

networking

FIXED & WIRELESS NETWORKS FOR ENTERPRISE USERS

Wi-Fi on tour

KBR and Cambium Networks help keep thousands online during Tour of Britain News, p2



Making the right call

Global manufacturers need world-beating comms solutions **Real World Networks, p8**



With great power...

...comes great responsibility for running energy efficient data centres **Feature, pp10-13**



Cabinets and enclosures

The latest enclosures and racks for storing your hardware and keeping it cool **Off-the-shelf, p14**



BT and Dell EMC to develop flexible SDNs of the future

By Rahiel Nasir

BT and Dell EMC are collaborating on research dedicated to validating a new way of managing network traffic.

Their proof-of-concept, which is taking place at BT Labs in Adastral Park, Ipswich, will explore how disaggregated switching can create flexible networks that are more responsive to customer needs.

Unlike traditional integrated network switches currently used by data centres, operators and enterprises around the world, disaggregated switching utilises merchant silicon-based systems combined with either commercially available or open source system software. According to the two partners, this represents a “significant shift architecturally”, applying server-like principles to the delivery of dynamic network services

over fixed-line and wireless networks. They add that disaggregated switches have several potential advantages over traditional network switches, as they can be managed flexibly using Netconf protocol and YANG models. It’s claimed this makes the entire system inherently programmable and allows the switches to be operated in concert to spin up new network services or make configuration changes rapidly.

BT is evaluating the performance of Dell EMC’s disaggregated switches against traditional integrated switching hardware to test the performance, economics and programmability of this new virtualised approach. The company says the trial will enable it to make informed decisions about the role this kind of solution will play in the dynamic network services of the future.

The two companies are working on a PoC at BT Labs in Suffolk (pictured). They are testing how disaggregated switching can create more responsive and flexible networks.



The two companies will evaluate a number of potential use cases as part of the trial. These include the instant activation of Ethernet circuits from a

third party (such as an enterprise), and the ability of the system to deliver real-time network operational data.

(continued on page 2)

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London under threat from Paris as Europe’s technology capital

London is beginning to show signs that its position as Europe’s leading tech hub may be under threat, according to Montreal Associates.

The technology recruitment specialist reckons the uncertainty caused by Brexit and a groundswell of tech entrepreneurship in Paris are attracting both investment and talent away from the UK capital.

Montreal Associates says it has seen a sharp rise in demand for specialist tech talent from Paris and across France over the last 12 months, with the market now accounting for 66 per cent (£26.4m) of its entire revenue this year.

The company’s MD David Thuillier says: “The opening of Station F in Paris – the world’s largest tech startup campus – earlier this summer combined with newly-elected President Macron’s pledge of €10bn to lure foreign investment and talent to France, are major signals of intent for a tech scene eager to challenge

London’s pre-eminent position.”

Citing figures released by venture capitalist firm Atomico, Thuillier says more than £2bn was invested in France’s tech sector last year which is £1bn more than in 2015. “Although the UK as a whole received more investment (£4.7bn) last year, its rate of growth was steadier when compared to the relative explosion seen in France. As the level of investment has spiked, so too has the demand for tech talent across the Channel.”

He adds that the French Tech Visa fast-track initiative launched two years ago has made it much easier for startup founders, employees, and investors to live and work in Paris compared to London.

Montreal Associates believes that with the level of investment entering the French market and an “open arms” approach to talent migration, it is only a matter of time that Paris will catch up and challenge London for the number one tech city spot. ■

KBR and Cambium connect 2017 Tour of Britain

Cambium Networks and Wi-Fi specialist KBR helped to keep thousands of people online during the recent *Tour of Britain* cycling event.

KBR used 16 of Cambium's *cnPilot e500s* outdoor access points for the nationwide event which ran from 3-9 September. As well as providing Wi-Fi coverage to spectators, staff and media at the finishing line of each of the tour's eight stages, the APs also enabled internet access for the event's hospitality suites, public viewing spots and the sponsors' exhibition. In addition, the network was used by staff to collect race statistics and information, as well as provide them with

reliable communications and connectivity to the service vehicles.

Based in County Durham, KBR has provided Wi-Fi at the annual *Tour of Britain's* event for the last four years. Speaking just before the event began at the end of August, the company's technical director Gareth Tomlin described Cambium's solution as "incredibly easy to deploy". He said this was crucial when setting up eight different Wi-Fi networks in eight different cities over eight successive days.

He added that depending on the size of the run down to the finish line, KBR could put up as many or as few APs as required and

mesh them together quickly and efficiently.

"This overcomes the complexities this situation presents, with potential challenges including the network's physical infrastructure, the number of people accessing the service simultaneously, and the Wi-Fi range," said Tomlin.

According to Cambium, the 802.11ac *e500s* provided KBR with faster meshing and high throughput, making the network easier to manage and configure. The company says its solution eliminated the need for a central Wi-Fi controller, and claims this meant there was no single point of failure and that the network was



KBR used Cambium's APs to setup eight different Wi-Fi networks in eight different cities over eight successive days.

able to cope with the thousands of people potentially using the service at one time. ■

Flexible SDNs

(continued from page 1)

The platform also offers the potential to deliver other programmable use cases such as bandwidth calendaring – flexing the bandwidth of an Ethernet circuit according to customer need via a predetermined calendar – and delivering network telemetry data to third parties automatically.

"The service provider network of tomorrow cannot be built on yesterday's technology," says Tom Burns, SVP and GM of Dell EMC networking, enterprise infrastructure and service provider Solutions. "We're energised and focused on collaborating with BT to drive innovation and help achieve their goals of enhancing network agility, flexibility and programmability to provide the high level of service their customers expect." ■

Event Alchemy deploys first bonded FTTP connection

Video production firm Event Alchemy has deployed what's claimed to be the UK's first FTTP connection. The aggregated lines are said to deliver download speeds of 450Mbps which is eight times more than the company's previous capacity.

Poole-based Event Alchemy needed a network that could support high-speed download and upload capabilities in order to stream HD video. But in the absence of FTTC and ADSL, it was using a leased line to partially enable this.

This changed when FTTP became available in the region. Event Alchemy is now using two FTTP lines that are aggregated using Evolving Networks' proprietary network virtualisation software and Intelligent Network Fabric (INF), all supported by its software-

defined multi-VNO access network. Evolving Networks CEO Nick Johnson (pictured below) says a bonded FTTP connection was the best solution for the company, providing resilience as well as added capacity.

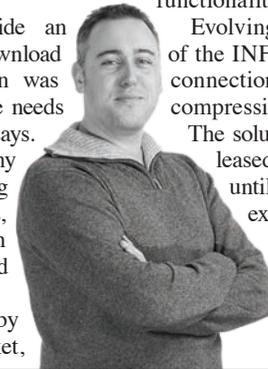
"While FTTP did provide an increase in both upload and download capacity, a single connection was still not sufficient to meet the needs of the events company," he says. "For example, Event Alchemy would only have been getting an upload speed of 30Mbps, which just isn't good enough given the types of video and data they're sending."

The vendor adds that by controlling every data packet,

business critical cloud apps are prioritised over bulk data transfers. As a result, it claims Event Alchemy now uses VoIP to make phone bill savings and improve productivity with better call handling functionality.

Evolving Networks says other features of the INF running over multiple FTTP connections are TCP optimisation, compression and zero-touch QoS.

The solution includes Event Alchemy's leased line which will only be used until the contract with the carrier expires. Evolving Networks says this will ensure the company maximises its return on investment and makes full use of the bandwidth available, not waste it on failover lines. ■



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THE WORLD ACCORDING TO...

Steve Flavell, co-CEO, LoopUp

Re-imagining your conferencing RFP

There's been a wealth of technology thrown at the conferencing market over the last 20 years. Yet most of us have ignored it all and carried on dialling into calls with numbers and codes. How can conferencing RFPs be re-imagined to change this stubborn status quo and give more people a better experience when they need to meet remotely?

