15 years our data increase has been around 75 per cent year on year," says Jeremy Robst, IT support engineer and head of Unix systems, BAS. "The ability to blend some of the fastest online storage with near-line storage in one solution meets our demands for performance-optimised solutions."

DDN says the SFA7700X's high-density configuration has enabled BAS to cut data centre space dedicated to storage by almost half while increasing capacity by more than 10x. It adds that the organisation can now easily upgrade its existing storage, adding more appliances to achieve a three-to-four



BAS collects and preserves vast amounts of critical data about what exists above and below the Antarctic seafloor.

times increase of up to 1.5PB of capacity within the same footprint.

The SFA7700X also helps BAS to address its growing VMware environment while supporting a move to a Lustre parallel file system to align seamlessly with the Cambridge-based research community. ■

PoE lighting system promises to create healthier environments

(continued from p1)

He says: "Standard LED lighting takes around 35 to 40W so using PoE lighting systems in buildings makes sense as you can use power and data down the same cable. There's no need for skilled electricians. Lighting really is the last analogue domain and is next to be digitised. With PoE systems, lighting becomes part of the network rather than the building services domain."

According to Niebel, while lighting control is now a legal requirement for buildings, current programming systems are difficult and expensive to use. He claims amBX's system will enable a wide range of control capabilities for user interfaces such as PDAs, smart devices, tablets and wall controls.

amBX COO Neil Macdonald adds: "[Our] system supports an extremely wide range of ways to interact with lighting making it easy to manage both simple and sophisticated lighting experiences. Controlling lighting using PoE in this way will enable building owners and users to use richer, bio-adaptive lighting in new ways to create healthier, more productive workspaces and environments."

Originally spun out from Phillips Research, amBX has created technology that works by controlling the lighting in a single space or multiple spaces based around end-user needs. These include environmental factors such as daylight levels, time of day, temperature, whether the space is in use or not, and any other

measurable parameter. The firm says its software takes all these factors into account to produce, in real-time, the "perfect" virtual implementation of the desired outcome. It then projects the best representation possible of that in the real world using the lighting available.

amBX believes smart connected lighting control will mean systems that are quicker and easier to install. In a public demonstration at the University of Strathclyde planned for 8 October, the developers will show how the work they have been doing can deliver up to 75 per cent energy savings in commercial and public installations switching to LED.

amBX's systems address three key sectors of the global market: lighting connected on Ethernet-based networks; commercial projects and installations; and bio-adaptive, human-centric lighting.

According to the firm, the latter provides artificial light controlled in such a way as to match the needs of human biological cycles or 'circadian rhythms'. It says these physical, mental and behavioural changes follow a roughly 24-hour cycle, responding primarily to light and darkness.

As a result, the company claims its technology supports improved health and well-being, as well as aspects of human behaviour that benefit from varied and changeable lighting.

Niebel says hardware will be launched before the end of this year with commercial products expected in 2016. ■



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The video surveillance control room at St. James' Park will be fed with images from 130 networked cameras supplied by MOBOTIX.

IP video helps secure Newcastle Utd stadium

Newcastle United is using a network-based video security system to protect its home ground at St. James' Park. Said to be the third-largest stadium in the English Premier League, the 52,000 seat venue also hosts rugby matches, concerts, as well as conferences and banquets.

With an estimated 20 million visitors using its facilities each year, St. James was an early adopter of video surveillance. But its existing system of 140 cameras is now 15-years-old, and was experiencing issues with image quality and maintenance.

Stadium manager Eddie Rutherford says: "We need a very high quality view of the seating areas for health and safety reasons and as such we use cameras with motorised pan-tilt-zoom [PTZ]. But when we're zoomed in on one section, it's no longer possible to view the wider picture on that camera."

"Another issue is maintenance. Many of our cameras are high up in the roof structure and when one fails, it is a complex and expensive procedure to gain access."

As repairing faulty cameras started

to become economically unviable, Rutherford says a complete upgrade was needed. Working with local expert Direct Technology, the club began trialling MOBOTIX's IP video system and has now installed 30 of the vendor's digital PTZ cameras. The system is based on a decentralised concept where all video is recorded on the camera's internal SD card or via the network onto NAS. This therefore removes the need for a centralised server or control room.

Rutherford adds that there is also no need to use special PTZ boxes, heaters or even separate power cabling. Furthermore, the cameras are adjusted so that they work automatically and offer the same image quality both in the day as well as during floodlight matches.

The stadium plans to install 100 more cameras over the next 36 months. MOBOTIX also offers optional modules for automatic people counting and thermal imaging which Rutherford says could be a potential future benefit. ■

Oxford City Council chooses SCC in multimillion pound deal

SCC has won an IT infrastructure contract worth £13.5m over 10 years with Oxford City Council.

Under a five-year deal, with the option to extend by a further five years, the firm will deliver hosting, server and storage, technical support, database administration, as well as network security infrastructure and support to the council.

Oxford will use SCC's multi-tenanted *Sentinel* cloud platform for data centre hosting. SCC says this was built specifically for the public sector and is the first Pan-Government Accredited cloud platform of its kind.

Sentinel will enable the council to scale server requirements up or down and pay only for what it uses. This is expected to



THE WORLD ACCORDING TO...

Brandon Tanner, senior manager, IT Specialists

How to prepare your IT department for a disaster

Today, more IT departments recognise the importance of disaster recovery (DR), but only five per cent of enterprises are totally confident their DR plan is adequate. With customers expecting always-on service, how can an IT department do its part to avoid downtime?

First, the business must classify important systems, processes and inter-dependencies. Because IT and other departments may differ in what they consider critical, the DR plan should be created alongside a business continuity plan that outlines business objectives and priorities.

It's important for a business to make sure its backup and recovery solution meets its needs. For example Lyco, a specialist lighting e-commerce company, wanted to move its backups off-site while reducing recovery time objectives. The software it was using was not effective for this purpose, so it switched to BlackVault's *Managed Recovery Platform*, a disaster recovery as a service solution that uses an on-site appliance with a private cloud. Now Lyco manages backups on-site while

efficiently sending copies off-site.

Businesses need a way to continue receiving calls during DR scenarios. If using landlines, it should consult its telecom carrier or managed service provider about rerouting numbers. Businesses with a VoIP telephony solution can remotely deploy pre-recorded greetings and redirect phones to employee mobiles or an alternate office location.

