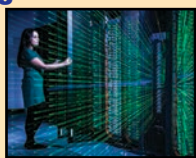


networking

FIXED & WIRELESS NETWORKS FOR ENTERPRISE USERS

Supercomputing

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A brighter outlook

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Cisco predicts cloud traffic will almost quadruple by 2020

by Rahiel Nasir

Global cloud traffic is expected to rise 3.7-fold, up from 3.9ZB per year in 2015 to 14.1 ZB per year by 2020, according to Cisco's latest *Global Cloud Index (2015-2020)*.

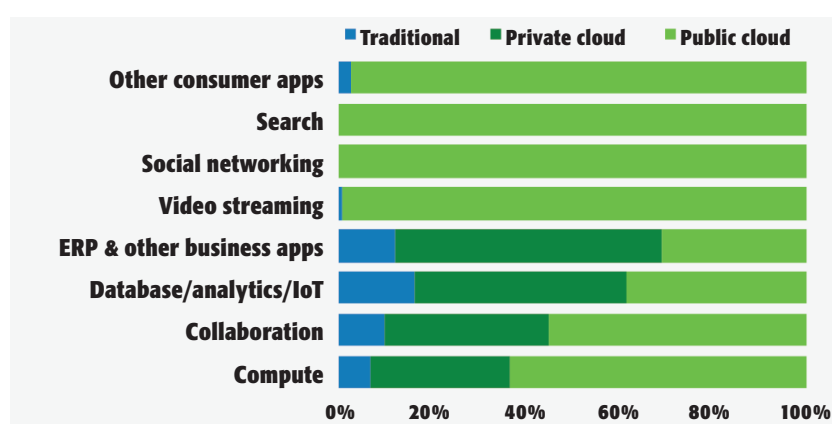
Since it began its study in 2010, the firm says cloud computing has advanced from an emerging technology to an "essential", scalable and flexible part of architecture for all service providers worldwide. It attributes this rapid growth to increased migration to cloud architectures due to their ability to scale quickly and efficiently support more workloads than traditional data centres.

Cisco adds that with more data centre virtualisation, cloud operators are also able to achieve greater operational efficiencies while flexibly delivering a growing variety of services to businesses and consumers with optimal performance.

The study reveals that business workloads dominate data centre applications and are rising. It says these will grow 2.4 times from 2015 to 2020, but their overall share of data centre workloads will fall from 79 to 72 per cent (see chart, right).

Consumer workloads, while smaller in number, are growing faster. By 2020, Cisco estimates they will account for 28 per cent (134.3 million) of total data centre workloads, compared to 21 per cent (38.6 million) in 2015. Consumer workloads will be led by video streaming and social networking.

For the first time, the index also quantified and analysed the impact of hyperscale data centres. It forecasts these to rise from 259 in 2015 to 485 by 2020, and expects their traffic to quintuple over the next five years. According to Cisco, a key infrastructure



Over the next four years, it is forecast that traditional and private cloud data centres will lose share to public clouds across all applications except for database/analytics/IoT and other business application categories.

SOURCE: CISCO GLOBAL CLOUD INDEX, 2015-2020

trend is transforming hyperscale and other data centres. It says SDN and NFV are helping to flatten data centre architectures and streamline traffic flows. Over the next five years, the company expects nearly 60 per cent of global hyperscale data centres to deploy SDN/NFV solutions. It adds that by 2020, 44 per cent of traffic within data

centres will be supported by SDN/NFV platforms (up from 23 per cent in 2015) as operators strive for greater efficiencies.

Cisco's influential *Global Cloud Index* is based on network traffic data gathered from a variety of global enterprise and internet centres, as well information from analysts and international agencies. ■

National cyber security strategy

As part of its *National Cyber Security Strategy 2016-2021*, the Government plans to invest £1.9bn in defending the UK's infrastructure and systems over the next five years.