Ask conferencing users in IT and training departments what they need from a conferencing product, and they'll come up with a laundry list of job-specific features. Ask pretty much everybody else, and they'll say they want something simple that works every time without any fuss.

Conferencing RFPs should dispense with a one-size-fits-all approach. A product fit for relatively specialist users will be quite unsuitable for the mainstream majority. They need a product built especially for them – they are the majority after all.

Most companies have implemented comprehensive security policies and are investing considerable sums in security technology. And yet, for some reason, we rarely consider the innate lack of security on basic dial-in conference calls.

Surely it's time that this was no longer considered acceptable. Conferencing RFPs should stress the need for a solution to fill this security hole and ask for adoption data that show the solution is actually being used.

While 'dial-in' remains dominant, it's hardly surprising that decisions are made primarily on price. After all, one dial-in number and access code is pretty much like any other, so may as well buy the cheapest.

Forward-looking companies are putting a greater premium on user experience. For example: RFPs should ask whether attendees can join meetings by having the meeting call out to them rather than dialling in; whether you're alerted when your first guest joins; and whether you always know who's on your meeting and who's speaking. And better still, make shortlisted vendors participate in an end user pilot.

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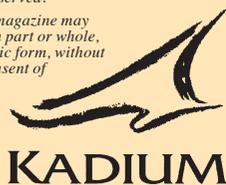
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Government names six areas to pilot full fibre broadband

The first stage of a £200m scheme that promises to help bring the UK's fastest and most reliable broadband to businesses, schools and hospitals kicked off on 3 September with the launch of six pilots.

Test projects will go ahead in: Aberdeen and Aberdeenshire; West Sussex; Coventry and Warwickshire; Bristol, Bath and North East Somerset; West Yorkshire; and Greater Manchester. They will get around £10m to assess ways of connecting offices and public sector buildings using FTTP with speeds of 1Gb.

The pilot projects are the first step in a £200m, four-year government programme

to stimulate the market and encourage the nationwide growth of full fibre. The remaining £190m will be spent by 2020-21.

The government says the decision to proceed with the six pilots follows its call for evidence on extending local fibre networks. It adds that 125 submissions from communications providers, local bodies and other interested parties were received.

"How we live and work today is directly affected by how good our broadband connection is," says Andrew Jones, exchequer secretary to the Treasury. "Reliable connections enable new industries to flourish, help create jobs and give people



Digital minister Matt Hancock hopes the six pilot projects will help create the right environment for more commercial investment in hyperfast connectivity.

flexibility in how and where they work."

Meanwhile, digital minister Matt Hancock hopes that the six pilot projects will help create the right environment for more commercial investment in the hyperfast connectivity that full fibre provides. He says: "To keep Britain as the digital world leader that it is, we need to have the right infrastructure in place to allow us to keep up with the rapid advances in technology now and in the future." ■

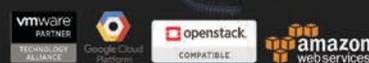


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Onecom and Vodafone sign IoT agreement

Unified communications provider Onecom has signed a five-year deal with Vodafone to develop, launch and manage IoT services for UK businesses. Vodafone is said to connect more than 59 million IoT SIMs worldwide. Hampshire-based Onecom will be able to deploy the mobile operator's global IoT managed connectivity, platform and services in an effort to enable more businesses to take advantage of IoT solutions within their organisations. The company will also look to develop its own IoT services underpinned by Vodafone's IoT connectivity and global platform. ■

Udata to connect Kent CCG WAN

Udata will provide WAN connectivity to Kent Clinical Commissioning Group (CCG) via the Kent Public Service Network (KPSN). Under a contract worth around £850,000 over three years, the Capita subsidiary will also provide Wi-Fi equipment which will deliver private and public connectivity to around 200 health sector buildings across the county by the end of 2017. The North East London Commissioning Support Unit, which provides all of the IT function to Kent CCG, secured the funding from NHS England for this investment. Udata and KPSN are working towards offering the new Health and Social Care Network (see *News, Jul-Aug issue*) to organisations throughout Kent as soon as it becomes available, replacing the old N3 network and offering improved bandwidths at reduced costs. ■

TrueSpeed FTTP rollout backed by £75m

Aviva Investors has committed £75m to support the introduction of TrueSpeed Communications' ultrafast full fibre broadband network across South West England. TrueSpeed says the funding will enable it to accelerate its expansion strategy to pass up to 75,000 homes and businesses in the region. Established in 2015, the company provides residential and commercial customers with multi-gigabit capable symmetrical speeds through a full fibre network. TrueSpeed says it already provides this service to homes connected to its FTTP network throughout the Chew Valley, Somerset. ■

Aspire takes broadband and Wi-Fi connectivity to the edge at The Sill

The latest tourist attraction in North East England will be able to stay connected thanks to Aspire Technology Solutions.

The Sill: National Landscape Discovery Centre opened in July at the village of Once Brewed on Hadrian's Wall in Northumberland National Park (NNP). The £14.8m facility hosts exhibitions, learning and event spaces, a café, shop and youth hostel. It also serves as a rural enterprise hub, housing new and emerging local businesses.

Gateshead-based Aspire provided two 100Mb dedicated broadband connections at The Sill as well as 20 SIP lines for voice connectivity. It also provided six single lines which are used for alarms and emergency connections in lifts.

The firm had take into account the historic sensitivity of the Hadrian's Wall

corridor which is a UNESCO World Heritage site. In fact, the route had to be re-planned halfway through the project as it was discovered that a vallum was present around two metres under the ground. Aspire arranged for a new site survey, with representatives from NNP, Openreach, and the building contractors McAlpines, to ensure that the planned route fell inside Historic England's approved parameters.

Stuart Evans, head of corporate services for the NNP Authority, says broadband provision to the region's rural areas is vital to realise the economic and educational potential of The Sill. He adds that speeds that are up to 10 times faster than superfast broadband will result in a visitor experience that equals that of central London. "This means our universities, colleges and visiting schools



The centre is named after the Great Whin Sill, a well-known local geographical feature.

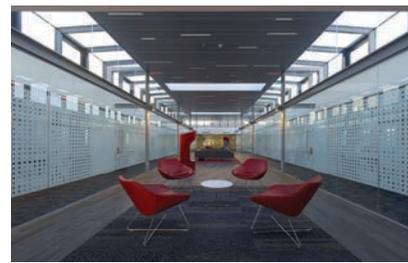
will be able to study at The Sill in confidence, and businesses operating from [the centre] will receive a competitive advantage. This excellent broadband and Wi-Fi facility will also help to realise our aim of creating 120 additional jobs as a result of the project." ■

The Pearl: a "beacon of connectivity" in the North East

The Pearl is the first building in Newcastle to be certified under WiredScore's international digital connectivity rating scheme.

Comprising more than 30,000ft² of office space, the building has achieved a *Wired Certified Silver* rating for its technology infrastructure which is now said to rank as among the UK's best.

For example, Vodafone, Virgin and Openreach are present in The Pearl, allowing tenants to choose and negotiate the service that best suits their connectivity needs. WiredScore says the building also offers "ample" capacity to accommodate more cabling installations to support tenants' future needs. Furthermore, to speed up broadband installation when



Comprising more than 30,000ft² of office space, the landmark building has achieved a *Wired Certified Silver* rating for its technology infrastructure.

tenants move in, the property owner – Hermes Investment Management – has all

the necessary wayleave agreements on file.

William Newton, president and EMEA director, WiredScore, says: "Hermes has made a great investment in the digital infrastructure of The Pearl to ensure that it is a beacon of connectivity in the North East."

WiredScore currently certifies office buildings across the US, UK, France and Ireland, rating them for their infrastructure, connectivity and technological capacity. After launching in New York City in 2013, it came to the UK in October 2015 with endorsement from the then Mayor of London to boost the capital's digital connectivity. (Also see 'The Shard accredited as one of the best buildings for connectivity', *News, Sep 2016*). ■

Bamboo supports Tracscare's voice and data platform

Bamboo Technology Group will provide mobile and fixed line telephony, and data connectivity for Tracscare.