The DR plan should be documented and tested regularly. Testing might seem costly because it disrupts daily operations and consumes resources (such as bandwidth, for example), but infrequent testing could leave a business vulnerable.

For manageability, some businesses test specific systems or processes before a full-scale test. Additionally, organisations using DRaaS can test in a sandbox environment without affecting production systems.

By taking the right steps in advance, a business can be confident that its DR plan will be adequate for avoiding downtime when disaster strikes.

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

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

Printed in England by
The Magazine Printing Company
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ABC audited circulation:
19,679
1 Jul 2011 –
30 Jun 2012

deliver immediate annual savings of more than £150,000. SCC adds that the platform protects data to IL2 and IL3 security standards, and already supports a number of other major public sector organisations, such as Civil Aviation Authority, DWP, Highways England, HMRC, Yorkshire and Humber CSU, and Mersey Care NHS Trust.

London-based SCC is the technology division of the Rigby Group and claims to be Europe's biggest independent IT services business. It has more than 5,000 employees and recently reported revenues of £1.55bn. ■



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US runs out of IPv4 addresses

On 24 September, the American Registry for Internet Numbers (ARIN) issued the final IPv4 addresses in its free pool. ARIN says while it will continue to process requests for IPv4 address blocks, all approved applications will now be fulfilled through the transfer market or via a waiting list made up of addresses recovered from revocations or returns from organisations. It is believed that only around two per cent of the UK is currently IPv6 capable. Experts are warning that without deploying IPv6 today, organisations will not be able to capitalise on transformative technologies such as cloud, mobile internet and the Internet of Things. ■

Battling heat in Hastings

Conquest Hospital in Hastings has replaced its 30-year-old server room and estimates it will now save £112,650 and reduce carbon emissions by 505 tonnes over five years. The refurb was carried out by Comms Room Services in a live environment so that the hospital's day-to-day running was unaffected. It uses the firm's *CoolVap* refrigerant-free air filtering solution. Waste heat is used to dry inbound air, resulting in a PUE of 1.04 and what's claimed to be 85 per cent less running costs compared to current systems. The new room also has energy efficient LED lighting, and a raised floor allowing maximum throughput of air into the cold aisle thus eliminating hot spots. ■

Capita acquires Electranet

In a deal worth £37m, Capita has acquired Electranet which specialises in the design, delivery and support of highly secure network and communication infrastructure in the UK. The business will join Capita's IT Enterprise Services division. Electranet supports high profile government and private sector customers. It handles highly secure data and is approved to sponsor its own workforce through national security recruitment processes such as the Counter-Terrorist Check and Developed Vetting. Capita says the acquisition will enable it to develop its IT infrastructure capability to deliver highly secure services to both new and existing customers. ■

Backup solutions over-promise and under-deliver, says survey

Most companies are using more than one supplier for their backup needs, according to a new study by Macrium Software.

In its survey of almost 500 customers, the disaster recovery (DR) specialist asked respondents about their biggest headaches with backup and DR, how they manage their backups, and what would be featured in their perfect solution.

It found that not only were over 50 per cent using more than one supplier, 16 per cent had three or more backup solutions. Macrium says respondents felt they needed "belts and braces" to ensure they were appropriately covered.

The study revealed that by far the most important reason for using more than one product was the added security of having extra backup solutions in place –

30 per cent of respondents said they used multiple suppliers mostly as a failsafe in case one backup fails and they are unable to get their data back.

Macrium believes this highlights a real lack of trust in the solutions available in the marketplace. Sales director Stephen Macpherson says: "In our experience, this is due to a long history of over-promise and under-delivering, and [product] features that do not properly address the core needs of the IT administrator."

The firm adds that a dilemma for designers is to make backup solutions simple without completely removing the opportunity for technical professionals to add value. It says while any features that assist IT admins to save time are appreciated, they will "quickly see through"

According to Macrium's Stephen Macpherson, some currently available DR products fail to address core IT needs.



any attempt to include features that add no value to the critical task of data protection.

Furthermore, the study found that prioritising the right tool for the job is more important than minimising the number of backup products in the enterprise. "Clearly there is tolerance for the administrative overhead so long as the solution is trustworthy," says Macpherson. "Not surprisingly, reliability, ease of use, speed and simplicity are the most desirable features in a backup tool." ■

VIRTUS launches DDoS scrubbing solution



VIRTUS operates two Tier 3 data centres – LONDON 1 in Enfield and LONDON 2 (pictured), its new, 65,000ft² flagship facility in Hayes.

VIRTUS Data Centres has launched DDoS detection and mitigation services as part of the solutions available from its marketplace. The firm says *DDoS Mitigation* will enable customers to benefit from an "enhanced" network-based detection and mitigation scrubbing solution alongside capabilities for application layer attacks and advanced behavioural analytics technology.

It's claimed the new service offers "unprecedented performance scalability and deployment flexibility". VIRTUS says it can validate, block or rate-limit traffic entering the network, and guarantees customer service availability is maintained no matter what type of attack is used, be it volumetric, protocol, resource, or even at application-level.

In addition, the company says *DDoS Mitigation* will ensure that legitimate traffic will always be delivered to its respective platform even during a DDoS attack. In the event of a breach, traffic will be routed away from the core network, safeguarding against loss or degradation of service as a result of an attack on a 'neighbour'.

"The DDoS landscape has changed dramatically over the last few years," says Matthew Larbey, product strategy director, VIRTUS Data Centres. "However, by working alongside respected industry partners, VIRTUS is ensuring that customers have the right choice of solutions in order to secure their digital data and networks by utilising our agile, intelligent and highly connected data centres." ■

Royal Caribbean sets sail with mobile workspace

Royal Caribbean Cruise Lines (RCCL) has consolidated a wide range of the infrastructure used for its call centres into two data centres. As well as creating a "powerful" mobile workspace, the firm says the new platform gives staff access to guest information quickly and easily regardless of their location.

RCCL manages guest reservations and inquiries through call centres located around the world. To provide IT services to those facilities, the firm previously depended on large autonomous data

centres at each location. But it found this approach to be costly, difficult to manage, and lacking in agility.

As a result, RCCL now has a mobile workspace system based on a variety of technologies from Citrix. Using *NetScaler* for global load-balancing, network optimisation and troubleshooting, the company has been able to consolidate its core infrastructure into two data centres.

