

networking

FIXED & WIRELESS NETWORKS FOR ENTERPRISE USERS

Bond to the rescue

Fire and rescue vehicles integrate satcoms with bonded 3G/4G
News, p4⇐



Under construction

The IT networks helping to build the nation
Real World Networks, p8⇐



Don't be afraid of the dark

Energy efficient data centres are all about creating the right balance of factors
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Intelligent servers

Smarter support for enterprise networks in a hyperconnected world.
Off-the-shelf, p14⇐



Rural users losing out on 'fourth utility' of mobile and broadband

by Rahiel Nasir

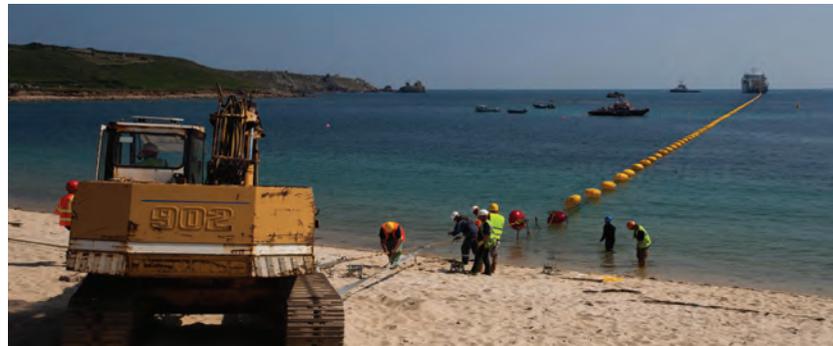
There are continuing concerns that those in rural parts of Britain are still unable to access high quality fixed and mobile networks, despite a recent Ofcom report saying that cellular and internet services are now considered to be indispensable. But some network operators are beginning to offer hope.

In June, the results of an Ofcom survey found that around 60 per cent of UK consumers now regard voice services (mobile or fixed), texting, and personal internet access as "essential".

However, the Countryside Alliance believes that for far too long rural communities have been treated like "second class citizens" when it comes to mobile and broadband services. It says it is high time that the digital divide between urban and rural users was closed.

The alliance has welcomed Vodafone's new national programme to give 100 rural communities the opportunity to have mobile access. The operator says villagers should work in partnership with their local MPs and apply for the installation of its *Open Sure Signal* system (see News, Feb 2014) in their area. This uses femtocell technology to give users 3G voice services and mobile internet access.

Sarah Lee, the Countryside Alliance's head of policy, says: "This is a good example of the sort of innovative technology that we think needs to be used to solve reception problems for those living in rural areas. However, this project only applies to areas where they have a fixed line broadband speed of at least 4Mbps, which means there will still be millions of



In late July BT landed a new cable on the Isles of Scilly. The company says local businesses and residents will be able to order superfast fibre broadband before the end of the year.

households in rural areas who will be unable to make use of this technology."

Lee says broadband and mobile services are as important as power and water to rural communities. This view is echoed by the Federation of Small Business. In a discussion paper published in July (*The fourth utility: delivering universal broadband connectivity for small businesses across the UK*) it says: "Too many small businesses in the UK are unable to access fixed and mobile broadband services that are 'fit for purpose' and meet their commercial needs."

The federation recommends a number of ways to help overcome this. For example, it

calls for the government to commit to delivering a guaranteed minimum speed of 10Mbps to all premises regardless of location by 2018-19; prioritise the delivery of fibre broadband to new and existing business parks; and ensure that all enterprise zones are fully connected.

Despite its reliance on the internet economy, the UK has the lowest levels of pure fibre infrastructure among the G20 nations, according to Boston Consulting. Some experts warn that without access to such fibre, small firms will be restricted from accessing the new generation of online and cloud services to help them grow.

(continued on p2)

Building a wireless network for 802.11ac?

Xirrus have many words of wisdom



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See page 4 for more details

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Will anyone need an IT manager?

More than half of SMEs believe the role of the IT manager will be dead by 2024, according to research by Node4. But the cloud and data centre specialist says the IT manager will remain key to driving business success in the coming years, and warns firms that ignore this do so at their own risk.

Node4 says the advent of outsourced and cloud IT has fuelled reports about the demise of the CIO/IT manager's role. It says some observers believe the simplification of technology and the trend towards outsourcing means their functions will become superfluous, if not entirely obsolete.

"Many would think we welcome speculation that the role of the IT manager will be defunct by 2024," says Paul Bryce, Node4's business development director. "Perhaps it makes sense that as more organisations

outsource IT to companies like us, we will naturally assume more of the IT manager's responsibilities, thus making the in-house functionality a thing of the past.

"However, the truth of the matter is that the IT manager is now more important than ever. Change is the new norm for IT departments, and successful organisations need a technology expert who understands the IT landscape and can marry this expertise with the needs of the business."

Bryce says rather than being someone who controls all the technology within the organisation, the IT manager must assume a role more akin to being a 'steward of risk' – i.e. a well informed member of staff who helps colleagues use technology to win more business, beat the competition, and succeed in the post-recession economy. ■

What do you want, govt asks comms industry

The government has asked the nation to answer 44 questions on the legal, structural and infrastructural communications regime it needs to be economically competitive in the years after 2017.

The answers are expected shape government policy on the communications sector following the 2015 elections.

The questions are in the *Digital Communications Infrastructure Strategy (DCIS)* consultation published on 6 August by the Department of Culture Media and Sport. The document also provides a comprehensive snapshot of the current state of the communications sector plus the government's view of the most

important forces shaping it. "The government has a direct interest in the ability of consumers and business to connect given its Digital Strategy and its objective of digital by default," it says.

The government aims to make the UK "the best place in Europe to start, finance and grow a business", and notes: "The quality of our infrastructure has a significant bearing on how we compete and how we attract investment into the UK."

The government asks whether the UK should be content to match other "mature" economies, or whether it can do more. This would mean providing businesses with: the "high quality infrastructure"

needed to successfully compete in a globally competitive environment; staff able to exploit digital communications infrastructure; access to a market of consumers who are able to access and consume the latest digital services; and an operational environment and marketplace that is highly competitive in attracting foreign direct investment into the UK. Reducing costs for consumers and making it easier to participate in the digital society is also highlighted.

"This approach is not without risks. Investment returns may be uncertain if the UK invests ahead of demand. But not to invest perhaps gives rise to the greater risk

the UK will forgo the opportunity to be a leading economy in the digital age," says the consultation document.

It also poses the question of if and when the country should "switch off" its copper network in favour of fibre and wireless access, noting that the copper assets are all in private hands.

Additionally, the consultation calls for fresh ideas about the regulatory regime, both at industry and local government levels, needed to give effect to the desired policy outcomes.

Responses can be emailed to dcisconsultation@culture.gsi.gov.uk. The consultation closes on 1 October. ■

Wireless leads broadband rollout for 'Final 5 per cent'

The government is to spend £175,125 on a satellite-based pilot project to provide Wi-Fi broadband connections to communities that are too remote to benefit from the £1.7bn national FTTC rollout.

The trial, which mirrors a commercial offer in Germany that has 20 communities signed up, is one of eight projects (*see table*) worth £8.13m that the Department of Culture, Media and Sport (DCMS) announced in June to find new ways of providing "superfast" broadband for the "Final 5 per cent" of the UK.

The government has said it wants to have 100 per cent population coverage at 2Mbps (download), with at least 95 per cent coverage at more than 24Mbps. A DCMS spokesman said the applications for funding contained "commercially sensitive information" and would not be disclosed. However, each project would produce white papers detailing their experience, lessons learned, and ways forward.

Satellite Internet will use SES Broadband Services' (SBBS) *Astra Connect* service to for locations in Devon and Somerset. This consists of a satellite link to a single community dish which then distributes the signal via Wi-Fi to subscribing homes and businesses. Customers will also be able to buy and install their own dishes.

SES said users would be able to sign up for either up to 10/1Mbps (download/upload) or 25/2 packages. It could not say what contention ratios and/or data caps would be applied as the detailed feasibility study would be available only next month. The firm added that bandwidth for the community service was allocated dynamically in line with demand.