With a head office in Swansea and various facilities and operations in Wales and England, Tracscare is a specialist provider of support for people with mental health needs, learning disabilities, autism and acquired brain injuries.

It has acquired a number of companies during its growth over the last few years, resulting in more than seven different providers of its fixed line and mobile services. The firm therefore issued a public tender to

consolidate these services under one provider.

Cheltenham-based Bamboo will be providing all of Tracscare's mobile telephony services, as well as fixed line IP telephony and data connectivity at a number of sites across the UK.

Given the complexity of the company's existing telecoms services from different providers, all with varying contract end dates, Bamboo plans to transition the various services over the course of a 6-7 month period. It reckons this will reduce any potential interruptions for Tracscare's users which can occur with a "Big Bang" migration

where everything is moved at once.

The network integrator says the staged approach also gives Tracscare the option to avoid any early termination fees from its incumbent providers.

Bamboo says that one of the reasons it won the tender was because of its experience in the healthcare industry. Shane Gidman, IT director at Tracscare, says: "Our account manager knows our business inside out, regularly reviews our bills to ensure we're on the right plan and making the best use of our services, and is personally available whenever I need him." ■

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3 Network Admin Superpowers You Need

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Due to unplanned service interruptions, all IT teams must spend some time fixing problems and preparing for future issues. It's inevitable. The measure of a good IT operations team, however, is determined by the time spent reacting to (versus proactively addressing) performance issues, resolving the problem, identifying the root cause, and information security and compliance. Users and clients don't like to wait for a problem to be solved. Your strength as their IT superhero will rapidly increase if you add these three powers to your arsenal.



1. Mind Reading in Proactive Mode

Users like knowing that your business is on top of their game and can detect problems before they even become issues. If you are consistently learning about problems from user complaints, your team is more likely to be perceived as ill-prepared and unknowledgeable about your product. And it will most likely take much longer to find a solution than in a productivity focused, pressure-free environment.

Products that offer end-to-end visibility and dependency-aware alerts across multiple devices enable earlier detection of potential problems. Meaningful, early warnings of conditions in one technology that may lead to downstream problems help your team to catch wind of any actions violating threshold rules, hopefully before they cause problems for your end users. These alert thresholds should be based on historical performance data. This helps to configure the threshold monitoring to achieve a balance between catching troublesome conditions while avoiding false positives.

It's important to note that reactive mode isn't always negative, so long as you're able to bounce back to proactive mode fairly quickly. Try as you might to predict a user's every thought and action, they're bound to send some surprise questions your way. Reactive mode should be made productive by learning from unexpected comments and emails. If you find yourself stuck in a rut of constant catch up with various problems and complaints, it may be time to reevaluate your network monitoring system.



2. Super Speed Problem Solving Skills

We already know that customers don't like waiting to have their problems solved. So how can we make sure we're resolving issues in a timely manner? Unfortunately, many IT teams set themselves up for failure by adopting processes, tools, and behaviors that aren't helpful.

The key to strong IT problem solving skills is using the right tools. When it comes to resolving issues, less is more. However, many IT teams use silo specific tools configured to detect what the responsible Subject Matter Expert (SME) considers problematic. That might not be the same condition someone responsible for an end-to-end service would look for to indicate potential causes of downstream problems. What passes as a 'healthy' condition at one level of the service delivery stack may cause disastrous results at a higher level.

An essential component of problem solving skills is communication, among both people and tools. Multiple siloed teams working toward the same goal means there is a lack of integration. This makes problem solving more difficult. If the cyber security team is separated in their own room, using their own tools, the network monitoring team has neither access to the data their collecting nor visibility of the problems they encounter. When the cyber security team runs into a problem, those in network monitoring have no idea what they're talking about. This causes communication breakdowns.



3. Slaying Zombie Problems

Although it might be easier to find a quick, temporary fix and be done with it, this will actually cause you more problems in the long run. Technology is smart. It knows when a problem has actually been fixed, or when it's simply been brushed to the side. And just because you're not thinking about the problem anymore, doesn't mean it's not still there. Instead of resolving the issue, the reboot approach can actually lead to the creation of 'zombie' problems that keep coming back to haunt you. In fact, the more service impacting incidents resolved by reboot, the larger the percentage of time spent troubleshooting recurring issues.

It is not likely that you'll uncover the root cause of every problem you are faced with. However, high performance IT teams are able to identify more core problems, thus creating fewer 'zombies'. How do these IT teams do it? The trick here is to leverage tools that monitor multiple technologies to facilitate more of an end-to-end view of their environments. This offers a streamlined approach to problem identification because all the data and metrics are in one central space. Because you're only working with one tool, once you identify the root cause, you can be confident that you aren't missing any other information. Instead of juggling alerts and data from multiple network monitoring tools, you can focus your time and energy on a single tool.

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VIEW FROM THE TOP

Anand Krishnan, EVP, cloud and general manager, Canonical

Unlock your inner disruptor by letting software do the work

Technology innovation has been disrupting industries for decades. So it's unsurprising that companies look over their shoulders to see which startups are going to change or influence their markets.

Organisations looking to leverage cutting-edge software capability now have to be able to build and manage integrated solutions, compiled from multiple, disparate sources, deployed across elastic infrastructures, which can scale to thousands of servers.

We coined the term 'Big Software' to represent the at-scale software organisations rely on to stay ahead. Any innovating organisation must expect to ingest increasing amounts of Big Software. They have to ramp up and maintain operational expertise of this type rapidly enough to keep pace with wider business needs.

This can only be achieved by open-sourcing IT operations knowledge, which involves encapsulating operational expertise in intelligent open-source 'models' to be used by numerous organisations. Those models become the automation backbone for Big Software, delivering speed and economics that legacy IT approaches can only dream of.

Companies routinely pour 80 per cent of their IT budget into operating existing infrastructure, leaving just 20 per cent for

innovation. This is the shortfall disruptors exploit. Businesses aiming for growth in this software-defined age must move the dial in the opposite direction substantially.

It starts with rejecting the mindset that IT operations must be managed manually. This was adequate ten years ago, but in today's fast-paced commercial world, every IT business must consider running its data centres the way Google and Amazon run theirs. This means automation revolving around truly intelligent, model-driven operations, allowing IT staff to focus on competitive differentiation.

For example, it took one pharmaceutical customer under 90 days to go from concept to being able to deploy, configure, stop and start apps across thousands of machines. This directly results in shorter time-to-market with new drugs, new chemicals or molecular entities – with the potential return measured in billions per patent. True model-driven automation readily pays for itself and then some.

In this period of extraordinary creative disruption, innovation is about letting go and making the software do the work. This enables people to work smarter, move faster, and focus on innovation. Clearly, disrupt or die is the new battlecry for both challenger and incumbent in this software-defined era.

BT PaaS aims to help digital transformation

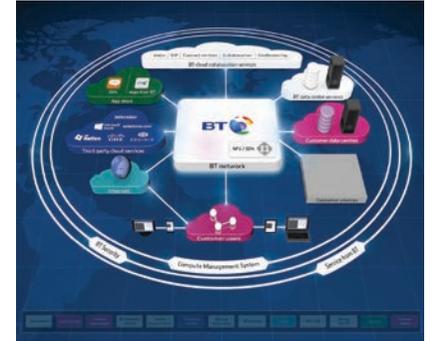
BT has developed what it claims to be the first 'Business Platform-as-a-Service'.

Dubbed *BT Personalised Compute Management System (PCMS)*, the telco says its new platform is designed to help companies accelerate time-to-market for new digital services, disrupt their traditional business models, and create new ways to grow.

PCMS is built on the same cloud management system used by BT to allow its customers to self-serve, purchase and access cloud services online. The company says the platform will enable users to curate the best services and create new business models. It offers more than 45 fully digitalised business support processes, such as product, customer, order and service management, user authentication, billing and collections.

According to BT, a single PCMS platform with a global catalogue of business support services simplifies how customers manage their digital services globally. It says the system supports multiple sales and execution channels, each with the appropriate local language, currency, pricing and contract terms.