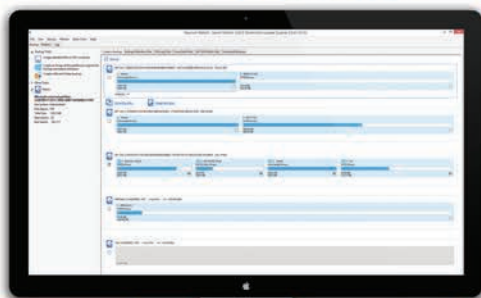
It has also deployed the vendor's *CloudBridge* to accelerate application and desktop delivery for *XenDesktop*, Citrix's

virtualisation platform. It's claimed this has dramatically reduced bandwidth consumption, giving call centre agents fast and consistent access to all of the information they need to do their jobs.

"Our call centres provide one of the most important sources of revenue for the company," says Jeanine Graham-Bellamy, RCCL's director of infrastructure. "It is critical to provide our agents with all the information and resources our guests need, so they can answer questions and connect our customers with services efficiently and seamlessly." ■



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VIEW FROM THE TOP

Richard Cassidy, technical director EMEA, Alert Logic

How well protected are you in today's cyber threat landscape?

Regardless of how long you've been involved in security, you'll have asked yourself the question: 'are we protected?'

Legislation has been mandating companies publicly disclose any data breaches. This has caused some to either cease business entirely, or has grossly affected their market confidence and negatively impacted overall brand value. So you are probably checking in on your security posture more now than ever before.

But how can you prevent being impacted by the increased number of threats we are seeing? The good news (of sorts) is that threats haven't really changed since we first became more conscious of data breaches.

We still see attacks through DoS/DDoS, operating system vulnerability exploits, applications, etc., albeit in far greater numbers these days. The methodology has remained very similar through the ages, with social networking still the favoured route by the majority of attackers seeking to distribute malware.

So why are threats seemingly getting worse, when we've advanced at a rate of knots in technology and capability when it comes to protection?

Many organisations have implemented a breadth of security technologies from multiple vendors to try to get one step ahead of the problem. At the same time,

hackers are becoming more advanced, and organisations have yet to fully comprehend the anatomy of a cyber attack or the mindset of who and what they're up against in terms of hacker cells, cyber criminals and hackers.

The age of 'X-as-a-service' has come about due to the many cost and efficiency savings for putting DevTest and production workloads into hosted or public cloud environments. And with budgets being squeezed and resources stretched, managed security services are rapidly becoming a key component of many organisations' cyber security strategy.

Looking at how you can lean on services that bring context to the multitude of threats faced is a good idea, and also saves a great deal of opex. Reviewing internal tools, policies and best practices for security and compliance will serve to quickly close any gaps already open across the organisation.

Ultimately, we need to learn to share responsibility whilst focusing on the parts that can be achieved best within the organisation.

New hardware or software by itself is not the answer to security and compliance challenges; it is effective people and processes around how the data that hardware and software creates that will define those organisations that recover from a breach – and those that don't.

Cloud-enabled hub aims to boost trading in emerging markets



GMEX will host servers running various emerging exchanges at Digital Realty's Chessington data centre.

Digital Realty and GMEX Technologies will establish global hubs for new product exchanges and trading venues in emerging markets. The first hub will be located at Digital Realty's facility in Chessington, Surrey, initially connecting London and two African exchanges.

GMEX Technologies is a provider of multi-asset exchange and post-trade technology. The firm will host servers running the various emerging market exchanges it partners with at the data centre in Chessington.

GMEX says Digital Realty's network will enable it to create cloud-enabled PoPs for all market participants across the world. GMEX will also offer the latest central counter party and central securities depository market infrastructure as a managed service.

Robert Bath, VP of global solutions at Digital Realty, says: "Our network platform, with interconnectivity to key market operators and communities across the globe, is what GMEX Tech needs in order to execute a trading hub of this nature."

"But more importantly, we're able to provide a gateway for GMEX Tech to facilitate growth in emerging economies by forging stronger links to established financial ecosystems in Europe, and subsequently in the United States and Asia Pacific."

The London hub will be available from early October 2015. Plans for additional hubs in Chicago and Singapore are expected to be announced in 2016, supporting Central/South American and Asian markets respectively. ■

Providers need to "refresh their world view" and look to innovators

Supplier attitudes to picking partners are leading to more than a third of deployed cloud solutions being unnecessarily expensive and complex, according Streamwire.

Citing new research from the Cloud Industry Forum (CIF), the IT services aggregator says 37 per cent of IT leaders who use hosted cloud-based services said that deployment could have been cheaper and easier. Furthermore, 38 per cent reported complexity of migration as the main difficulty when adopting cloud-based solutions.

Streamwire believes a key problem is that many suppliers reach for standard applications rather than looking deeper in the market for the most innovative solutions, which often come from smaller and more innovative companies.

The firm's CEO Anne Stokes says: "Many IT service providers still believe that they need to resell or recommend branded solutions, but the advent of cloud has stripped away establishment providers like never before. The channel and business consultants need to refresh their world view and take a harder look for the most innovative solutions to meet their customers' needs."

The CIF's research polled 250 senior IT and business decision-makers in UK-based enterprises, SMEs and public sector organisations.

This latest warning from Stokes follows her criticism of Oracle for its so-called "brutish" sales tactics earlier this year (*see News, Jul-Aug issue*). ■

World's 'only' integrated software platform for cloud comms

Business communication software specialist Solgari has teamed up with IT solutions provider Pensar to address growing demand from financial and technology organisations.

Pensar has been deploying Solgari's *Cloud Telephony and Collaboration* service for customers across the world and claims its impact has been "dramatic".

The company's CEO Mark Williams says: "We see a lot of potential for Solgari's cloud software services across our fast-growing customer base, including financial institutions with specific compliance and security requirements. The solution is highly innovative and at the forefront of cloud business communications."

Solgari is a licensed telco, and reckons it offers the only integrated software platform for global cloud communications that covers: business telephony; call and video conferencing; desktop sharing; contact centre; IVR; call archiving and encryption; PCI DSS compliance; and carrier requirements.

According to the two firms, the switch by enterprises from on-premise systems to cloud-based solutions represents as much as a \$30bn long-term market opportunity as the cost saving and productivity potential continues to drive increasing customer adoption. Solgari adds that customers can achieve on average 50 per cent quicker client response times and 40 per cent cost savings compared to legacy systems. ■



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The right CDN mix for Shutterstock

Shutterstock is home to millions of creative assets that have been created by amateur and semi-professional photographers, filmmakers and musicians around the world. Many of them work during nights and weekends, and they expect the company's databases to support them wherever they are and whenever they're submitting.