A spokesman for SES told *Networking+*: "SES Broadband Services, along with Satellite Internet, will closely monitor a number of factors and parameters on the network in order to

DCMS INNOVATION FUND PROJECTS				
Technology	Supplier	Solution	Location	Funding (£)
Wireless	AB Internet	Up to 50Mbps fixed line/fixed wireless	Wales	847,650
	Airwave	Wi-Fi @ 2.4GHz P2MP; fixed wireless @2.4 or 5.8GHz LTE, small cells or TV white space	North Yorkshire	1,564,600
	Quickline	LoS, NLoS wireless + BDUK vouchers	North Lincolnshire	2,054,000
Satellite	Avanti	30Mbps Ka-band	Northern Ireland & Scotland	885,640
	Satellite Internet	Up to 25/2 down/up Ka-band	Devon & Somerset	175,125
Mixed	Call Flow	SLU + FTTC + FTTP + fixed wireless	Hampshire	1,194,145
	Cybermoor	Will test social investment in FTTP + wireless	Northumberland	449,997
	MLL	Aggregate small wireless networks under B5S/O5S and new FWA network	Kent	957,900
TOTAL				8,129,057

deliver the expected level of service. The satellite network will be set up to ensure QoS to support these end user service

levels. The details of how these operational calculations are made will not be shared publicly." ■

EE edges ahead in 4G with Juniper network kit

EE has completed a national IP/MPLS multi-service core network upgrade. It says this was needed to cope with the increase in traffic created by millions of new customers. The upgrade will also see nominal 4G speeds double to 60Mbps.

EE is using Juniper Networks' *MX series 3D Universal Edge Routers*. The two companies have been partners for more than 12 years. Together with its parent companies (Deutsche Telekom and

France Telecom), EE says it has used Juniper's equipment and *Junos* operating system in multiple fixed and mobile networks deployments around the world.

Peter O'Donnell, head of EE's transport network design and planning, says: "The *MX Series* from Juniper has a strong track record with proven investment protection. The *Universal Edge* provides EE with all the capacity and performance headroom that we need in the medium term and has

a strong development roadmap, so our investment is sound."

In the 19 months since launching 4G, EE says its has signed up 3.6m subscribers, with sales of 4G plans now outstripping 3G. It adds that its LTE coverage currently reaches 72 per cent of the UK population, with 3G coverage reaching 98 per cent. ■

The well-connected Kevin Bacon – front man for EE's 4G service



6,000 UK pharmacies to get better service in network deal

Pharmacy management software vendor Cegedim Rx has renewed its contract with Redcentric to provide IT infrastructure services, including managed data backup and 3G failover, for the next three years.

Cegedim Rx claims to support around 6,000 UK pharmacies – more than 50 per cent of the country's chemists. It says it chose Redcentric as its network provider in July 2009, mainly due to its proven ability to provide high quality and reliable connectivity to N3, the internal NHS network.

Clive Eckett, Cegedim Rx sales and marketing director, reckons customers will see higher speed, more uptime, and

greater reliability from the addition of Redcentric's managed data backup and 3G failover services. "We're already examining the rest of the Redcentric portfolio and there are some exciting opportunities that accord perfectly with our strategic direction," he adds.

Separately, Redcentric is selling its CRM and strategic data division for €385m to concentrate on software and databases for healthcare, and on its multi-industry activities such as e-business, outsourced payroll and HR management.

AIM-listed Redcentric has annual sales above £90m from end-to-end managed services. It also owns three data centres that provide more than 1,200 racks. ■

Losing out on the 'fourth utility'

(continued from front page)

In July, BT claimed the Isles of Scilly will be among "the best connected islands in the world" with news that it had begun a month-long operation to divert a fibre cable between the UK and Spain to give the remote community of 2,200 residents much faster broadband.

The project is part of the £132m *Superfast Cornwall* initiative between the European Regional Development Fund, BT and Cornwall Council. This plans to make fibre broadband available to 95 per cent of homes and premises across the county and the Scilly Isles by the end of 2014.

The 939km cable between Porthcurno in Cornwall and Santander in Spain has remained unused at the bottom of the Atlantic Ocean since it was taken out of service in 2006. This has now been cut at

two points – around 100km and 15km off Lands End – and a section has been diverted to the Scilly Isles.

In late-July, the cable was pulled ashore onto the main island, St. Mary's, and linked to the local network. BT says residents should be able to order high-speed fibre broadband before the end of the year.

Until now, the islanders relied upon a broadband service provided by a radio link at Lands End. It's now hoped that fibre broadband enabled by the new connection will help the islands become more economically viable.

Nigel Ashcroft, programme director of *Superfast Cornwall*, said: "Superfast broadband will provide a major boost for local businesses and offer the kind of online opportunities which would have been unthinkable just a few years ago." ■

Vendors 'cash-in' on costs of virtualisation

Businesses expecting to reap the benefits of virtualisation could be in for a shock, as the savings forecast are offset entirely by penalties incurred through software licensing non-compliance, according to Concorde Solutions.

The software value management specialist says that companies often overlook factors such as the licensing of underlying software when developing new systems and processes. CEO Martin Prendergast says this is especially the case in a virtualised environment where it is notoriously more difficult to keep track of estates. "This is where governance issues have the potential to eat away at any initial cost savings made."

Prendergast – who is also chairman of the Cloud Industry Forum's software value management special interest group – believes virtualisation and cloud have made managing and having visibility of an end user's software estate more complex. As a result, vendors are ensuring that regular customer auditing is taking place.

"It isn't unheard of for vendors to charge for technical support for any number of specified years prior to the audit if they have found a customer had been under-licensed. At the same time, we've spoken to some end users who have held

'all-you-can-eat' style contracts who could actually be saving money by avoiding that type of licensing structure."

Prendergast claims vendors are essentially "profiting" from the lack of attention given to software estates by end users, and offers the following advice to customers who want to mitigate any surprise costs: undertake regular (at least annual) internal software compliance audits across the entire environment; always perform an impact assessment of any change in configuration or additions to the network; engage fully with server and application admins to identify application deployment requirements; and create a detailed analysis of requirements and dependencies for each application.

"If you can establish control of this from the beginning, you'll be in a better position to gain from the many benefits that virtualisation has to offer," he concludes. ■



Concorde CEO Martin Prendergast believes that savings from virtualisation are lost because of licensing complexity.

Philips and salesforce.com create healthcare Internet of Things

Philips and salesforce.com have teamed up to deliver an open, cloud-based healthcare platform. It aims to enable medical device and information interoperability, the collection of Big Data to enhance clinical decision-making, and help patients take a more active role in managing their health.

Speaking at the launch of the initiative in June, Royal Philips CEO Frans van Houten said that the goal of the two companies is to demonstrate the ability to better manage

healthcare in a connected way, with constant analytics of data across the entire healthcare ecosystem. "We need to find a way to personalise and consumerise healthcare which is possible through mobile technology. [This] will play an important role as we connect the world together."

van Houten added that Philips was "already a Big Data company". Among the statistics cited, he claimed that the firm globally manages 390 million images, studies and documents that relate to health, amounting to 10 petabytes of data.

The firm's cloud platform will be based on *Salesforce1* and is designed to be highly scalable with built-in privacy and data security. It will enable collaboration and workflow, as well as the integration of data from multiple sources worldwide. These include electronic medical records, diagnostic, and treatment information



Philips CEO Frans van Houten said salesforce.com had a "mature and proven" cloud platform that was very well suited for advancing clinical informatics.



THE WORLD ACCORDING TO...

Gavin McLaughlin, VP of worldwide marketing, X-IO

Avoiding the pitfalls of cloud storage failure

With so much choice in storage, it's easy to be confused by the pros and cons of various implementations, whether that be the choice between physical or virtual infrastructures, hybrid cloud or fully remote, or even hard disks versus solid state. What is key is that any storage implementation carries an appropriate balance of cost, growth and risk.

This is especially critical for cloud or managed service providers who provide a platform for multiple organisations. In these cases, an outage or performance issue can have devastating results for a provider's reputation and its bottom line.

This occurrence is all too common for storage architectures being implemented in 'cloud' data centres. But it doesn't have to be this way. The two most common causes of storage failures in data centres are human error and drive failure.

Both of these scenarios are avoidable through the realisation of true zero-touch storage. The storage industry has done a fantastic job of conditioning storage buyers and administrators into believing hard disk failure and subsequent replacement is entirely acceptable and poses no risk. This couldn't be further from the truth.

There is a trend for flash array vendors to argue that these failures can easily be

solved by moving to an all SSD/flash architecture, but they forget to mention the same problem can easily occur again.

Don't believe the hype that says 'there's no moving parts so there's nothing to fail'. The only way to avoid drive failure is to have the ability to repair drives in-situ with no impact on the workload.