The company adds that customers wanting rapid entry into the cloud market will be able to resell its existing digital ecosystem services which are available from a choice of 22 locations around the world. This can be for internal consumption or for sale to their own



BT says PCMS is a great example of how its 'Cloud of Clouds' portfolio strategy empowers customers to create new business relationships.

customers, value added resellers or to cross-sell to other PCMS users.

"PCMS brings to life a vision of how businesses can innovate in the digital economy," says Neil Lock, VP compute, BT Global Services. "It is a ready-made platform that allows new ways for companies to digitalise, manage and build profitable business models from their own vibrant ecosystem of consumers, producers and innovators."

PCMS was developed by BT in partnership with management and technology consultancy BearingPoint. The two firms will now work together to market the platform which will be available globally during the final quarter of 2017.

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Druva claims first with Data Management-as-a-Service

Druva says its new *Cloud Platform* uniquely provides a single and unified control plane for data management services across endpoint, server, and cloud application data.

By centralising the visibility and control over enterprise-wide data, the company claims the platform can “dramatically” reduce data risks, as well as the costs of data protection by more than 60 per cent.

According to the firm, the ‘as-a-Service’ model of the *Druva Cloud Platform* eliminates the need for ever-expanding, dedicated hardware and storage infrastructure that drive up the total cost of ownership, as well as the associated software that must replicate data between systems to address discrete data challenges.

With server, endpoint, cloud workload and application data uniquely optimised as a single, globally de-duplicated data set and natively managed in the cloud, Druva says companies can achieve global visibility and policy management across all their data from a single control plane.

Platform features include time-indexed metadata, global scale-out de-duplication, auto-tiering, RESTful APIs for access and ecosystem integration, and what Druva describes as “highly elastic” search and analytics capabilities.

There’s also a predictive storage engine that leverages heuristics and machine learning to optimise and auto-tune data protection policies. Druva says this new and unique model for machine learning results in significantly shorter backup windows and achieves much more efficient utilisation of IT resources.

Furthermore, the company says its new platform stores data in a security-first design that offers an “unprecedented” level of global regulation adherence. ■

Talend connectors for Google Cloud

Talend says it’s introduced a set of connectors to connect its *Data Fabric* platform to numerous *Google Cloud* services.

The company reckons that its platform’s native connectivity to Google accelerates the development of cloud data pipelines, allowing customers to analyse structured and unstructured data sources for meaningful and actionable information.

“By combining Talend solutions with Google Cloud, enterprise IT teams can derive powerful insights from previously siloed, inaccessible data sources,” says Laurent Bride, CTO, Talend. “In turn, this helps our joint customers rapidly innovate in emerging areas such as sentiment analysis and machine learning.”

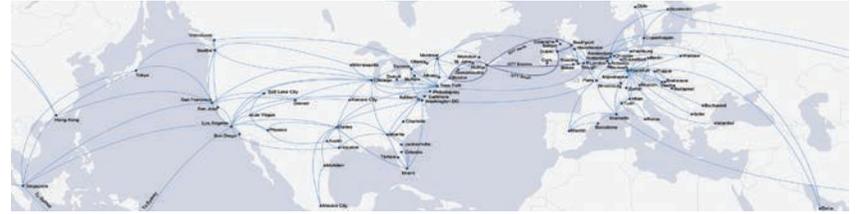
Talend says its “comprehensive” set of connectors for the *Google Cloud* platform – including *Google BigQuery*, *Dataproc*, *Cloud Storage* and *Pub/Sub* – allows customers to speed data analysis, deliver business insights on-demand by processing events and logs using *Spark Streaming*, and improve IT productivity with built-in components to start or stop *Dataproc* clusters. ■

Arrow partners with GTT to offer WAN connectivity

Following a distribution agreement with GTT, Arrow Electronics is now able to offer cloud-based WAN connectivity under a single SLA.

GTT has more than 100 PoPs in data centres in Europe and more than 300 globally. Its *EtherCloud* WAN services have been designed to allow customers to access numerous cloud service providers globally, including last-mile connectivity. The company adds that its cloud networking services can be tailored to public, private and hybrid cloud environments.

Using GTT’s services, Arrow will be able to offer its EMEA reseller customers WAN connectivity as part of its cloud solutions under a single end-customer service contract. In the past, the firm says this business was usually based on contracts



GTT says it offers services in more than 100 countries and has more than 400 PoPs globally.

with several local telecom providers.

“Direct links to cloud service providers via secure, private backbone infrastructures based on agreed SLAs are an increasingly important option for global corporate network connections,” says Patrice Roussel, VP of strategic alliances, Arrow ECS EMEA.

GTT adds that Arrow’s channel partners

are now in a position to integrate its global network and Tier 1 IP backbone as components of their cloud solutions for their end customers, thereby offering “added” value.

Arrow Electronics is a global provider of products and services to industrial and commercial users of electronic components and enterprise computing solutions. ■

THE STATE OF RANSOMWARE AMONG SMBs

This report, conducted by Osterman Research and sponsored by Malwarebytes, presents the findings on ransomware and other critical security issues from more than 1,000 small and medium-sized organizations surveyed in June 2017. Here’s what we discovered.

22%

of organizations had to cease business operations immediately because of ransomware

81%

of businesses have experienced a cyberattack

66%

have suffered a data breach

35%

were victims of ransomware

The real killer

Ransom demands aren’t the small business killer ... downtime is.

50%

of organizations infected with ransomware received demands of \$1,000 or less

1 in 6

ransomware infections caused 25+ hours of downtime

90%

of infections resulted in more than 1 hour of downtime

1+

Tech vs. people

Small and medium-sized businesses believe using technology to fight ransomware is more effective than educating people.

When asked if ransomware should be addressed only through technology or only through training, more organizations believed technology would be more effective. However, current technology usage does not seem to be enough.

1/3 of all businesses surveyed claimed to have been running anti-ransomware technologies. 1/3 of all businesses surveyed also experienced a ransomware attack this year.

To learn more about the impact of ransomware on businesses, go to malwarebytes.com/business/ransomware or contact emeasales@malwarebytes.com / freephone 0800 368 8486

Making the right call for business

When manufacturers have global operations, they need voice and data solutions that are truly world-beating.

Watchmaker gains time with Buffalo

Founded in 1971, Peers Hardy Group (PHG) is a supplier of own-label watches for many high street fashion chains. It designs and distributes watches for retailers such as Next, Argos, Amazon and Disney, as well as fashion brands such as Radley, Orla Keily and Ice Watch.

Headquartered in the West Midlands, the 170-strong company has extended its own watch range by introducing the *Henry London* brand. To support this expansion, PHG invested heavily in offices and manufacturing facilities in China and Hong Kong. This prompted a rethink about what shape its IT infrastructure should take.

The company had implemented a *Microsoft Azure Backup Server* and wanted storage technology that would dovetail with this, as IT manager Mark Griffiths explains: "We had a number of options from the storage perspective but ultimately wanted to centralise storage for the UK and the Far East into a single device. Specifically, we wanted a main interface between local and cloud backups. This would give us the opportunity to downsize

our existing *Windows* server environment at some locations to reduce costs, maintenance requirements and energy consumption."

The group had been using Buffalo Technology's storage for a number of years, and had also recently implemented several of the vendor's *TeraStation WS5600DR2 Windows Storage Server 12TB* units which it was mainly using as file servers across its branch offices.

As the company was exploring its storage options, the *TeraStation WSH5610* (pictured) immediately caught Griffiths' attention: "We do multiple backups through the day to our cloud-based disaster recovery platform running in *Azure*. The *TeraStation* has monster throughput capacity which is precisely what we needed."

The *WSH5610* is configured by default with hardware RAID 6, though other RAID options are available. It also supports 3.5-inch SATA drives which are hot-swappable and facilitate automatic RAID rebuild. Optional AES 128-bit encryption is also supported.

According to Buffalo, the device's "simple and intuitive" management interface is designed for good integration with business networks, and also gives administrators extensive control over users' permissions.