To ensure that its customers find what they're searching for as quickly as possible, Shutterstock relies on content delivery networks (CDNs) as an integral part of its architecture. Images, videos and audio clips are constantly being uploaded and stored at the company's data centres, and in 2014 its CDNs handled 13.8PB of traffic – a rise of 283 per cent from the previous year which saw 3.6PB. At that pace, Shutterstock is expecting to handle around 28PB in 2015.

So much data flowing in and out at once can pose storage difficulties, particularly as technology improves with, for example, higher resolution displays which result in higher quality images and video that must be pushed out to the edge.

Previously, Shutterstock primarily relied on its relationship with Akamai as a CDN to serve its images to the world. However, the company says it made that choice when it was mostly known as an image provider.

Earlier this year, Shutterstock's infrastructure platform team implemented the *OpenMix* service from Cedexis which specialises in CDNs, cloud, and optimising web performance across data centres.

OpenMix is essentially a CDN load-balancer that leverages Cedexis' decision-making engine. Shutterstock says the system enables it to optimise with multiple CDN providers based on their strengths. This means it can

move off legacy CDN setups, create uniformity across its business units, and automatically switch to a different CDN if one has an outage or other problems.

Shutterstock adds that with *OpenMix* it can also optimise CDN strengths according to file sizes and geographies, and put traffic in slower markets on less expensive delivery networks.

Decibel develops its Core in the cloud

Decibel Technology is an enterprise software development company and part of the Decibel Group which specialises in digital customer experience. The firm has developed *Decibel Core*, a platform for in-house teams to develop secure websites, applications and APIs. Clients include Nokia, L'Oréal, the Press Association, Thames Water and Doosan.

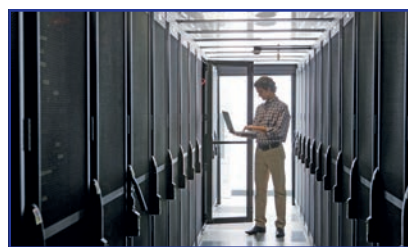
Decibel Technology previously relied on a physical IT infrastructure which worked pretty well. But in 2011 it decided to change that fixed approach and move to the flexibility of cloud hosting.

"We felt a move to the cloud would enable us to deliver more reliability and better control of our infrastructure," explains CEO Ben Harris. "When you're hosting global websites for major brands and hedge funds as we do, any kind of blip damages them and damages your relationship with them, no matter how faultless you've been."

When Decibel opened a tender process for a new hosting partner to provide a fully virtualised and high availability platform, iomart was chosen to deliver it.

Harris says: "We felt that iomart could provide us with the cloud architecture we needed along with a more personal service. We weren't just another customer; we would have a dedicated account manager and round-the-clock support from a support team we could communicate with. iomart's ISO accreditations and multiple and secure data centre locations were what we were looking for."

iomart's technical team recommended that the company migrate to a VMware cloud in order to gain the high availability, greater resilience and uptime it was after. The migration process was managed to ensure



minimal impact on Decibel's customers. "iomart worked closely with us and most importantly listened to us in order to produce the right solution," says Harris.

The company now has a range of VMs sitting on iomart's VMware cloud infrastructure. Every client the agency takes on is provided with a new VM which iomart deploys using a virtual machine template. This is then customised to sit behind a fully managed dedicated firewall.

With its fully virtualised infrastructure, Decibel now has much more control over its IT resources. Harris says: "We have clients who can receive bursts in the order of tens of millions of additional visits over a couple of days, so we have to be ready for substantial increases in traffic. We can assign new virtual servers and load-balanced servers quickly and cost effectively."

Online backup despite slow broadband

Integrity is a brand management agency based in a converted barn in the Kent countryside. Offering what's claimed to be unique 'brand programming' services, the company's public and private sector clients include HMRC, John Lewis, Skoda, the University of Northampton, Waitrose, Sainsbury's, amongst others.

On a daily basis, Integrity generates and adapts large files in a wide variety of formats as part of the creative projects it develops for each of its clients. Numerous design revisions exist on files to suit varying project briefs, and these are continually altered and updated. As a result, regular and failsafe data backup is a necessity for the business.

Integrity had previously been using a series of USB drives to backup the 1.5TB of data stored on its file servers. The

drives were used to back up customer design projects at semi-regular intervals, and the process was time consuming and unstructured.

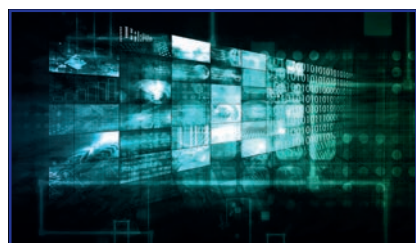
The firm's business manager Andy Faulkner said: "We knew we needed a better backup solution and were aware of online backup. However, being based in the Kent countryside means we suffer from slow broadband connection speeds. As a result, we were sceptical that online backup was the right solution for us."

But after examining its options, Integrity did end up going for an online solution following advice from Redstor. Faulkner said the cloud and disaster recovery specialist understood Integrity's needs from the outset: "What stood out from the start was the personal service we received. Many other vendors felt that because online backup is largely automated, the sales process should be too. That approach didn't work for us so we disregarded companies who worked in this style."

Integrity implemented Redstor's online backup solution across each of its file servers after being assured that its internet connection – which offered 0.6Mb upload/4Mb download speeds – would be sufficient. More than 1.5TB of data was initially backed up using a 'seed backup' to a USB drive. The data was then encrypted on disk and couriered to Redstor's secure primary data centre.

The automated system now securely backs up any changed data in the previous 24 hours in less than seven hours which fits easily within Integrity's timeframe.

Faulkner said implementing the service has immediately saved valuable time. "You never realise how long something takes until you stop doing it. Adding up the time it took me each week means I have been given back an extra half day of time per month, which is fantastic."