The ideal storage for cloud providers is something that is truly zero-touch. Storage should also give consistent performance and reliability regardless of its utilisation. It should give the same performance at 99 per cent capacity utilisation as it does at one per cent. It should also ideally be scalable – you shouldn't have to buy a 500 disk monster array upfront to get predictable performance. Neither should you have to suffer when you add an extra shelf of disks. And at the end of the day, it is key that predictability and reliability don't come with a cost that breaks the business model of the service provider.

The good news for cloud providers is that it's already here. It's true that not all storage is created equal – but that doesn't mean the right storage for cloud providers doesn't exist. All they have to do is take the time to look for it.

For more on storage, see our June issue feature: *Welcome to the new store age.*

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obtained through Philips' imaging and monitoring equipment, personal devices, as well as from technologies like Apple's *HealthKit*. By combining the data, Philips says the platform will allow for analysis that will enhance professional decision-making and engage patients.

The platform is open to developers, and two clinical applications have already

been created. Philips *eCareCoordinator* and *eCareCompanion* are expected to be launched during the coming weeks and can be used by care teams to remotely monitor patients with chronic conditions in their homes. Philips says the apps will be launched first in the US (pending FDA clearance) before being rolled out to other markets including the UK. ■

No-one likes a know-it-all ...but how about a does-it-all ?



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£190m EIB funding for Arqiva

The European Investment Bank (EIB) will provide £190m to support Arqiva's investment in a range of new critical national infrastructure projects. These include the rollout of smart metering, further Wi-Fi connectivity, as well as the expansion of digital radio. Arqiva provides much of the infrastructure behind the UK's mobile telecoms, wireless communications, broadcasting and satellite platforms. It is working with BT to provide the £625m smart meter network for 10m homes across the north of England and Scotland (also see *News*, May 2014). EIB is the EU's long-term lending institution and is owned by its member states. It makes funds available for investments that contribute towards EU policy goals. ■

Advanced goes to Infinity and Slough

Advanced Computer Software Group will use Infinity's new tier III data centre in Slough as part of a five-year deal. Advanced says it provides a range of IT managed services for more than 800 customers and already operates from five data centres. This latest deal with Infinity supports the expansion of its managed services division. Group CEO Vin Murria says: "It is vital for us to have scalable infrastructure to support our growth ambitions. Infinity's new, top-of-the-range data centre provides all-important expansion room and quality facilities so that we can effectively support both new and existing customers from across the UK." Infinity claims its purpose built Slough data centre is highly resilient with no single points of failure. ■

Sudlows to cable Salford

Salford City Council (SCC) has appointed Sudlows as a cable supplier. As part of the council's three-year network infrastructure framework, Sudlows will supply and install high-speed copper and fibre to more than 70 key public buildings. They include schools, museums, leisure and community centres across the city. SCC has 11,000 employees, covers an area of 9,957 hectares, and is responsible for providing local services to around 230,000 people. The MediaCityUK development at Salford Quays has changed the face of the city. The 36 acre site is now home to BBC North, a University of Salford campus, and ITV's new *Coronation Street* set. ■

Voice and data networks boosted as Le Tour comes to Yorkshire

Azzurri Communications and City ConnectWiFi played a key role in supporting the Tour de France which started in Yorkshire at the beginning of July.

With just over half of the first stages of the course taking place in North Yorkshire on 5-6 July, the county council worked with Azzurri to ensure that seamless communications and connectivity would be assured for the millions of spectators lining the route.

Azzurri's mission-critical communications infrastructure comprised two main elements.

Firstly, two command centres were deployed as the central comms and coordination hubs for the race. Each centre consisted of a Mitel IPT system with built-in disaster recovery capabilities to provide failover from one site to the other in the event of an outage.

Secondly, a customer service centre was established for members of the public seek-



Around 2.5 m spectators lined the race route in North Yorkshire, and the council reported huge spikes in inbound calls.

© ASO/B.BADE

ing key information about the event such as timings and routes, road closures, camping details, car parking, etc. The centre included an overarching IVR service to efficiently direct callers to the right department, help-line or district council.

In a separate deployment, phase one of CityConnectWiFi's network went live in York in readiness for the Tour de France. Free and unlimited Wi-Fi is now available across the city centre as well as at park and ride terminals. According to the company, its network provides "sufficient bandwidth" (of up to a maximum of 1Mbps per device) for a "fast and secure user experience".

CityConnectWiFi worked with Pinacl Solutions on the implementation. Due to York's historic nature, the solution needed to conform to English Heritage guidelines and be as unobtrusive as possible. Pinacl used Ruckus' mesh APs which only require a power supply to operate, and fitted these to existing street furniture such as lamp posts.

The next phase of the Wi-Fi deployment is due to begin over the coming months, with the final stage completing in November 2015. ■

Fire service uses unique bonded comms system

Gloucestershire Fire and Rescue Service (GFRS) is using Peplink's routers and APs to integrate satellite and bonded 3G/4G cellular networks on board its emergency vehicles, trailers and portable units.

GFRS maintains a command vehicle with mission critical ICT systems and several deployable units to provide first responders with access to data and communication services. Since 2003, the vehicle has used satellite to access the internet and communicate with GFRS' headquarters.

However, the uplink was susceptible to problems if it was in a location without line-of-sight to the satellite, such as in dense urban areas with high rise buildings.

As a result, GFRS' solution provider Primetech suggested using Peplink's routers, APs and *Pepwave* technology. This enables Ethernet, satellite, DSL, Wi-Fi, 3G and 4G networks to be bonded together, forming an aggregated redundant link to increase bandwidth, enhance internet reliability, and reduce costs.

The main command vehicle now uses a Peplink appliance to manage the connection between two satellite receivers, and a pair of separate mobile broadband connections from two different providers.

The vehicle can also create a separate Wi-Fi network for other users within civil protection or other blue light agencies. In



GFRS is also using Peplink's system on board trailers for flexible mobile deployments.

addition, GFRS is using Peplink's system in trailer and suitcase-based solutions, enabling flexible mobile deployments. ■

Betfair gains infrastructure performance insight

Online betting and gaming operator Betfair used Nextthink's V5 system to monitor the performance of its IT estate in Europe during the FIFA World Cup 2014.

According to the Switzerland-based vendor, its modular platform proactively monitors IT networks to ensure that their performance is recorded and "uniquely" visualised from the end user's perspective. It says the system reports on significant

end-user related events such as infrastructure changes, application usage and bandwidth, error messages and crashes, as well as potential security risks.

"Until now, we've used a number of different solutions for monitoring different aspects of [our] estate, such as desktops, security, and admin rights," says Betfair CIO Michael Bischoff. "Nextthink enables us to consolidate all of these areas, and has

already allowed us to identify and resolve performance issues."

Founded in 1999, Betfair has more than 950,000 customers, and is said to have pioneered the world's first successful betting exchange.

According to Nextthink, the exchange now processes more than seven million transactions per day, and 99.9 per cent of them are completed in under a second. ■

Building faster wireless – is 802.11ac needed?

Every few years, some new variant of wireless comes to market – yet it's not just about the Wi-Fi, you need to plan for all aspects of your technology infrastructure. So what does 802.11ac really deliver?

Millions of new wireless devices are activated every day and their volume of application traffic is slated to overtake total wired traffic in 2014. To address this the latest Wi-Fi standard, 802.11ac, promises data rates of up to 1.3Gbps today and even higher in the future. What could this deliver? Anything from large data transfers via cloud apps to wireless displays, realtime CRM updates to video conferencing.

But is it needed today, and can you wait for the Wave 2 of 802.11ac? To help you address the tough decisions of balancing technology refreshes with the opportunity cost and network impact, Xirrus Principal Technologist Perry Correll is presenting on the key considerations you need to explore: migration plans to 802.11ac (and what to really expect), the challenges with legacy networks being designed for coverage not capacity, and how apps are changing your wireless network requirements.

You can find out more at IP Expo in The Wireless and Mobile Theatre at the ExCel Centre, London on Wednesday 8th October, 1.40-2.10pm.

You can discover more and register at <http://www.ipexpo.co.uk/Exhibitors/Xirrus>

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Can a move spark a **transformation?** See it happen with System x.

You've probably heard that IBM® and Lenovo have entered into a definitive agreement where Lenovo plans to acquire the IBM System x® server business¹. This is big news, so it is natural for clients to have a few concerns. This letter from all of us on the System x team is to assure you, our clients, that this strategic collaboration is a benefit for the industry and especially for you.