OVH dishes up cloud for Villeroy & Boch

Ceramics producer Villeroy & Boch was established in Germany in 1748. Over the last 269 years, the company has developed into a global lifestyle brand, according to its head of internet and e-business services, Dr. Pascal Rheinert. He says the two key business developments and issues the company has experienced are 'internationalisation' and 'digitisation'.

For especially busy days such as Black Friday, short-term appropriation of additional resources was extremely important. However with its previous IT infrastructure, the company could only partially achieve this. Moreover in the past, the implementation of the firewall configuration had been delayed. The number of tasks to be completed and the delegation of responsibility between several groups meant this was a time-consuming process for Villeroy & Boch. As a result, it needed a new solution.

The search for a new hosting partner started in early 2014. Rheinert says what was needed was a partner that operated on a global scale, and provided cloud solutions certified to ISO/IEC 27001, SOC 1 and 2. Furthermore, the migration of the complete server landscape into a new IP range presented numerous challenges. Because it required a complete change of operating system, each server would have to be rebuilt. In addition, the new hosting partner needed to facilitate an open, supportive partnership, and establish clear definitions of responsibilities.

Villeroy & Boch decided to choose IT infrastructure and cloud provider OVH. As well as its global presence, Rheinert says what also sealed the deal was OVH's provision of new servers within a few hours, its CDN, and "great" support during the migration phase.

Beginning with the customer site, migration started at the end of 2014. Migration of the global online stores and the professional portals followed in May 2015, and finally, at the end of June 2015, the migration of the Chinese website was completed.

Villeroy & Boch uses OVH's IaaS platform in terms of installation, maintenance and security of its IT infrastructure. But the solution has enabled the ceramics makers to completely manage the dedicated server cluster autonomously. Additionally, it is able enter all the necessary rights in VMware administration, as well as clone, upgrade, disable or delete servers.

Rheinert says the IT infrastructure adaptation is fast, flexible and inexpensive, making it possible for Villeroy & Boch to directly respond to changing customer requirements and market situations, such as seasonal peaks.

Staying safe on the frontline with Vodafone

Hesco manufactures, designs and implements defence barriers in several countries around the world. The company is renowned for its rapidly deployable *Concertainer* system (pictured below) that is used for both flood control and military fortifications.

Operating with around 300 employees at facilities in the UK and US, Hesco has customers in Europe, Asia, America and the Middle East. Keeping in contact with them, and making sure staff can also stay in touch with each other, is vital to the company's international operations. Having a communications solution that supports this is therefore crucial.

"We work on a very responsive basis," says supply chain manager Adam Robinson. "If our customers need something urgently, we need to be able to respond to them quickly." However, he adds that the communications network the company was using lacked the reliability staff needed to respond to customers in the way they wanted. As a result, Hesco sought a reliable communications solution to provide a seamless service whether employees were based in the US offices or on location.

The company also needed a data package with the ability to accurately predict the cost of usage when abroad. It says travelling to different countries that have different network providers was tough, and that it needed to buy data bundles in every location. The lack of a consolidated solution was not only frustrating but also resulted in mounting costs.

Hesco turned to Vodafone to provide a continuous and reliable service, and one that gave them the flexibility and adaptability they needed. Hesco chose the operator's *Worry-free Roaming* to meet its needs across the board.

Robinson says the move to Vodafone was "seamless". He says Hesco now knows what its mobile costs will be regardless of where its teams are in the world. "We can take our standard package abroad and use our minutes and data for a small daily fee. It allows our teams to travel without the worry and stress of a huge bill when they return."

He adds that the company no longer has to buy data every time it goes somewhere, and staff are not worrying about not getting a signal or service.

Another benefit of using *Worry-free Roaming with Vodafone* has been the increase in staff productivity. "Staff can now connect their laptops to their phones and use their data packages to access emails and the internet," says Robinson. "This means they don't need to go into the office or a suitable location with Wi-Fi."



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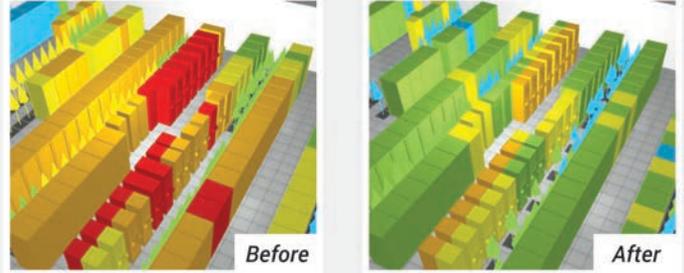
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Left: Munters claims its Oasis indirect evaporative cooling solutions can save up to 75 per cent in energy consumption compared to standard AC systems. Centre: Schneider Electric says indirect air economisation systems like its new Ecoflair can be deployed regardless of most environmental or climactic conditions. Right: Stulz's CyberRack heat exchanger is designed to replace the back panel of a rack.

With great power...

...comes great responsibility for running energy efficient data centres. RAHIEL NASIR finds out how operators could achieve this.

The amount of electricity consumed by the global IT sector has increased by six per cent (totalling 21 per cent) since 2012, according to a Greenpeace report published earlier this year (*Clicking Clean: Who is winning the race to build a green internet?*). And with Cisco's latest *Visual Networking Index* forecasting a three-fold increase in worldwide IP traffic over the next few years to reach an annual run rate of 3.3ZB by 2021, are the challenges for maintaining energy efficiency in data centres set to get worse?

"Yes. Dependence on today's data centres and communications networks has never been more critical," says Stu Redshaw, CTO of data centre thermal risk specialist EkkoSense. "And with factors such as cloud, Big Data, mobile and the rise of IoT-powered services quickly

becoming the new normal, there are going to be entirely new levels of demand placed on corporate data centres. If we don't start addressing thermal optimisation and energy efficiency now, it's only going to become a bigger and bigger problem."

Simon Brady, optimisation programme manager, EMEA for Vertiv (formerly Emerson Network Power), says that while the industry is making considerable progress on efficiency, the issue is managing efficiency through growth.

"There is a lot of empty physical capacity in data centres across the UK and Europe. This space, in theory, looks like compelling square footage for data centres to expand into to meet the ongoing growth in cloud and edge computing. However, the problem with this approach is that much of this space was built five to ten years ago, when

facilities needed higher levels of availability and lower density levels than we do now. In short, the infrastructure in these facilities is no longer suitable for future growth."

Commenting on the Greenpeace report, The Green Grid says many organisations have sought individual goals rather than working together to share best practice and find the best ways to a sustainable future. Roel Castelein, the industry body's EMEA marketing chair, says: "The growth in the amount of data demands that all data centre providers come together, rather than working in silos, and be clear in their use of renewable energy in creating a more sustainable industry."

Jon Pettitt, VP of data centre cooling solutions EMEA and APAC at climate control innovator Munters, admits that with data centre builds multiplying

at a rapid rate to keep up with digital demand, the amount of energy they need for cooling is huge and increasing, both in terms of cost and in environmental impact. But he points out that with the use of innovative energy efficient products and solutions, new build data centre's are optimised to run most efficiently.

John Booth agrees. As well as chairing the Data Centre Alliance's (DCA) energy efficiency steering committee, he is also vice chair of the British Computer Society's Green IT specialist group and represents the organisation on the British Standards Institute IST/46 Sustainability. Booth is also the executive director of Sustainability for London and the technical director of the National Data Centre Academy, so he clearly knows a thing or two about the subject in hand.

Booth believes any company that is not building an energy efficient data centre nowadays really needs to get out of the business because it is not taking advantage of the newer technologies and concepts that have been available since 2008.

He adds that whilst the data centre sector is growing at CAGR of 18 per cent, this is largely driven by the adoption of cloud services, mobile networks, IoT and self-driving cars. Booth says these facilities will be inherently more efficient by design and operations. It is legacy data centres that form the bulk of the data centre estate globally, and these are the ones that therefore need to be addressed.