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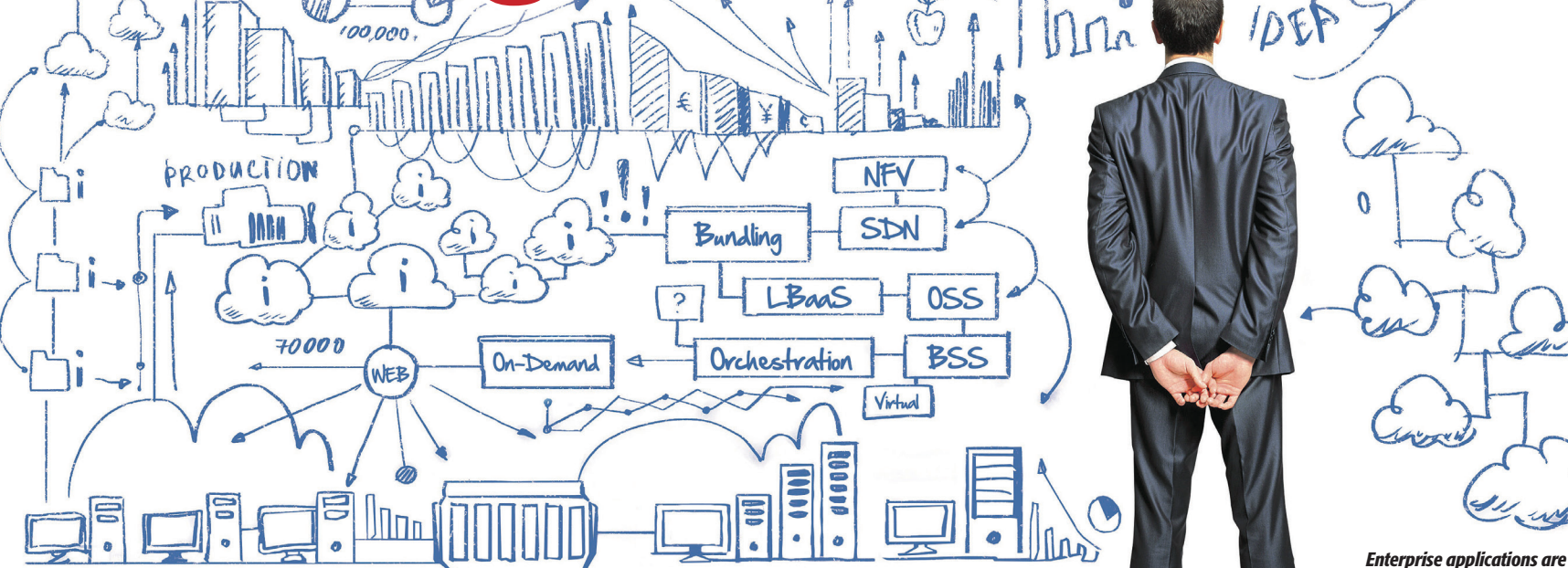
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Serving new services



As the role of the server continues to change, JAMES HAYES finds out how network managers can get the best out of this staple piece of enterprise IT hardware.

When the corporate networks of the 1990s ran slow, network managers had recourse to a tried-and-trusted remedy: 'throw a server' at the problem. After connecting-up a new server (or two) and migrating a bunch of users, all-round user experience would improve overnight (or more likely over the weekend).

Such procurement made fiscal sense at a time when the number of network users was increasing rapidly. Routinely buying-in servers also provided a way to keep QoS ticking over without incurring the higher cost of other new kit, and with the advent of blade servers, processing power could be boosted without concomitant rack-space expansion.

But even back then, the techies knew that a lack of servers was usually not the root cause of network QoS issues – indeed, adding physical machines could compound the problem. Yet even 20 years later, servers – be they rack-mounted, blade, or density-optimised variants – are still often the focus of attempts to derive greater value from the IT estate. (Of course, this irks server vendors who point out that today's models are intrinsically designed to be much more efficient in terms of capex and opex than other network devices.)

When their procurement proposals are being scrutinised, IT managers are challenged over whether they should

be sweating existing assets. Sometimes approval for new expenditure might be contingent on finding quantifiable value gains from what is already up-and-running, especially in regard to the ever-accumulating server ranks.

The problem in part is that servers are still too often seen by the board as just 'big computers' which should be made to deliver more than they are already doing. The thing is, often they can.

This is not to say that purchasing of new servers has entirely halted while organisations seek to work their assets into the ground. According to IDC's Worldwide Quarterly Server Tracker,

in Q2/2015 vendor revenue in the global server market increased by more than six per cent year-on-year to \$13.5bn. Server shipments worldwide totalled 2.29 million units during that period – an increase of 3.2 per cent when compared with Q2/2014.

These may not seem soaring growth figures. But for a decades-old market where the latest multi-core CPUs can result in replacement units with double the compute power of their predecessors, and in which refresh cycles can now last for five years or more, it's relatively profitable.

Driving this growth are the many and varied usages that servers support. For instance, server estate build-out is

a compulsion for data centres housing cloud and other third-party services, while telecom firms need servers both to manage their own infrastructures as well as support CRM platforms as mobile comms expands into emerging global markets.

Furthermore, cyber security threats, among other factors, are causing industrial control systems to be upgraded to mainstream IT standards, and what used to be classed as 'business technology' (e.g. *Microsoft Windows*) is now being installed in factories and plants. Looking further ahead, it's predicted that IoT growth will create a requirement for the modern equivalent of 'front-end processors' – scaled-down servers that process and filter data flowing in from thousands of remote connected devices, sensors and machines.

"There are many drivers for server estate growth," says Maurice McMullen, product manager at load balancing specialist KEMP Technologies. "Some of this is driven by greater application complexity, with applications growing beyond simple client-server interactions to include compute-intensive services, such as data mining."

Next there's the consolidation of applications that traditionally ran on dedicated appliances set apart from core compute platforms. Examples here include load balancers (of more below), firewalls, and intrusion detection/prevention systems. McMullen predicts that the demand for physical servers will grow as more network functions, such as data traffic switching, are delivered from virtualised x86 platforms rather than dedicated devices.

Stack attack

One area to start looking for potential server performance gains is with an inventory analysis of how a given network has been put together over, say, the last five years. You then seek out the hardware/software mish-mashes that may have come about as VM estates have been created across infrastructures that lack continuity and cohesion.

Developments and re-developments come fast in the IT world, and this means that even technologies that are less than three-to-five years old can count as 'legacy' infrastructure, according to Peter



Barnes, enterprise solutions director at Dell UK. He believes that around 2010, there were many server estates that had still not fully embraced the virtualisation opportunity, which gave network managers quick wins in terms of the trade-offs between heat, space and power, and management overhead cost reductions.