Perfect Collaboration

Both IBM and Lenovo are dedicated to a larger vision for x86 systems. IBM has long been a leader in client focused innovation of System x servers and solutions, featuring Intel® Xeon® processors. Lenovo is committed to x86 computing and has a proven record of success, as evidenced by their #1 share position in PCs. By leveraging their strengths in scalability, operational efficiency and a broad channel presence, Lenovo will be able to ensure uninterrupted delivery of the innovative System x servers and solutions that IBM offers today. This will create the winning combination to make System x a leader in the x86 segment.

Working for you. Always.

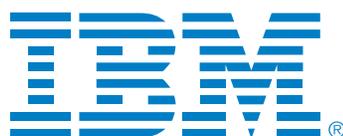
Our respective commitments mean you can continue to rely on getting the performance, reliability, and return on investment you expect for your IT infrastructure. Our team has always been dedicated to delivering exemplary levels of service. We are happy to inform you that IBM will continue to service the System x installed base for an extended period after the transaction closes, so you experience the same quality and accountability that you have come to trust over the years. What's more, we – the 7500 members of the IBM team that delivers System x servers – will continue to do the same, as we will also move to Lenovo.

At IBM, we have always been proud of our ability and commitment to meet the needs of our clients. This announcement opens new avenues for us to expand and improve on this tradition.

Please do visit www.ibm.com/uk/futureofx to learn more about this development.

Sincerely,

The entire System x Team



¹The closing of this deal is subject to regulatory review.

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US snooping prompts Capita secure cloud offer

Revelations that US agencies are carrying out widespread surveillance of communications traffic have prompted systems integrator Capita IT Services to provide public sector access to Microsoft applications running on a secure UK-based hub.

The *G-Cloud 5*-approved service means public sector customers can use the government's *Cloudstore* to buy from Capita's *Productivity Hub*, which offers Microsoft applications such as *Lync*, *SharePoint*, *Outlook* and *Office*.

The hub, delivered via the *Capita Private Cloud* that was set up last year (see *News*, Nov 2013), provides users access to trusted applications on the go and on their choice of device.

Capita IT Services executive director Peter Hands says: "Public sector organisations want the ability to



use the cloud delivery model that suits them, but without the headache of managing it. Capita Productivity Hub is testament to this, offering applications via a private cloud infrastructure with all data stored in Capita's UK data centres."

NSA surveillance has led to low trust in US firms, says Microsoft.

The news comes as a US federal judge rejected Microsoft's appeal against a Department of Justice order to disclose the contents of emails created and stored on its servers in Ireland as part of a drugs trafficking trial. In its appeal, Microsoft said: "Congress has not authorised the issuance of warrants that reach outside US territory. The government's position in this case further erodes trust [in US companies] and will ultimately erode the leadership of US technologies in the global market." ■

I/O 'blender effect' pushes up virtualised storage costs

Legacy storage management systems are pushing up virtualised data centre costs through over-provisioning disk space and increased I/O traffic, according to an IDC report commissioned by virtualised storage vendor Tintri.

IDC found legacy storage architectures are built around LUN (logical unit number) or volume-level storage, which doesn't allow administrators to manage their virtualised environment at the VM level.

"With virtualisation, each server (VM) no longer writes directly to disk. It writes to the hypervisor which then writes to the disk, giving multiple and complex I/O streams and lowering performance. This is called the I/O blender effect," it said.

As a result, administrators generally add more spinning disks to maintain IOPS

in the virtual environment. IDC said this results in as much as 40-60 per cent over-provisioning of storage. It added that the I/O blender effect meant virtualised environments require "significantly more" IOPS than legacy storage systems are able to provide cost-effectively.

There was a widespread lack of understanding of the issue. Only 35 per cent of respondents were familiar with I/O blender effects. Of those, only 67 per cent had measured its impact and were taking steps to counteract it.

Tintri CTO and co-founder Kieran Harty has developed an application-aware storage product, *FlashFirst*, to address the issue. This performs provisioning, snapshots and cloning at the application level rather than the traditional LUN level, he said. ■

Silicon is no longer fit for cloud computing, says IBM

Silicon-based IT will not cope with future demands of cloud computing and Big Data, so IBM will spend \$3bn to squeeze the last drops from silicon as it prepares to shift to carbon-based architectures.

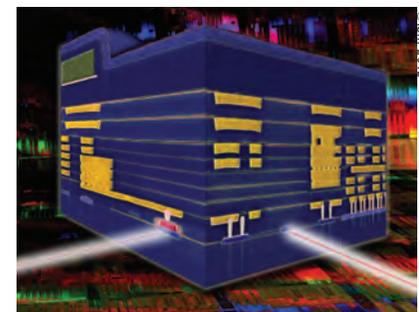
The five-year programme will see IBM shrink silicon form factors from the present 22 nanometers to 14, 10 and finally seven, which it expects to be the physical and cost limit of silicon engineering.

The firm says cloud and Big Data applications are placing numerous physical scaling limits on silicon: "Bandwidth to memory, high-speed communication and device power consumption are becoming increasingly challenging and critical."

To get past these limits, IBM plans to explore carbon nanoelectronics, silicon photonics, new memory technologies, and architectures that support quantum and cognitive computing. Researchers recently demonstrated the first experimental proof

of parity check with three superconducting qubits, an essential building block for one type of quantum computer.

IBM is also experimenting with silicon nanophotonics to transmit large volumes of data quickly between chips in servers, large data centres and supercomputers to overcome cable-induced bottlenecks. ■



IBM's technology integrates a photodetector and modulator with silicon transistors.

Genband's NUViA platform helps iHub offer unified communications as a service

Hosted communications supplier iHub will offer UCaaS (unified communications as a service) across its current and future service footprint using Genband's *NUViA* cloud platform.

Newbury-based iHub specialises in enterprise class hosted voice and SIP trunk solutions. It says its aim is to provide an "intelligent and fully integrated" network which, together with supporting systems, provides a communications hub for businesses of all types and sizes.

The company says *NUViA* will enable it to deliver the latest in enterprise communications features including video-conferencing and collaboration, WebRTC, mobility, and high definition VoIP.

iHub CEO Mike Webb says: "Genband provides a local presence with global capabilities which allows us to achieve our vision of entering new verticals and offering our growing enterprise customer base carrier-grade, reliable UC technology that can be seamlessly delivered across multiple countries."

This latest deployment follows iHub's selection of Genband in 2013 to enhance its SIP trunking and UC offerings.

Genband specialises in developing multimedia and cloud communications solutions. According to the US-based firm, *NUViA* enables real-time flexibility to create differentiated service offerings for enterprise users. The platform is based on Genband's *EXPERiUS* application server,



iHub CEO Mike Webb says the deployment will enable his firm to deliver UC services across multiple countries.

IM manager and WebRTC gateway; *QUANTiX* controllers; and *Converged Intelligent Messaging* products.

The company adds that its cloud offering is supported by professional services and global technical support teams who can assist customers in seamlessly migrating their infrastructures to the cloud.

"Offering our customers a consistent, highly available UCaaS experience across the globe is one of the distinct advantages of our cloud service," claims Ramnik Kamo, senior vice president and general manager of cloud services for Genband. "With *NUViA*, we manage the cloud service and allow our customers to focus on providing their subscribers with unparalleled solutions and service." ■

FC SANs losing ground in DCs

The growing preference for cloud computing and software-defined data centres is cramping the market for Fibre Channel (FC) SANs, according to market researcher Dell'Oro Group.

Its latest SAN market report says overall market revenues, including Fibre Channel switch and adapters, dropped three per cent year-over-year during Q1 2014.

"Trends in the IT industry, including the explosion of mobility, accelerated adoption of cloud services, virtualisation, software defined networking (SDN), and growth in unstructured data, are changing hardware purchase preferences," says Casey Quillin, Dell'Oro's director of SAN research.

"This change is disruptive because enterprises' preference for the cloud is increasing the need for new technologies such as distributed scale-out and object-based storage options. Enterprise data centres are transforming into software defined data centres, and the preference is also shifting towards Ethernet and converged infrastructure."

The report also discusses the outlook for market migration to 16Gbps FC and how Fibre Channel over Ethernet (FCoE) is affecting FC adapter revenues.

Vendors currently offering FC switch and adapter products include Brocade, Cisco, Emulex and QLogic. ■

Olive building its business

Olive Communications has speeded up its drive into the construction sector with the acquisition of SafetyBank Solutions, a leading developer of SaaS-based products.