"The best way is by going back to school. The key to it all is education, and there are many training companies that provide courses on how to optimise data centres for energy efficiency. Essentially, a radical approach is required, both culturally and strategically."

According to Booth, the EU Code of Conduct for Data Centres (Energy Efficiency) offers a "great" starting point: "The scheme has 153 energy efficiency best practices ranging from physical air flow to increasing temperatures. Further information and help is available from the DCA, and their energy efficiency and sustainability steering committee is connected to thought leaders and standards committees globally. Solutions include better design concepts, new equipment, and strategic/cultural change thought processes."

To PUE or not to PUE?

What metrics should be used to measure and monitor power efficiency in data centres? For example, is the PUE (power usage effectiveness) rating oft-cited by operators enough?

"While there are many issues with PUE – particularly when it comes to comparing performance across multiple data centre sites – what matters most is that data centres actually do measure and monitor their power and energy efficiency," says Redshaw. "Concerns about specific measurement regimes can often lead to not measuring at all. Actual PUE measurements can no doubt deliver real benefits; they're simple and the results are

likely to be positive (providing data centre operators commit and remain committed to improving their PUE scores)."

Booth points out that PUE is an improvement metric for an individual data centre and should not be used for comparison as all facilities will have different design and operational parameters. "The other KPI metrics contained within the ISO 30134 series can assist. The real KPI of interest is one that is developed in-house and relates to your IT estate infrastructure and your business needs, for instance, establishing your core services against business need and improving the cost of delivery."

Developed by The Green Grid and introduced in 2007, PUE describes the ratio of total amount of energy used by a data centre to the energy delivered to computing equipment. It was published in 2016 as a global standard under ISO/IEC 30134-2:2016 as well as a European standard under EN 50600-4-2:2016.

Vertiv's Brady reckons PUE is often poorly calculated. "Although the ISO standard has outlined how PUE should be measured, many readings are being skewed by bad calculations or missing information – such as lighting or office heating being excluded. Before looking at alternative ways of measuring efficiencies, an accurate and consistent measurement of PUE is paramount for it to be of any use in the future."

However, in an ideal world, Brady believes the industry would have more advanced metrics than PUE to measure efficiency. He says these should represent how much compute can be achieved against input power levels. "Temperature readings or flops per second could also be great insights into the efficiency of a data centre."

Earlier this year in July, The Green Grid also said IT leaders must use a wide range of metrics to drive data centre efficiency. It said that the latest annual *Data Centre Industry Survey* from the Uptime Institute revealed that, in many cases, IT Infrastructure teams are still relying on the least meaningful metrics to drive efficiency.

"The majority of IT departments are positioning total data centre power consumption and total data centre power

usage as primary indications of efficient stewardship of environmental and corporate resources," stated The Green Grid.

In its own survey of 150 IT decision makers, The Green Grid found that while most recognise that a broad range of KPIs are useful in monitoring and improving their data centre efficiency, many are yet to implement them.

For instance, while 82 per cent said they viewed PUE as a valuable metric only 29 per cent used it; only 59 per cent used DCiE (data centre infrastructure efficiency) despite 80 per cent regarding it as useful; 71 per cent said temperature monitoring was useful but only 16 per cent took advantage of it; etc.

Castelein says the reason for limited adoption may come down to the perception that implementation will have a negative impact on capex and opex. "This doesn't have to be the case. With enough resourcefulness and data centre knowhow, you don't necessarily have to be a big spender to increase your data centre efficiency and therefore save money and do less harm to the environment. Oversimplifying or even focusing on a single metric can create wider business issues as key factors are ignored."

He continues by saying data centre providers need to harness an array of metrics in order to gain a holistic view of their facilities and to drive environmental stewardship.

"Poor measurement is just as bad as no measurement at all. Therefore, IT leaders need to expand from a single-metric view and include broader technical metrics and KPIs into a meaningful message."

Booth supports this view when he says: "The trick is to take a holistic view as the implementation of a new technology will rarely improve things unless the intangible policies, processes and procedures are adopted together with the new technology."

Power monitoring

With so many products purporting to have 'green' credentials, how should data centre managers go about choosing the right equipment for energy efficiency and what are the pitfalls to avoid?

For new environments, Booth says the EUCOC and EN50600 series of data centre design, build and operate standards are "must haves", and that there are plenty of "very good data centre design and building companies working on the bleeding edge" that can help. He adds: "Legacy environments can prove difficult as dangers exist in adopting the EUCOC best practices. But again, the use of experts in the field will prove worthwhile. The EUCOC provides a roadmap of what to do and when."

EkkoSense's Redshaw says that getting hold of an accurate, up-to-date picture of what's actually going on in the data centre has always proved difficult. However, when a data room is carefully mapped with all the appropriate data fields – power capacity, space capacity and cooling capacity – he reckons a new level of understanding and efficiency becomes possible.

"So you need to take advantage of today's cost-effective IoT-enabled sensors, you need to be using the latest 3D thermal visualisation and monitoring software, and you also need proven expertise to interpret this data and optimise thermal performance. Only then can you really start to unlock benefits in terms of reducing data centre risk, securing significant energy savings and increasing your levels of cooling capacity."

One seemingly simple solution to help with power monitoring is the *intelliAmp* from Marlborough-based equipment specialist, Jakarta.

"It obviously makes sense to have a detailed understanding of data centre power usage in order to make energy savings where possible in the future," says Jakarta marketing director Colin Moccock. "The problem is that the implementation of an effective power monitoring solution usually requires extensive disruption to the network and considerable downtime."

The *intelliAmp* is a small sensor that can be clipped onto 16 and 32 Amp rack input power cables to monitor the current flowing through them without the need to shut-off servers or any other equipment. Once the device is installed, Jakarta says the power usage of each rack can be analysed and informed decisions

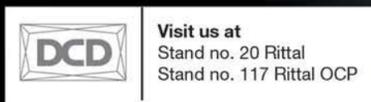
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can be taken to help manage power more efficiently going forward.

Mocock says *intelliAmp* can be installed in live environments and its small size and design means it can operate unobtrusively in the data centre environment. "It gives IT managers the ability to get meaningful power data right now rather than wait until there's a major overhaul of their data centre," he claims.

intelliAmp is supplied with a central monitoring system that can monitor several hundred sensors from a single IP address. Environmental sensors (temperature, humidity, etc.) can also be added if necessary.

Playing it cool

Castelein describes cooling as a key "chokepoint" in data centre efficiency,

and says this is an area where significant cost savings and sustainability progress can be made.

Redshaw adds to this by saying it's clear that the root cause of poor thermal performance in data centres is not one of limited cooling capacity but rather the poor management of airflow and cooling strategies. "The fact that thermal issues still account for almost a third of unplanned data centre outages would suggest that the 35 per cent of energy consumption that operators are currently spending on cooling simply isn't doing the job it needs to," he says.

According to Munters, 30 to 40 per cent of energy consumption in a typical data centre is attributed to cooling. It says thermal loads inside data centres and electronic enclosures must therefore be managed efficiently using solutions that minimise energy consumption.

"Using indirect evaporative cooling (IEC) is one approach that has the potential to address this issue where air quality also matters," says Pettitt. "Munters' *Oasis* range of IEC solutions can save up to 75 per cent in energy consumption compared to standard air-conditioning systems – the equivalent to the emission of 30,000 cars per data centre."

He goes on to claim that data centres are also able to free-up electrical power for their core business and increase available power by 37 per cent when using this approach. This also enables operators to install more communication equipment without needing to invest in additional expensive power installations from utility companies.

Pettitt says the choice of direct or indirect air economisation for a data centre depends on their benefits, geographic location,

capex, opex and availability risks. "The main barrier to using direct fresh air is the concern of air pollution and high humidity risks on server longevity, which is the biggest difference compared to indirect air economiser systems. So if you are in a high pollutant area, such as a city or near to an airport or crop farming location, you are most likely to choose a solution that does not allow dust and contaminants into the data hall."

Schneider Electric says indirect air economisation can be deployed regardless of most environmental or climatic conditions relating to the data centre's location. It says the technology is typically suitable for at least 80 per cent of all global locations.