"Additionally, as organisations started to go on that virtualisation journey, many did so by taking their legacy vendors with them. This has presented a challenge – both then and today – as now we are seeing large server estates that are heavily virtualised, but with fragmented and expensive underlying infrastructure."

The move of functions like switching onto servers is evidence of a broader trend in the design and deployment of enterprise ICT, where traditional hierarchical infrastructural models are being rearranged by incoming methodologies such as SDN. Wieland Alge, Barracuda Networks' EMEA VP and GM, says: "Traditionally, IT was built from the bottom upward – infrastructure, network, transport, application, etc. – one layer on top of the other. Today we tend to build IT top-down, because the applications now set the technological expectation and we have realised that there is no point in basing a business around applications that the [underlying] IT infrastructure is unable to properly support."

The trend he describes is ultimately reshuffling the network layers somewhat, with servers becoming more than just data processing engines and assuming a greater hold on other functionality layers. Alge advises network managers to stay apprised of these developments because they are

likely to inform supporting evidence when it comes to putting the case for new value-added servers or server management tools.

However, the "top-down" effect could also be contributing to the pressure on IT directors to extract more from their server estates. As Barnes points out, users now insist on a service that's always available, with no maintenance windows and certainly no outage time. "IT departments are being tasked to 'do more' with either the same or a reduced budget. These teams need to find new ways to make their budgets go further, while also remembering that user expectations are higher than ever before."

Max headroom?

Another contentious area of the debate surrounding maximising value from servers is utilisation margins. These are the load thresholds or 'headroom' made available to accommodate the highs and lows in demand that will occur throughout the working day (which, for servers in data centres hosting global services, is pretty much 24/7/365).

This topic has long been argued in IT circles, both among users and vendors. Some say allowing servers to be utilised to their utmost at all times counts as another way to derive maximum value from that investment; others hold that utilisation is best kept within narrower margins, and that capacity which is often under-utilised for periods of time helps overall efficiency by being better able to cope with demand peaks when they occur.

Richard Davies, CEO of cloud hosting/services provider ElasticHosts, thinks that smarter policies in the way server resources

are configured point toward more value-yielding options for network managers. He says industry figures suggest that typically, servers may have 50 per cent idle capacity on average over a full, round-the-clock period.

"This is because most approaches to provisioning servers are still based around fixed-size server 'instances' of VMs, provisioning capacity in large blocks, rather than the exact amount needed. This is wasteful for businesses and unfit to meet the future demands of enterprise computing. Modern servers need to be flexible, as the strain on applications and databases grows and shrinks throughout the day."

But Barnes says that before you even begin to look at opportunities to optimise server value delivery, you need to consider what kind of gains are desirable.

"Efficiency gains and server performance optimisation are rather open-ended goals, and provide an overall objective rather than a breakdown of specific areas to improve. For example, if IT professionals bring SSD flash cache on board for compute, this increases an application's performance without making a big investment. It also means customers can add more disks to a legacy storage array without having to spend more money on updating it."

However, he goes on to say that this could also involve using the latest technology which supports big memory footprints: "The industry at large now supports 64GB dual in-line memory modules, meaning that even more VMs [can be hosted] using fewer physical servers."

An additional consideration for the 'maximisation-by-utilisation' camp is that by continuously running a server at full, or near-full, capacity, you run the risk of foreshortening the hardware's life expectancy. So while more might be got out of a server in the short-to-medium term, it may have to be replaced or upgraded sooner than expected.

Of course, the liabilities here may depend more on a given brand's reputation for reliability than on factors intrinsic to the technology. But it remains a subsidiary point to bear in mind when making an overall evaluation of pros/cons of server value maximisation techniques. Furthermore, the liabilities may be heightened if a server is evolving toward a multi-function network

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Aside from these issues, deliberating trade-offs between loading and service longevity can also turn out to be a red herring, according to some server experts. They say full data centre infrastructure loading and efficiency needs to be examined, and not just the servers.

For instance, Barnes says the server world has become fairly efficient in terms of space, power and cost, and so the bigger savings opportunities now lie in networking and storage. Typically, these areas have not seen the same degree of technological advancement, and a higher number of proprietary products is to be found there.

With SDN and software-defined storage leading to data centre convergence, things are changing fast. "Storage and networking functions are collapsing back into servers, and it is that change that has huge potential to free-up space," says Barnes.

More traffic and security management functions moving onto servers sounds like good news for network managers under the cosh to sweat the assets. It should enable more network functions to be consolidated away from pricey, dedicated devices, and onto more affordable and versatile server-based environments. That means network managers could make budgets stretch further by allowing more functionality to be loaded on to fewer new physical machines.

At the same time, as is often the case with consolidation-based cost savings, network managers will have to be mindful of inadvertently heading toward what Barracuda's Alge calls "the re-introduction of complexity". He warns that this "nightmare scenario" is a very real possibility because consolidation and expansion can easily result in an additional, unplanned complexity that, while initially bringing gains in cost-savings and performance, can be much more demanding to manage going forward.

Balancing the load

Definitions of the term 'load balancing' have changed, and are continuing to change in line with other innovative developments in network traffic management.

Traditional load balancer solutions aim to optimise resource use, accelerate throughput, minimise response time, and avoid overloading any one network resource. This is achieved by actively distributing IT workloads across multiple computing resources, including servers, PCs, storage devices and network links, so that the burden is shared. Load balancers have provided a profitable product solution niche in recent years for vendors such as A10, Barracuda, Cisco, Citrix, F5, Jetnexus, KEMP, Radware, amongst others.

Load balancing was once a function in which servers played a greater role, but in more updated enterprise infrastructures it can now involve dedicated hardware and software, such as a multi-layer switch or a DNS server process.

According to Gary Newe, technical director at F5 Networks, load balancers have moved on from the basic connection distribution, to the class of device marketed by some vendors as application delivery controllers (ADCs).

Newe explains that these operate at a higher level on the OSI stack, and can take over some server functions: "There are two types of network-based load balancers: those at Layer 4 and those at

Layer 7. The main difference is that those operating at Layer 7 are usually some sort of application proxy, while those at Layer 4 are typically not capable of understanding the higher-level application information."

The Layer 7 devices can be physical or virtual, and can greatly assist in offloading server infrastructure by performing typical server functions like SSL, compression, optimisation, DDoS mitigation, etc.

Load balancing continues to change in line with developments in the application, server and network environments, and this creates some opportunities for server-based load balancing to enable network managers to do more performance fine-tuning.