The construction industry needs to manage extensive projects within a complex ecosystem of suppliers, contractors and sub-contractors, who make up over 90 per cent of the industry.

SafetyBank was formed in 2010. It specialises in software to address all aspects of health and safety, risk management, compliance, training and governance throughout the entire construction sector supply chain.

With its new acquisition, Olive provide business-critical applications to companies

that employ field-based workers in addition to its current portfolio of connectivity, equipment and converged communication solutions. SafetyBank CE and inventor of the platform Jody Kennedy will join the Olive board as CTO.

Olive had already invested in the SafetyBank platform. "Following a soft launch earlier this year, we are now ready to incorporate the range of services into our core portfolio, hence the timing of the acquisition," says Olive CEO Martin Flick.

Olive is one of Vodafone's largest UK partners; it manages more than 120,000 mobile subscribers and supports more than 2,500 business customers. ■

Construction industry case studies - p8.



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The building blocks of construction

The IT networking solutions that have helped build the nation.

Riverbed provides solid foundation for building sites

Lagan Construction Group (LCG) has an international reputation for undertaking major infrastructure projects, particularly in far-flung locations where it can quickly mobilise its experts.

LCG operates its business through a network of global offices and temporary locations. The company requires all sites to be IT-enabled quickly, using minimal local specialist expertise and with the infrastructure to be managed from Belfast.

However, building sites can be rough environments where IT equipment can be easily damaged or misplaced. The resulting loss of data could result in delays or errors potentially costing millions of pounds.

As a result, LCG wanted to implement an enterprise CMS that could operate effectively over a WAN and to make it easier to track and manage projects. The company chose *Microsoft Sharepoint* but discovered that it did not operate at optimal speeds over the WAN.

To solve this, it initially installed four of Riverbed's *SteelHead* WAN optimisation appliances – one was located in Belfast while the others were in remote locations, including the Caribbean. Jim Fennell, LCG's IS manager, says: "Our business is

akin to establishing a series of temporary, multimillion pound manufacturing plants from scratch, at a series of worldwide remote locations. [With] *SteelHead* appliances there is no need to install local servers and other IT infrastructure."

The *SteelHeads* have enabled remote sites to run applications installed on LCG's main servers at its Belfast HQ, and facilitated the establishment of reliable backups to the central office.

By successfully accelerating *Sharepoint*, the *SteelHeads* have made it possible for project managers to log in from any enabled site in the world to review work on any site, helping to improve collaboration and tighten management control. They can now effectively manage unstructured content, such as drawings, photographs, documents and project plans, through the entire project lifecycle of creation, management, storage, and disposal.

The deployment has also allowed LCG's four-person IT team to maintain and support all the remote sites. As a result, the company expects to make substantial savings in

outsourced IT support for its various locations. In addition, it has been able to free up bandwidth for VoIP, resulting in further savings worth many thousands of pounds in its budget for international calls.

GoToAssist proves just the ticket for B&K

Founded in 1923, Derbyshire-based Bowmer and Kirkland (B&K) Group is said to be one of the UK's most successful construction firms. It employs around 1,400 staff at offices in the UK, USA and Dubai, and operates 29 subsidiaries. Among its key projects was the redevelopment of Warner Bros Leavesden studio as the *Harry Potter Experience*, and the building of Centre Parc's fifth UK village in Woburn.

A large percentage of B&K's workforce is involved in construction – a tough and mobile environment in which to keep IT kit up and running. Previously, the company operated three separate IT tools (including *Netviewer Support*) for remote troubleshooting, auditing and helpdesk.

The lack of integration, particularly between online ticketing and support, caused problems for the IT team that had to look after around 1,000 PCs. Using *Netviewer*, it couldn't support a computer without having somebody actually sitting in front of it to enter a session number.

"It was almost impossible to remotely access machines in order to put problems right with minimum delay," says IT core services manager Kevin McDonald. "Few users on busy construction sites were sitting at a desk, able to type in a code, and connect to a remote agent."

McDonald's team replaced *Netviewer* with Citrix's *GoToAssist*. This "triple play" helpdesk solution offered remote support, device management, monitoring and auditing. Citrix says its software was quick and easy to implement and meant that B&K had to change very few processes in order to be up and running.

It adds that this was matched by the system's "highly intuitive and easy-to-use functionality". This typically involves the use of the *Monitoring* module's alert feature to identify a malfunction and the *Remote Support* module to resolve the problem. All the data about the support case is then stored automatically using the *Service Desk* tool.

"Instead of the previously fragmented and slower resolution of IT problems, we are now able to log the call on the system and provide rapid response from our end-user support team," says McDonald. "Problems are recorded and monitored, with lessons learned forming part of the team's 'help user guides' as part of the knowledge base, enabling faster resolution when similar problems arise in the future."

The next step for B&K is to automate user crib sheets in order to make fixes more transparent and accessible to the whole IT team. McDonald is also considering expanding access to the knowledge base articles so that staff can resolve issues without involving his team.



Building IT networks for temporary sites

Taylor Wimpey was formed in 2007 following a merger between Taylor Woodrow and George Wimpey. In an average year, the firm can have up to 500 active building sites across the country, with the majority open for just 18 months.

Site setup, moves and closures create a complex task for the IT team. Taylor Wimpey has more than 3,000 mobile phone contracts in place and in excess of 500 building sites at any one time. Furthermore, with voice, data and internet connections taking up to 45 business days to set up, a solid, fast and effective IT strategy is critical to profitability.

From an operational perspective, IT director Paul Caris says that each site has to be up and running as fast as possible: "Downtime equals missed deadlines."

Azzurri Communications had already been working with George Wimpey, and following the merger, Caris approached the supplier to review the new company's combined IT infrastructure.

It used its *Telecoms Expense Management (TEM)* managed service to assess Taylor Wimpey's fixed and mobile voice systems. Azzurri says *TEM* continuously evaluates and identifies areas of waste or unnecessary expenditure, simplifies the procurement process and negotiates new tariffs, and provides a monthly reporting service that provides greater visibility of expenditure. *TEM* enabled Taylor Wimpey to reduce its annual voice spend by up to 20 per cent.

Azzurri then turned its attention to developing a bespoke solution that would enable interim voice, data and internet connectivity for each site, whilst waiting for DSL connection.

Using Vodafone's 3G network, it created *Instant Office*, a managed service that can be activated immediately, enabling building sites to benefit from business-critical applications on-demand. *Instant Office* provides users with 'mobile' IP phones that deliver voice and fax services, and a 3G card for data feeds.

Azzurri is also providing a managed WAN service between selected building sites, regional offices and Taylor Wimpey's head office in London. During the setup of a DSL line, Azzurri acts as a central point of contact between the building site and Caris' team in London, ensuring the smoothest and fastest possible migration of IT services.



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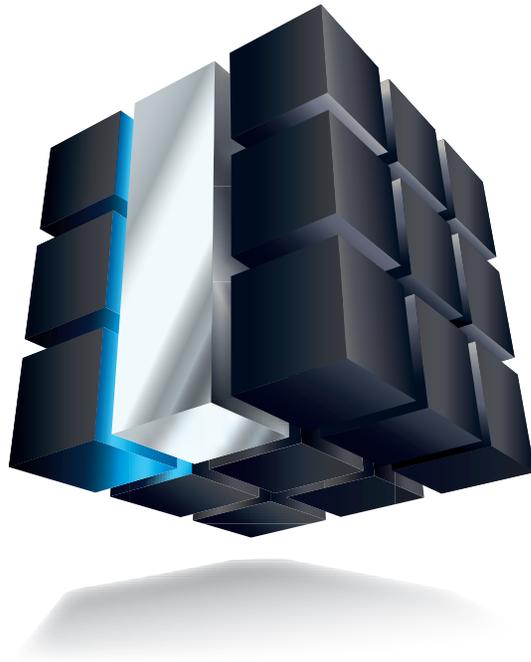
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Still in the dark about cutting DC energy costs?

Developing an energy efficient data centre means creating the right balance between resilience, compliance and performance, as RAHIEL NASIR finds out.

On 1 July 2014, the Climate Change Agreement (CCA) for the UK data centre industry came into force. The government has negotiated CCAs with specific industry sectors, giving them reductions in some carbon taxes if they meet set energy efficiency targets. To qualify under the new CCA, data centre (DC) operators will have to make a 30 per cent reduction in non-IT energy consumption between 2011 and 2020.