Launched in March, Schneider's *Ecoflair Indirect Air Economizer* uses proprietary polymer heat exchanger technology and features a tubular design that, according to the firm, prevents the fouling that commonly happens with plate-style heat exchangers. Furthermore, it reckons the polymer is corrosion-proof compared to designs that use coated aluminium which corrodes when wet or exposed to the outdoor elements.

Available in 250kW and 500kW modules, the heat exchanger is said to be particularly suited for colo facilities rated between 1 and 5MW (250kW modules), and large hyperscale or cloud data centres rated up to 40MW (500kW modules).

Schneider reckons the *Ecoflair Indirect Air Economizers* can reduce cooling operating costs by 60 per cent compared to legacy systems based on chilled water or refrigerant technologies. But other specialist vendors may not support this approach.

For example, late last year Vertiv unveiled a new thermal management solution that integrates rack and cooling technologies into a single unit. Designed with two different architectures – closed loop and hybrid loop – the firm says the *Liebert DCL* puts chilled water cooling capabilities very close to the heat source. It reckons this optimises the amount of air needed for cooling which increases energy efficiency and cost savings.

Nicola Domenighini, technical sales manager with mission critical cooling solutions provider Stulz UK, says that if mechanical cooling is replaced with solutions such as free cooling options, opex savings of up to 65 per cent can be achieved. "For example, 15 years ago, using the energy efficiency ratio (EER is the ratio of cooling capacity to power consumption), the value for typical air-cooled chiller was around 2.5-2.7 which is nowadays 3.2-3.7 due to new technologies and/or design concepts."

Stulz is also using chilled water for its latest heat exchanger, the *CyberRack Active Rear Door* which is designed to replace the back panel of a rack. By mounting the heat exchanger door directly on the rack, the firm says heat transfer takes place inside the server cabinet, isolated from the ambient environment. It reckons this allows a "considerably" higher temperature on the air and chilled water side than in other room cooling systems, where the heat is first emitted into the room and then cooled.

Two versions of the *CyberRack* are available with a cooling capacity of 19 or 32 kW. They include up to five EC fans to ensure an optimum airflow. Stulz says cooling capacity is automatically adapted to the heat load of the servers, either directly through continuous analysis of the measured temperatures, or indirectly via differential pressure control. In the latter instance, the speed of the fans is adjusted in line with the airflow of the servers' own fans.

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Thanks to its individual adapter frame, Stulz says the *CyberRack* can be installed in all commonly available 19-inch cabinets. Frame models are available in heights of 42U and 48U, and widths of 600mm and 800mm. The company adds that space in the rack remains fully available for IT equipment, and that no repositioning of server racks is needed.

According to Rittal, expanding a small-scale, air-cooled IT hardware environment to create a multi-enclosure facility often calls for a new cooling strategy. "The first and most fundamental question is whether water-based or refrigerant-based cooling is more appropriate," states the firm. "It also makes sense to understand the total cost of ownership – including both capital expenditure and ongoing operating costs."

As a result, Rittal has come up with two systems to deliver enclosure-based cooling via direct expansion (DX) units. It says the units are easy to install simply by mounting them on the side panels inside IT racks.

The firm believes DX solutions for cooling IT equipment are the quickest and easiest solutions to implement and require less capital expenditure than water-based ones. It explains that such solutions utilise conventional refrigerant-based cooling with a split system and a compressor. Cooling is via a closed-loop refrigeration cycle, featuring an evaporator, compressor, condenser and expansion valve.

Rittal's LCU DX (*Liquid Cooling Unit*) offers enclosure-based cooling with DX units mounted inside 800mm wide racks. They are available with up to 6.5kW output in both single and dual redundancy variants. The system features horizontal air circulation, supporting the conventional method of front-to-back air flow to the 19-inch racks. Cold air is blown directly in front of the components. After being warmed by the servers, the air is drawn into the cooling unit at the rear of the enclosure and passes through the heat exchanger, which cools it down.

Rittal points out that this method requires IT enclosures that are sufficiently airtight, (such as its *TS IT* series), otherwise cold air will escape, impacting overall efficiency.

The second system is the *LCP DX (Liquid Cooling Package)*. Suitable for 12kW power dissipation, it can be mounted on the side of an IT enclosure, enabling a single device to cool two

enclosures. Rittal says one version of *LCP DX* blows cool air out to the front and can be employed to create solutions with a cold aisle that cools multiple IT racks.

More sense needed

Going forward, Castelein says the need for data centre providers and end users to collaborate to ensure that our growing dependency on technology and use of data is sustainable has never been greater.

EkkoSense's Redshaw also sounds a cautionary note when he says that for operators to optimise their thermal performance, it's necessary to have access to much more granular levels of data – and that effectively requires data centres to actively monitor and report temperature and cooling loads on an individual rack-by-rack basis. "Currently, less than five per cent of UK

data centre teams gather this quality of data, so it's clear that the majority of organisations still have a long way to go if they're to successfully capture the kind of data needed for even more precise visualisations as well as the ability to audit their data centre thermal performance in real-time."

But he continues by saying that a dramatic shift in the cost of IoT-enabled telemetry means that it's now possible for organisations to equip their data centres with the number of rack-level sensors required to measure key factors such as energy consumption, heat and airflows.

"You can also do this for around the same budget that you're currently spending on basic telemetry. And with a fully-sensed data centre, the sensors actually end up costing less than 20 per cent of the expense of a single – often unnecessary – cooling machine."

"When it comes to thermal optimisation, the cost dynamics have shifted dramatically, and it's time for organisations to take advantage of the optimisation benefits this can bring."

According to Vertiv's Brady, while the industry, has been trying to squeeze the most out of physical infrastructure – such as power and cooling – the actual IT load is "woefully inefficient".

"Standard servers can consume up to 80 per cent of their power whilst doing nothing. As an industry, we need to start designing facilities that meet the likely – or realistic – load. A data centre that is built to handle a significantly higher load than it will ever need will forever run in a largely inefficient way. Data centres need to be designed with purpose, with fluid technology that can flex to rising and falling capacity demands." ■



"The growth in the amount of data demands that all data centre providers come together, rather than working in silos."

Roel Castelein,
EMEA marketing chair,
The Green grid



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Equipment stash

Some of the latest enclosures and racks to house your hardware and to help keep it cool.

The CL series of multi-compartment floor standing racks from **Excel Networking Solutions** are available in 42U or 47U heights, 600mm or 800mm widths, and a choice of two or four compartments that can be created by the use of a full depth dividing panel.

The racks have been designed specifically for colo installations and applications that require enhanced levels of security access. Excel says they're compatible with its full range of *Environ Locking Solutions*, enabling customers to choose from digital key code, proximity card or biometric locking configurations.



Developed in conjunction with Southco and BioConnect, the *Environ* locking system can be standalone, networkable, integrated into access control systems as well as BMS.

Excel adds that entry to the vertical cable management boxes is separated from one compartment to another. What's more, it says the racks come with unique keys for all doors and side panels as standard, and entry to each compartment is restricted to these access zones only to ensure complete protection of infrastructure.

The CL racks are available in grey, white or black.

CamdenBoss has launched a new range of flanged comms boxes from Takachi that feature removable end panels. The 94 series boxes are designed for surface mounting communications equipment such as routers, APs, measuring equipment and controllers.

The enclosures are available in 24 sizes offering both low and deep profiles. Dimensions range from 67.3 x 124.3 x

22.5mm up to 240.5 x 270.5 x 60mm. CamdenBoss can provide additional customisation services such as CNC milling, drilling and cutting, silk-screen and digital printing, external painting, surface finishing and EMC shielding.

Moulded in off-white, UL94-V0 flame resistant ABS, the enclosures offer IP40 rated protection and feature built-in

bosses for PCB mounting. Each standard unit includes top cover, flanged base, two detachable panels and four self-tapping screws. Operating temperature range is -10 to +60°C.