Meanwhile, earlier debates around network load balancers versus application proxies versus ADCs have been rendered passé, according to KEMP's McMullen. He says load balancers now need to be

capable of delivering any application across any network topology as a physical or virtualised appliance.

"The modern load balancer needs to support data centre environments that are highly automated, virtualised and, most importantly, dynamic," he says. "Emerging technologies, such as SDN, can also be leveraged to provide deeper insight to the health of the complete application delivery stack. Modern load balancers must integrate with these new technologies."

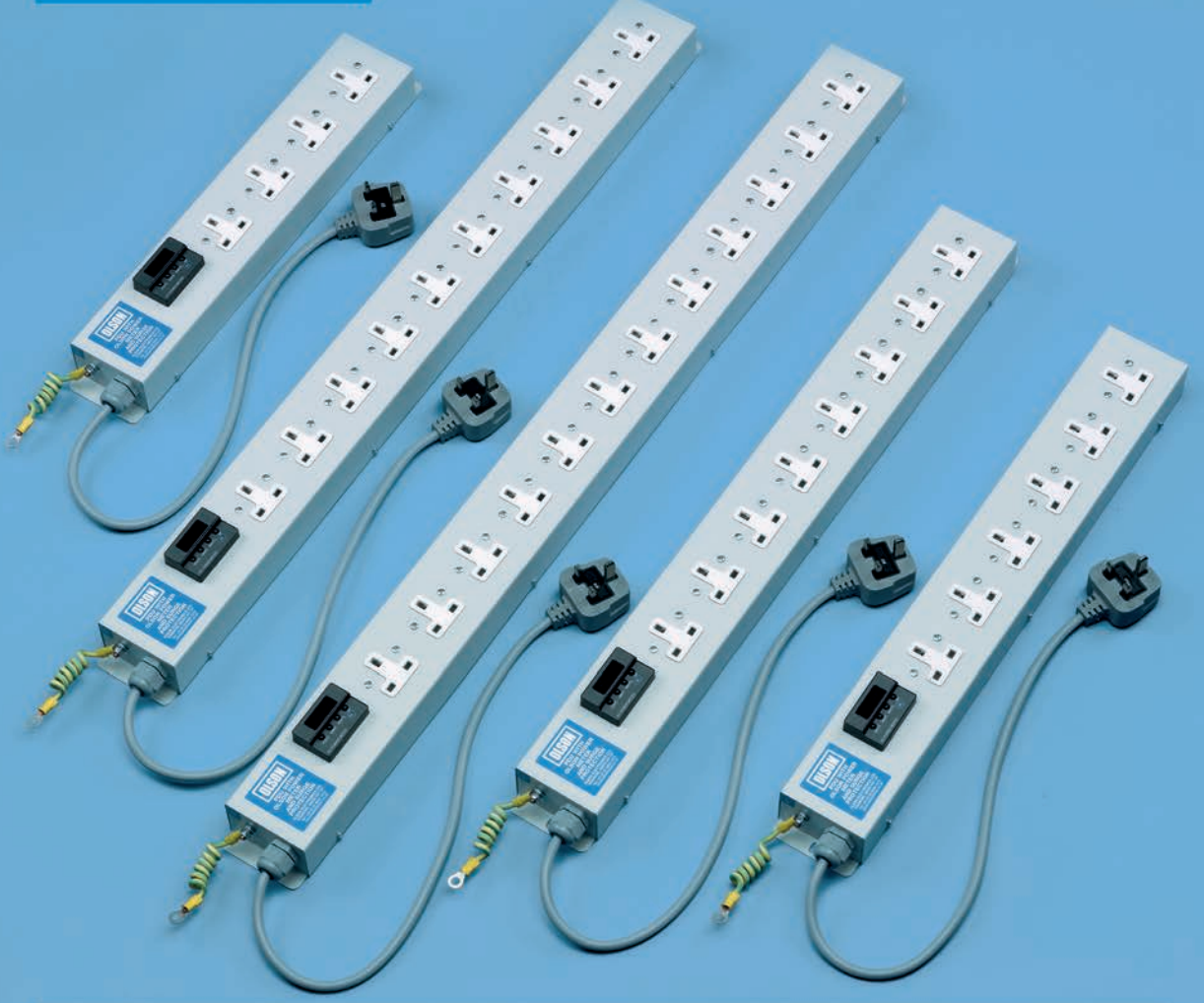
Newe agrees to a certain extent here and notes that the market is already seeing huge changes. But he adds: "We will see the rise in importance of ADCs in self-provisioning networks, SDN, and software-defined data centres, where it can provide key feedback on the current status of applications or the general well-being of the end-user experience."

Initiatives to ratchet-up server value delivery will, sooner or later, come up against an age-old inhibiting factor: availability of time. Network managers may be minded to set aside parts of their busy schedules to identify and deploy ways to optimise server operations, but when new exigencies crop-up, those tasks are prone to being relegated down the IT team job list, even though they could ultimately result in improved network operations.

New application delivery, troubleshooting, upgrades, responding to cyber security incidents – all of these will, alas, take priority over non-essential fine-tuning of existing assets. As Barracuda's Alge concludes: "Unfortunately these days, network staff often simply do not always have the time to focus on server maximisation – even when they know that there are real gains to be had." ■



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The *SL750H* has a special coating that makes it resilient to scratches on

its display, housing and keys. Gigaset says the coating also protects against disinfectant liquids, which makes the device an ideal choice for industrial and manufacturing companies, hospitals and similar environments.

Other features include up to 12 hours of talk time, more than 250 hours on standby, and a form factor that makes the phone small enough to fit in a pocket.

The *SL750H* also offers a choice of audio profiles with convenient one-click switching. The device supports all Gigaset *PRO* base stations, and together with the company's *N720 DECT* IP multicell system it can ensure complete coverage of any building or wide area environments.



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The device also features two SIP accounts, two LAN ports, and support for PoE.

Other features include a 132 x 64 pixel 2.3-inch graphical LCD with backlight, a phonebook with up to 500 entries, three-way conference call support, and compatibility with Broadsoft's *UC-One* cloud-based unified communications platform.

The plug and play *KX-HDV130* has an XML Application Interface, two line and programmable keys, and an adjustable angle stand that enables it to be tilted to 30° or 45°



Revolabs has expanded its UC product range to support larger conference rooms with the *FLX UC 1500* IP and USB phone.