The agreement for the industry comes after organisations such as techUK campaigned for the government to apply a more “intelligent” approach to improving energy efficiency without penalising growth in a globally important sector. TeclivityGroup is a member of techUK’s Data Centre Council and was involved in the CCA’s development from the outset. Group MD Rob Coupland says: “The CCA will give operators and investors greater certainty regarding the way that policy instruments are applied to the sector. This should lead to better confidence when planning investment strategies and expansion programmes which can deliver carbon reductions whilst encouraging growth.”

While the agreement has been broadly welcomed, some experts point out that efficiencies must always be balanced with resilience. “The main challenge facing all DC operators is that uptime remains the most critical consideration when designing their infrastructure,” says Robert Williams, technical director with Custodian Data Centre. “With the new CCA enabling DCs to implement energy efficiencies with the support of the government, one of the challenges is to ensure that they continue to make technologically sound decisions rather than adopt incentivised changes at the risk of compromising uptime.”

Williams says that there is a difference between being able to build a DC from scratch that is energy efficient, compared to legacy centres looking to tackle energy

efficiency retrospectively. “One of our challenges as a colocation facility is to educate our clients to utilise our data floors optimally taking advantage of our design. The other challenge is that every rack has varying power requirements meaning that solutions need to be flexible and adaptable.”

Ian Bitterlin, CTO of Emerson Network Power EMEA, echoes this view and adds: “The most important area for energy saving is in the ICT hardware itself which remains under-utilised in many DCs and, critically, consumes too high a proportion of full load current when at low IT load.”

Reducing equipment energy consumption certainly sounds like a no-brainer. But according to Raritan the key issues are not so much minimising the use of power, but maximising efficiency so that the limited available power can be used for more revenue earning racks and servers. “In other words, making the kilowatts go

further,” says Richard May, technical manager for PowerIQ energy and risk control, Raritan UK. “This drives the need to maximise overall data centre efficiency.”

What’s clear therefore is that data centre operators need to adopt a holistic approach to energy efficiency. And as well as the new CCA, they will also have to take into account other considerations, such as EU directive 2012/27/UE that comes into force in 2016. This requires companies in all member states to undergo an energy audit to ensure they are reducing power consumption.

Chilled out

So how are the data centre operators performing this tricky act of balancing efficiency, resilience and compliance? The cost of powering cooling systems

typically represents a big chunk of a DC’s energy bill, and many have made improvements through technologies such as fresh-air cooling.

For example, Daisy Group runs a number of centres including one in Manchester where it has implemented cold aisle containment. It says this has allowed it to reduce its cooling and subsequent power usage by more than 20 per cent.

The firm also has a facility in London that was built in the mid-1990s. But rather than go through the expense of trying to re-engineer this to be more energy efficient, Daisy decided it would be more cost effective to acquire an alternative site. It has since spent the last 12 months migrating its London operation to the new premises. Chris Smith, the company’s head of data centre services, says: “Our new North London data centre has a design PUE [power usage efficiency] of less than 1.5 and is powered by 100 per cent renewable sources. The cooling is supplied by intelligent free air chillers which, if the outside ambient temperature is less than 13°C, can offer 100 per cent free cooling.”

Custodian reckons it has Daisy beat when it comes to PUE. The firm says it was an early proponent of fresh air cooling and cold aisle containment, and took local weather metrics and data into consideration when designing its data centre in Kent.

“Additionally, our cooling system supplies the correct amount of cooling via tuneable, high capacity overhead vents,” says Williams. “For most of the year, the system runs solely on UPS backed fans, with chillers used to ‘clip’ the temperature. We have a highly resilient yet energy efficient cooling system where air supply can be varied down to individual rack level.” He goes on to claim that the DC regularly achieves PUE figures of below 1.15.

Some advise caution when it comes to PUE ratings. Steve Hall, director of Ark Data Centres, says: “Data rooms come in all



UPS! claims its PowerWAVE 9500DPA offers true online efficiency of up to 96.1 per cent, and around 99 per cent when run in ‘ECO’ mode. The UPS is listed on the Government Carbon Trust’s Energy Technology List for Enhanced Capital Allowances.

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sorts of different sizes, and the less forward-thinking data centre providers quote their PUE on just that room. This is confusing, and dare I say misleading, for customers.”

Hall says that when Ark calculates PUE, it measures the power usage of everything the customer uses and will be billed for.

“Literally the whole building. Because if a customer is paying for part of it, then it’s part of their PUE overhead. The next step change with PUE is whether or not it’s something your data centre provider will be prepared to guarantee. We do. It gives us a good measure of how everything is performing and in turn means that we can pass savings directly onto our customers.”

Hall says most companies tend to run at a building PUE of 2.5 or higher. A building PUE of 1.25 or less means there is potential to achieve savings of around £1.1m per megawatt per year. “From an environmental

perspective, that’s 6000 tonnes of carbon that you could potentially be taxed on.”

When it comes to efficiency, the UPS is now playing a more prominent role. For example, Daisy says it also installed a new UPS system at its Manchester centre to improve the efficiency of the power infrastructure by more than 20 per cent. But in the words of Alan Beresford, technical and managing director of evaporative cooling specialist EcoCooling, some UPS systems have “horrendous losses”, all of which end up as waste heat. He points out that this needs to be extracted by the cooling system. And so reductions in UPS losses not only cut the UPS load but also the cooling load.

This is certainly one area that will continue to see improvement, according to Alan Luscombe, sales director of Uninterruptible Power Supplies Ltd

(UPS). He says that significant gains have already been made with UPS devices, such as when transformerless, modular technology was introduced a decade ago. “The most recent step change came from the introduction of ‘ECO’ mode which can push efficiency to greater than or equal to 99 per cent. Our own calculations show that operating a 1MVA system in ECO mode could save an additional £11,000 in a twelve month period, compared to operating the system in true online double conversion mode.”

Luscombe goes on to say that the latest modular UPS products offer the opportunity to ‘rightsize’ the equipment to the current load, so you are not wasting energy on an oversized system – something that was common ten years ago. He says rightsizing allows DCs to add additional modules to their racks as needed, so they

never pay for capacity they’re not using. “Historically, the UPS had to be run close to capacity to get the best out of the system. Now, in line with the user’s actual requirements, the highest possible efficiency can be achieved even if the system is only running at 25-50 per cent of capacity. That has made a tremendous difference to energy consumption.”

“It also means redundancy is available in an N+1 formation, rather than N+N. Before, if your load was 1MVA, you would have two systems, both 1MVA (N+N), with one unit simply for redundancy. Nowadays that seems insane as you were never operating at more than 50 per cent load. The latest modular UPS systems enable you divide the load requirement into modules of up to 100kVA each. So a 1MVA load can be serviced with 11 100kVA modules, significantly decreasing energy consumption and improving efficiency.”



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Watching the wattage

There is no point in using more efficient hardware without having any energy management software systems in place. As colo and connectivity specialist C4L says, it’s crucial to understand where you are not being efficient so that you can capture and correct any problems.

At its DC in Bournemouth, the firm says it has the ability to monitor many points along its infrastructure, from the individual rack IT load all the way back to the M&E load. But DC manager Phil Wrightson adds that it is very difficult for colo facilities to monitor their customers’ power usage beyond the individual racks themselves. “However, for server infrastructure owners, if not all systems are required or at full load, then using management systems to power down unused equipment is definitely recommended.”

Emerson’s Bitterlin agrees here. He says DC managers have traditionally focused on improving the power supply and cooling to determine energy saving solutions. But citing recent research from Jisc (formerly the Joint Information Systems Committee), he notes: “With server equipment consuming about 30-40 per cent of the total energy used in data centres, it is one of the primary areas to implement effective energy saving measures.”

Bespoke energy management solutions are therefore essential and should form part of any strategic plan. After all, if you don’t know what your energy use is, you can’t manage it. Having said that, it would be hard to refute May when he says: “No amount of high-efficiency hardware will make up for poorly engineered deployment.”

He says most (but not all) DCs now have some form of energy and environmental measurement in place. But often, the human operators are overwhelmed by the amount of data, and so the control system envisaged doesn’t materialise in practice.

“The next step is to introduce systems (software assisted or otherwise) to enable this data to be simplified so it is in a format that allows humans to take both real-time and longer-term decisions based on it. In helping DC clients to simplify and analyse their data, we often find that we need to adjust the granularity and the way the info is presented to match their business model. Colos, enterprises, banks, etc. are all very different in their info needs, and no two DCs have the same requirement.”