CamdenBoss has also added new sizes for two further Takachi product lines. The 92 series comms boxes feature more than 20 additional models taking the total available to 30, while the 91 series IP67 heavy duty enclosures series expands with 10 new options.



Pentair says the *Schroff ServCite* has been developed specifically to meet the stringent requirements of the telecoms industry for shock and vibration resistance, redundancy and reliable cooling capacity.

The rack is based on the Open Compute Project concept, an industry-wide initiative for defining the specifications and designs for the most energy efficient and economical data centre possible. It can accommodate ToR switches, a pluggable power supply unit, a rack agent, as well as shelves for CPU and memory plug-in units (also known as compute and storage 'sleds').

Pentair says 17 storage sleds, with the ability to hold up to 24 hard drives with up to 8TB of capacity, can be housed in one standard *ServCite*. It adds that if the rack is equipped exclusively with compute sleds, 34 units can fit. All compute sleds can be equipped with two half SSI server main boards, each with two bases, making it possible to install up to 136 *Xeon* processors in the rack, says the firm.

Heat is dissipated from the components as a result of straight airflow from front to rear and optional back door cooling, thus reducing the amount of space needed for redirecting air in the system.

Furthermore, the company says that while every component requires redundant implementation in conventional systems such as AdvancedTCA, storage and data processing are installed in a *ServCite* rack with excess capacity of just 10 per cent. If a hard drive, processor or even a sled fails, the task is simply transferred to another server.



V7 reckons its latest rack mount line provides "exceptional" capacity, air circulation, and access for optimal equipment performance and ease-of-maintenance.

The company, which is part of global technology services specialist Ingram Micro, says all mounts and accessories in the cabinet range are made from high-grade, cold-rolled steel, feature a five-year warranty, and are designed with functionality, flexibility and ease-of-installation in mind.

There are four cabinets to choose from and each comes pre-assembled with all mounting hardware included. They feature front and rear doors that are lockable and

vented front to keep equipment cool, removable top and bottom cable panels, fully adjustable rails, numbered U positions, square rack holes to allow for easy installation, and casters.

The line-up includes the *RMWC6U-IN* (pictured) which V7 describes as a "heavy-duty" 42U rack mount enclosure. It includes all of the above features along with removable side panels for easy access to equipment, split rear doors, and levelling feet.

There are also two wall-mount rack enclosures: the 6U *RMWC6U-IN* and 12U *RMWC12U-IN*. The latter has a hinged, swing out rear section to enable easy access to the rear of the equipment.



The 3U *RackCase PRO* from **Verotec** is available in standard depths of 240, 350 and 460 mm, with custom depths available to special order.

According to the company, the enclosure offers easy assembly and does away with the need for drilling when installing heavy components, chassis trays, brackets and electro-mechanical components, thereby reducing configuration time and cost.

It says *RackCase PRO*'s design provides all round access during assembly with the top and base covers simply sliding into place once the unit has been populated.

Verotec says the enclosure's heavy duty extruded side panels form a rigid structure in conjunction with the front and rear panels and top and base covers. The external face of the side panels feature full length slots for fitting telescopic slides that enable the unit to be withdrawn from a 19-inch rack for easy access.

The firm says that internally, the side panels have 12 separate channels into which tapped strips or individual M4 captive nuts can be positioned to provide secure

mounting points for the housed components.

The conductive finish ventilated or plain steel covers slide into dedicated slots. Verotec says conductive gaskets in these slots prevent movement and ensure conductivity between all components of the assembly, therefore providing EMC capability as standard. It points out that the hole pattern in the ventilated covers provides efficient convection or forced cooling without compromising the EMC integrity.

The 3mm aluminium front and rear panels have an anodised finish as standard and are said to be easily machined and drilled. The locating holes for attaching the panels to the side extrusions are pre-drilled to break the surface anodising to maintain electrical conductivity.



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Skills shortage puts growth of IoT at risk

The success of Internet of Things deployments and data security are under threat because of a lack of IoT skills at different levels in enterprises, warns Inmarsat.

As part of its *The Future of IoT in Enterprise – 2017* report, the global satcoms provider interviewed 500 senior IT decision makers from major organisations across the EMEA, Americas and APAC regions. Among the results, the report found that 72 per cent of respondents identified a shortage of staff with management-level experience of IoT deployments, and 80 per cent lacked skills in the hands-on delivery of IoT solutions to ensure that they would work as intended.

Inmarsat says these shortages extend to specific technical disciplines: 60 per cent reported that they needed additional staff experienced in cyber security to handle the vast quantities of data that IoT solutions generate; 46 per cent identified a deficit of staff with experience in analytics and data science; and 48 per cent lacked the technical support skills needed to make their IoT projects successful.

“Unless this skills deficit is properly addressed, there’s a risk that IoT projects will fail and that businesses will open themselves up to new security threats, putting an unwelcome brake on innovation,” says Paul Gudonis, president, Inmarsat Enterprise Business Unit. “Enterprises must therefore move quickly to upskill their existing staff and fill the gaps in their internal skillsets with new hires.”

For the longer term, Gudonis believes the focus needs to be on establishing strategic partnerships with IoT specialists.

Knowledge is power in the fight against cyber attacks

The Institute of Information Security Professionals (IISP) has released its first *Knowledge Framework*. It defines the knowledge infosec professionals need to do their jobs, and gives access to an up-to-date and wide-ranging body of knowledge that underpins cyber and information security.

“With a continuously shifting and evolving threat landscape, and the development of new technologies, practices and legislation, it is virtually impossible for any individual or organisation to stay informed and up-to-date,” says John Hughes, co-chair of the IISP Accreditation Committee and lead author of the *Knowledge Framework*.

The new framework provides an overview of knowledge areas with references to external documents and standards, combined with the competency and skill levels required for different job roles and functions, ranging from apprentice to expert. It also includes definitions of common terms used in cyber and information security along with explanations of abbreviations and acronyms.

The *Knowledge Framework* expands on the IISP’s *Skills Framework* (see *Network knowledge*, Jun 2017 issue). The institute says the combined frameworks allow professionals to have a consistent view of cyber and information security along with an established set of metrics.

It adds that the *Knowledge Framework* can also be used for curriculum development, training plans and career paths, as organisations strive to improve their ability to defend against and respond to cyber attacks.

It is currently available free of charge to IISP members and will be made available to other organisations under licence.

IN BRIEF...

■ With just 41 per cent of students in England gaining good grades in GCSE Computer Science, BCS, The Chartered Institute for IT, says the UK really needs to do much better if it hopes to remain an advanced economy in the digital age. BCS says a total of 64,159 year 11 students registered for GCSE Computer Science compared to 60,521 in 2016. It believes there should be closer to 200,000 students taking the subject every year. Describing this as “worrying”, BCS education director Bill Mitchell said: “It’s expected that 90 per cent of all future jobs will require digital skills and it is estimated that the UK will

need more than 1.2 million new technical and digitally skilled people by 2022. Computer Science GCSE is one of the key pathways that young people can take.”

■ The University of Glasgow is aiming to make computing science as fundamental to learning as maths and other sciences. Its recently launched Centre for Computing Science Education will conduct research to determine the most effective methods of teaching the subject, review existing research from the last five decades of teaching, and help to create new curricula and teaching techniques. The university’s Professor Quintin Cutts says: “We can’t simply teach students how to use products like *Microsoft Office* and expect them to succeed – they need to have the computational thinking skills required to imagine and develop new

products for themselves. Embedding computing science in education from an early age will be hugely important in helping achieve that goal.”

■ NHS Grampian and EnerMech have become the latest organisations to sign up to Robert Gordon University’s (RGU) four-year graduate level apprenticeships (GLAs). The work-based learning degrees, the first available in Scotland, were set up with funding support from Skills Development Scotland to address the national digital skills shortage. RGU’s School of Computing Science and Digital Media is running two GLAs: a BSc (Hons) IT Management for Business and a BSc (Hons) Software Development for Business. EnerMech is an Aberdeen-based global provider of critical asset support to the energy and infrastructure sectors.



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