The new device provides the ability to bridge VoIP and USB-based calls. Revolabs claims this eliminates the need for separate conferencing units when conducting activities (such as softphone calls and webinars) that have both IP and USB requirements, and increases convenience for IT managers and meeting participants by letting users join any type of call.

The company says the *FLX UC 1500* is designed to integrate easily with any third-party application. USB support enables users to easily connect the unit to any computer for use with

applications such as *Skype*, *Microsoft Lync*, *WebEx*, etc.

As well as two extension microphones, the phone also has four embedded corner microphones to capture 360° of audio, and is said to be equipped with "premium" tweeter and mid-woofer elements. It has integrated acoustic echo cancellation and provides an ultra-wideband frequency (up to 16kHz input, 20kHz output) response for high performance audio.



Snom Technology unveiled several new IP DECT models at CeBIT earlier this year, including the new *M325* bundle which comprises the *M300* base station and *M25* handset. The Berlin-based company claims it was the first manufacturer of professional VoIP phones for businesses, and says this new solution offers a quick way to get started with digital and cordless VoIP telephony.

The single-cell DECT solution supports up to 20 mobile devices. In addition, the *M25* (which is also available separately) can also be used in an evolutionary multi-cell configuration with the *M700*.

Thanks to seamless handover, Snom says it

is possible to change locations from one cell to another while a call is in progress without causing any interruptions, thereby providing optimal in-building mobility.

The *M25* uses standard rechargeable AAA batteries providing up to 75 hours on standby and up to seven hours talk time. It has a 1.4-inch colour TFT display and features a hands-free speakerphone as well as headphone jack.

Its directory supports 50 entries and can also be used with a central directory on the base station.



Featuring smartphone technology, the *UniFi Executive VoIP* phone features Ubiquiti Networks' proprietary SDN software, *UniFi Controller*. This is designed to provide scalable system management of the company's *Android*-based VoIP phones, including extension management, mass firmware upgrades, and mass configuration provisioning.

Ubiquiti says its software is bundled with the phone at no extra charge, and there are no separate licensing or support fees to pay.

The *Executive* includes SIP support and automatic provisioning to quickly create an enterprise-class telephony infrastructure. It offers Bluetooth support for hands-free use with wireless headsets, and is equipped with two built-in speakers that are claimed to deliver "premium sound quality for an exceptional audio calling experience".

Ubiquiti says the device readily connects to any compatible Wi-Fi network so it can be used anywhere within the coverage area. It adds that the *Executive*'s seven-inch, high-definition, multi-touch colour display is designed for widescreen video calls, ease of use, and quick navigation.



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Government announces £500,000 for cyber skills

With research showing that most businesses in the UK suffered breaches in the last year, the government has announced new funding to develop cyber security skills.

Digital economy minister Ed Vaizey said the new £500,000 grant will help universities and colleges develop innovative teaching and learning to provide the cyber security skills needed to protect the UK now as well as in the future.

The fund will be administered by the Higher Education Academy. Universities and colleges can individually apply for up to £80,000, which the government said must be match-funded by the institution and generate "real-world impact" across the discipline.

Speaking at the *Financial Times Cyber Security Europe Summit* earlier in September, Vaizey also urged firms across the country to protect themselves by taking up the government's *Cyber Essentials* scheme. He revealed that more than 1,000 businesses have now adopted the scheme which protects businesses against the most common threats on the internet. (Also see *Network Knowledge*, Feb 2015 issue.)

Whilst companies are reaping the benefits of operating online and currently earn £1 in every £5 from the internet, cyber attacks are now considered a serious threat to UK businesses. According to the government, the latest figures reveal that 74 and 90 per cent of small and major businesses respectively had a security breach over the last 12 months.

Vaizey said: "Good cyber security underpins the entire digital economy – we need it to keep our businesses, citizens and public services safe. The UK is a world leader in the use of digital technologies but we also need to be a world leader in cyber security."



Digital economy minister Ed Vaizey said consumers, businesses and investors need to have confidence in UK online security.

Cracking down on fake apprenticeships

The government plans to crack down on fake apprenticeships and prevent the misuse of the term 'apprenticeship'.

In September, the Department for Business, Innovation and Skills announced new proposals following the introduction of the Enterprise Bill. This includes measures that will see training providers being prosecuted if they claim to be offering apprenticeships but only deliver basic training.

Earlier, ministers said apprenticeships need similar controls to university degrees. "Everyone knows what a university degree means – it's an official title. Young people doing apprenticeships should get the same level of distinction," said skills minister Nick Boles.

QA, which claims to be the UK's largest IT and technology apprenticeship provider, has welcomed the government's move on tightening regulations. Paul Masterman, head of quality at QA Apprenticeships, said: "We agree that the term 'apprenticeship' must be protected so that we can continue to attract talented candidates to receive world-class digital training in order to help fill the UK's technology skills gap."

The firm added that it has placed over 5,000 apprentices into the UK technology sector since 2010. To support the government's ambition to create three million apprenticeships by 2020, it launched its *10KinTech* initiative in June with a target of placing another 5,000 in work by summer 2016. QA said it recently reached 7,500 and looks set to hit 10,000 earlier than expected.

NEW COURSES

Microsoft Azure Fundamentals – Microsoft Virtual Academy

In this fourth course available at Microsoft's online academy, Bob Tabor of LearnVisualStudio.NET explores Microsoft's IaaS offerings by examining Azure VMs and virtual networks (Vnets).

Delegates will find out about VMs and other PaaS services in the course's introduction before learning how to create and connect to a VM, an image from a VM, a cloud-only Vnet, and much more.

Load balancing, cloud services and mobility are also some of the topics covered in the course's 36 modules which take around five hours to complete (excluding labs, knowledge checks and 24 assessments).

<http://tinyurl.com/nuxqcom>

Certified Data Centre Energy Professional – CNet Training

CNet has announced new London dates for its *Certified Data Centre Energy Professional (CDCEP)* programme.

The seven-day course aims to teach how to plan, design and implement an energy plan for data centre facilities. CNet says the programme explores what can be done to improve efficiency and reduce costs.

It covers current energy profiler tools and models to analyse site data, enabling students to formulate a comprehensive plan to implement real energy savings.

The course includes the EU Code of Conduct in Data Centres and the US DoE Data Centre Energy Practitioner (DCEP).

Courses in London start on 9 December with further sessions available in January and March next year.

<http://tinyurl.com/pjczda8>



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