Leo Craig, GM of UPS specialist Riello, supports this view. But he also says that not everything needs to be monitored: “If you monitor everything, you’ll end up with information overload. Things like rack temperatures at the top, middle and bottom, the power draw, and

the air conditioning return temperature are good starting points for monitoring. But whatever is monitored needs to have value and meaning. If you can't change it, there's no need to monitor it."

Craig goes on to emphasise that it's important for DC managers to see how data suites are managed to make sure they don't have "zombie" servers lying dormant. And where possible, it is also worth looking at where they run processes and try to make sure that the overall power draw is more even. "For example, many processes are run overnight which means that there are huge energy peaks which will impact on the cooling and air conditioning. Instead, it is recommended to stagger the processes to flatten this peak out and ensure a more even power usage."

In addition, he advises DC managers to implement a strict regime such as making sure blanking plates are in place to ensure efficient cooling and airflow. "This can save up to 20 per cent on cooling requirements. Measures like these do not incur great costs, but the savings on offer are huge. A lot of small to medium-size data centres are still not implementing the basics."

Diminishing returns

Is there a limit to what DC operators and vendors can do when it comes to deploying and developing more energy efficient equipment? C4L says the only real limitation is how much budget you have to implement certain features as they come out. But when it comes to the data floor, Wrightson agrees that there is a finite saving in efficiency, and that the industry is not "far off" from reaching this.

It is therefore generally agreed that while data centres can always become more efficient, the savings to be had are becoming smaller with each incremental improvement. And it will always be a balancing act between absolute efficiency versus reliability.

EcoCooling's Beresford believes that once you get below a PUE of 1.1 – by using good electrical distribution, efficient and well-balanced UPS, and fresh air/evaporative cooling – then there is a limit of what else can be developed. He reckons that a PUE of <1.05 is possible with rotary UPS plus fresh air; and <1.15 with a well engineered chilled water cooling system (although this is expensive). He adds that the DX (direct

expansion) industry has taken their efficiency about as far as it can go, so "expect little further improvement with this technology".

So what about UPS systems – how does the law of diminishing returns apply here? UPSL's Luscombe says: "Running [a UPS] in ECO mode can deliver up to greater than or equal to 99 per cent efficiency, so it is clear that there will be a limit to the further gains that can be made in this area."

Custodian's Williams adds: "Single UPS facilities can run at higher loads (around 90 per cent) whereas dual feed facilities can only ever load their UPS systems to a maximum of 50 per cent. To improve efficiency in this scenario, you would lose resilience."

That said, Luscombe says UPS systems certainly haven't reached the "end of the development road", given ongoing work to reduce footprints and cooling requirements.

And while the 'greening' of IT tends to be all about power and energy usage, there are other aspects of the infrastructure that can be made more environmentally-friendly.

For instance, Wrightson says small changes such as using Twinaxial (or 'Twinax') cables instead of Cat6 can make "substantial" differences over a large infrastructure: "For example, Twinax could use only 0.1 per cent watts per transceiver in comparison to Cat6 which is usually 4-8 watts per port. On its own its own that's a small saving. But over a few thousand servers that is a substantial difference."

Much has already been written about how virtualisation and cloud-based technologies can reduce the number of physical assets used to operate IT systems, and other energy saving measures also include consolidation of data centres and server rooms. Raritan

says another area that can also contribute significantly is the use of remote access and management technologies so that engineer visits to the data centre are minimised. "Having a central pool of experts and cutting out engineer travel can save a very significant CO2 load. And the work we do with clients on risk reduction avoids unnecessary outages and all of the disruption and engineer time needed too," claims May.

Energy efficiency continues to be a key trend in the data centre power market as operators look to manage rising energy bills. But it should not be the sole consideration for those engaged in data centre design and build, advises Rielio's Craig: "In the long term, only a solution that offers the right combination of efficiency, resilience and total cost of ownership will provide the best results." ■

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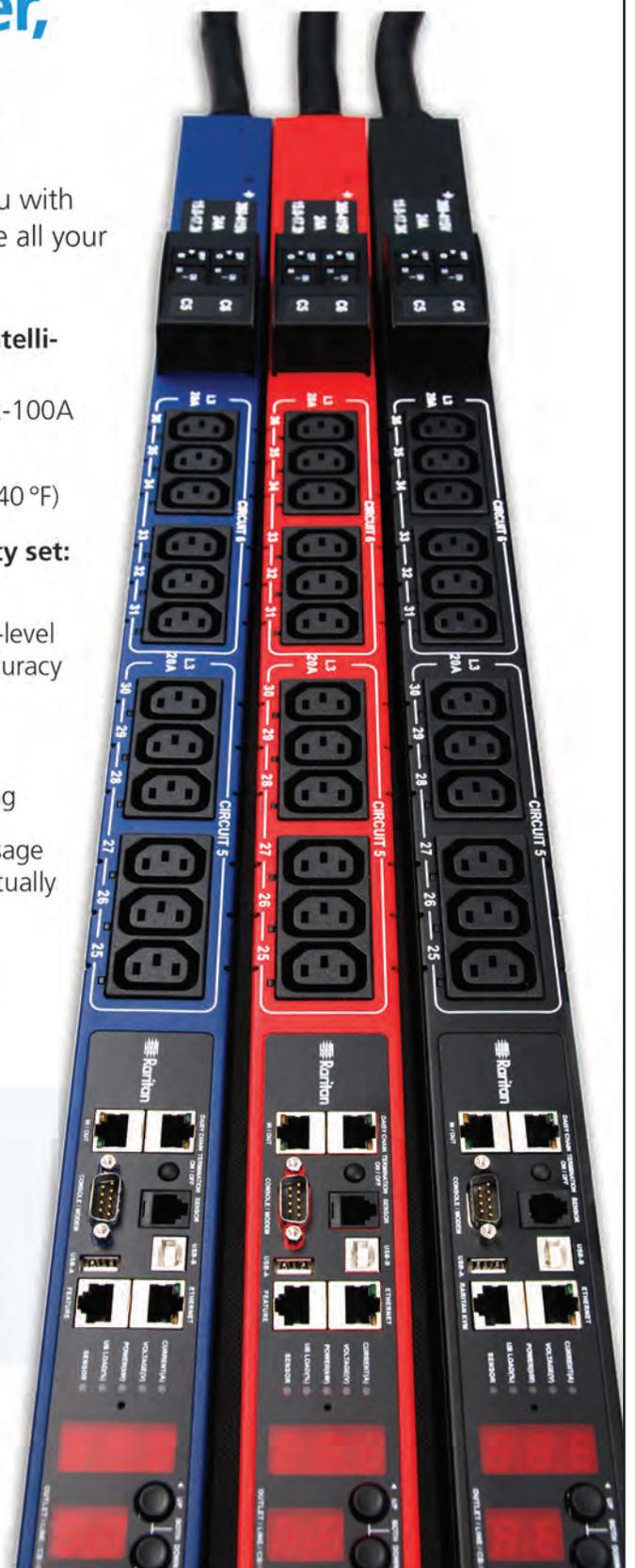
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"No amount of high-efficiency hardware will make up for poorly engineered deployment."

Richard May,
Technical manager for PowerIQ energy and risk control,
Raritan UK

off-the-shelf: servers

The network keystone

In a hyperconnected world, enterprise networks now need to be supported by a new breed of intelligent servers.

Buffalo Technology says its *TeraStation WS5000R2* series is an “economical and high performing” *Windows Storage Server* and iSCSI solution for SMEs or test environments. The devices available in the line-up combine NAS with *Windows* to provide what the company describes as a “seamless, efficient and secure” solution to network integration and BYOD.

The range includes rackmount and desktop models with various capacities from 4TB to 24TB. Each is equipped with Intel’s *Atom* dual core processors – either the *D2550* for two- and four-bay models, or the *D2700* for the six-bay and rackmount.



Buffalo says the *WS5000R2* supports Active Directory integration, enabling networks to automate access and manage storage in the same way as they do their *Windows Server*. It adds that PowerShell and Microsoft Systems Centre are ready-to-use, along with a flexible choice of storage protocols. Supported by RAID, the devices are said to provide a secure backup function, ensuring data is never compromised. Hot swap functionality also allows users to change disks without downtime.

Microsoft Storage Server 2012 R2 can support a work group of up to 50 users and is claimed to offer an array of new and enhanced features. These include: reduced networking complexity with greater efficiency, performance, and availability; ReFS (Resilient File System) for the highest level of scalability and reliability; and efficient management of data centre and private clouds that can be easily linked to public cloud services.

Dell has enhanced *PowerEdge VRTX*, its innovative converged infrastructure system that integrates servers, storage, networking and management in a single chassis.

According to the company, *VRTX* is the first integrated IT solution designed

specifically for office environments. It’s designed to remove the complexities associated with disparate and sprawling hardware, and multiple management tools.

The new enhancements include support for additional workload choices, and

capabilities to drive further simplicity, efficiency and performance in remote, branch and small business offices. For instance, *VRTX* now enables enhanced VDI in remote and branch offices by providing support for optional GPUs.

Dell also offers an optional redundant *PowerEdge Raid Controller (PERC)* which provides RAID controller failover inside the *VRTX* chassis. This is aimed at customers requiring the highest levels of availability and redundancy possible.

There are additional server node choices (including the 4-socket *PowerEdge M820*) to enable what Dell says is faster process-

ing of workloads such as large back-end databases, data mining, ERP, CRM applications, etc.

The *VRTX*’s management system has been enhanced using Dell’s *Chassis Management Controller (CMC)*. According to the firm, sharing a common design provides users with a familiar tool to manage local or remote *VRTX* systems, just as *CMC* does in the data centre.



The *PRIMERGY RX4770 M1* is a x86, four socket rack server that promises “groundbreaking performance, the highest reliability in its class, and impressive efficiency”, according to **Fujitsu**.

The firm says this turns the server into the ideal platform for running transactional and data-intensive applications, as well as back-end and in-memory databases.

The *RX4770* offers double the performance of its predecessors thanks to what’s described as an innovative design and the latest *Intel Xeon E7-4800/8800 v2* processors which offers up to 60 cores.

Fujitsu says there’s increased disk performance with a 12Gbps RAID controller, as well as greater internal storage capacity with eight 2.5-inch, hot-pluggable SAS/SATA SSDs, SATA HDDs, or up to four additional PCIe SSDs for faster access to more data in the future. Memory capacity has also tripled with up to 6TB available.

In addition, the *RX4770* is said to have enhanced business-critical RAS (reliability, availability and serviceability) features. These include resilient system and memory technologies that integrate processor, firmware and software layers to help diagnose fatal errors, contain faults, and automatically recover to keep the server operating.

Fujitsu claims the server substantially simplifies carrying out infrastructure-related tasks such as server virtualisation and consolidation, and allows for reduced operational expenses by up to 70 per cent as well as a 3:1 consolidation ratio compared to previous generations.



NEC’s *Express5800/A2000* is a series of scalable enterprise servers developed with Intel’s *Xeon E7 v2* processor that contains up to 15 cores. The range is said to be ideal for systems that perform high-speed operations and require mass storage, such as mission-critical tasks and large-scale virtualised IT infrastructures.

The *Express5800/A2000 Series* is said to be two times more powerful than NEC’s conventional servers as it contains up to four *Xeon* CPUs. The vendor says it also supports an in-memory database that processes data at high speed using a large-capacity memory of up to 4TB – claimed to be twice the capacity of its conventional servers.

The new unit is equipped with up to 16 PCI-Express 3.0 slots (8x and 4x), delivering real-time analysis infrastructure that simultaneously supports network, storage and flash storage.

NEC says the *Express5800/A2000 Series* has unique RAS functions to

ensure continuous system operation. The servers are equipped with the company’s *EXPRESSSCOPE ENGINE SP3* service processor and firmware technologies which enable enhanced monitoring of CPU cores and autonomous monitoring of memory when signs of failure are detected.

The firm adds that operating efficiency is improved by optimising CPU resources. When it is necessary to scale performance due to increased workloads, CPU cores can be added online without suspending the system. Moreover, NEC says the use of a highly efficient *80 PLUS* Platinum certified power supply significantly reduces power utilisation when compared to conventional servers.



Oracle has recently unveiled its *Sun X4-4* and *Sun X4-8* with the claim that they are the first and only x86 servers to offer elastic computing. Co-engineered with the vendor’s software, the servers have been designed to maximise performance by adapting to different workload demands in real-time.

The four socket *X4-4* is aimed at business intelligence and server consolidation. Oracle says it is well suited for applications requiring large memory footprint VMs and for running real-time analytics software.

The eight socket *X4-8* has been developed to offer the best x86 platform for *Oracle Database* and, when combined with the *In-Memory* option, can speed up query processing by allowing even more of the database to be memory-optimised, claims the firm.

Oracle says the servers’ x86 elastic computing capabilities have been achieved by integrating their design – which is said to be the first to be based on Intel’s *Xeon*

E7-8895 v2 – with Oracle’s *Solaris* and *Linux* platforms. It says this enables users to configure the systems to dynamically optimise for core count to support optimal performance for a given workload.

The company adds that its new servers aim to optimise data centre space and are able to manage extreme memory and I/O requirements for mission-critical workloads. It says they also offer “excellent performance” for virtualisation and high density clustered computing in enterprise cloud environments.





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Belden launches fully certified network programme

In what's claimed to be an industry first, Belden says that managers who are looking to install a new or significantly upgraded network can now take advantage of a fully Certified Industrial Network Programme to support and guide the process.

Unlike ad hoc networks with partial product warranties, the firm says it certifies entire industrial networks, providing "peace-of-mind and minimised downtime" through enhanced warranties and dedicated customer support.

"We are here to help customers get their network infrastructure right the first time, with room to grow and a full support system behind them," says Carlos Prada, director competence centre EMEA, Belden. "Only networks that meet our strict design standards, with positive test results, are certified."

The company says that at each step of the certification process, two sets of experts – from Belden and an authorised provider – work to meet operational requirements and minimise areas of risk. It has already trained and qualified its first group of industrial network solution providers to design, install, configure and test companies' new or expanded industrial Ethernet infrastructures.

Another key programme benefit is that a Belden Certified network also includes a limited lifetime warranty on networking components such as switches, significantly lowering the total cost of ownership. In addition, Belden cable and connectivity product warranties are extended from two to three years to 25 years.

Schneider Electric hosts webinars via LinkedIn

Schneider Electric has begun hosting webinars that offer data centre training specifically for members of its *LinkedIn* reseller group.

In its first session, the IT energy and power specialist covered 14 data centre analysis tools and a range of materials from its management library to help resellers identify the optimum solutions needed for a range of different customer situations.

Schneider says it has an extensive library of free resources, including more than 100 white papers. It says they can help resellers analyse, advise, educate and compare a range of technologies and solutions to ensure end customers benefit from more efficient, cost effective and successful data centres.

Joerg Russwinkel, the company's online and multichannel manager, believes social media has become a "powerful tool" for business and has enormous value in facilitating learning across borders. "Our online reseller community now exceeds 2,500 members and we believe that creating training

programmes for this group will allow us to continue to add value for members and help them get more from their relationship with Schneider Electric.

"We feel that training such as this is a perfect way to make our knowledge available to a key community and it's our intention to continue to develop content for first use in our online communities. This webinar is the beginning of an ongoing programme."

Schneider Electric resellers interested in joining the LinkedIn community can find out more at <http://tinyurl.com/pk698n7>

NEW COURSES

Arrow Electronics & New Horizons – IBM Global training

New Horizons Worldwide has joined Arrow Electronics' alliance of partners

that are working to make IBM training available in 130 countries.

Arrow is a global provider of products and services to industrial and commercial users of enterprise computing solutions. Working with partners such as New Horizons – which operates more than 300 training centres in 70 countries – it will offer a variety of courses on IBM systems.

They will cover the vendor's software such as *Business Analytics, Information Management, Collaboration, Product Lifecycle Management, Rational, Tivoli* and *WebSphere*; as well as its power, storage, server and networking hardware; and cloud computing. <http://edu.arrow.com/ibm>

Planning and Implementing Windows Server 2008 – QA

This five-day classroom-based course incorporates both the planning of the

server infrastructure as well as key aspects of the implementation, management and maintenance of Active Directory and Network Infrastructure. QA says it is the primary training resource for exam 70-646 preparation (*MCITP: Server Administrator* certification).

The course covers *Windows Server 2008, 2008 R2 and 2008 R2 sp1*. It is intended for experienced IT professionals looking to gain deeper insight and decision-making knowledge for a variety of planning and implementation tasks typically carried out by administrators.

The next courses take place in London, Leeds and Bristol in September, followed by Manchester in November and Birmingham in December.

For further details as well as information about others dates and prices, see <http://tinyurl.com/oduoxvg>.

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Joerg Russwinkel, Schneider Electric's EMEA online and multichannel manager, believes social media has become a "powerful tool" for business.



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