Chancellor Philip Hammond said: "We will focus on raising the cost of mounting an attack against anyone in the UK, both through stronger defences and better cyber skills. This is no longer just an issue for the IT department but for the whole workforce. Cyber skills need to reach into every profession."

He added that while the Government has a leadership role, it will also foster a wider commercial ecosystem, recognising where industry can innovate faster than Whitehall. "This includes a drive to get the best young minds into cyber security," said Hammond.

One of the first steps under the programme is the development of two innovation centres.

The Department for Culture, Media and Sport (DCMS) is contributing £50m over the next five years to deliver these centres.

Earlier this year in September, the Government announced a partnership between DCMS, GCHQ and the nation's top tech startups to develop new technologies aimed at protecting against cyber attacks. It will see the startups gaining access to GCHQ's personnel and technological expertise to allow them to expand capability, improve ideas and devise cutting-edge products to outpace current and emerging threats.

Wayra UK, part of Telefónica Open Future, will run one of the cyber accelerator facilities. It will be based at the new Cheltenham Innovation Centre which is due to open around the turn of the year. A second innovation centre is expected to open in London in 2017. ■




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Once the merger is completed, the new combined company will be headed by Microlease's current CEO, Nigel Brown.

Electro Rent to buy Microlease

Electro Rent Corporation is planning to acquire Microlease, the test and measurement equipment specialist currently owned by Lloyds Development Capital.

Financial terms were not disclosed and the deal is expected to close during the first quarter of next year. Once it has been finalised, the combined company's EMEA operations will be headquartered in London, while the North American operation will be based at Electro Rent's existing HQ in Van Nuys, California.

The merged firm will be led by current Microlease CEO Nigel Brown. He says: "Both companies are leaders in testing and measurement equipment rental, sales, and asset management service. Combined, we believe we can serve customers better through a significantly expanded equipment fleet and stronger geographical coverage, ensuring better availability levels and a higher level of technical service."

Electro Rent says it has almost 50 years of experience in advising customers and claims to be one of the largest global organisations specialising in general purpose electronic test equipment, PCs and servers. It is a portfolio company of Platinum Equity which acquired the business in August 2016.

Want better tasting coffee? Just add IoT

Nestlé will use Internet of Things connectivity in more than 50 countries with the help of Telefónica Business Solutions (TBS).

The platform will be deployed by the food-maker's Professional division which aims to help customers grow their businesses with branded beverage and culinary solutions.

Nestlé Professional will use TBS' *Smart m2m* platform to monitor its coffee systems, and manage and control communications. Telefónica says this will allow the firm to interact with its coffee systems, enabling it to control all key parameters, such as adjusting the taste, for example.

Additionally, it's claimed the company's operations will be more efficient thanks to remote configuration and predictive maintenance models.

New Nestlé Professional coffee systems will incorporate the *Smart m2m* telemetry solution while legacy versions will have an add-on module that will provide them with the same capabilities.

Telefónica Business Solutions provides a range of integrated communication solutions for the B2B market, and claims that more than 2,500 customers are currently using its *Smart m2m* platform across all industries globally.

The company is part of Spanish telco Telefónica which operates the O2 mobile networks in the UK and Germany.

New insurance services specifically developed for data centre sector

Ernest R Shaw has come up with new insurance products specifically designed for the data centre sector.

The launch follows a 12-month consultation that the insurance broker carried out with the Data Centre Alliance (DCA) and 'data centre healthcare' specialist 8 Solutions. Their aim was to identify and agree a best practice framework to underpin the new insurance proposition. Businesses that adopt and meet this best practice in the future could then qualify for a lower insurance premium, underwritten by Allianz Insurance, said to be one of the UK's largest insurers.

DCA CEO Steve Hone believes this is the first time such an insurance scheme has been launched for the data centre industry.

He adds that recognising and rewarding data centres who demonstrate best practice is at the heart of the initiative.

"Data centres that have been independently audited under the DCA certification scheme, and/or end users who choose to host in data centres which have achieved this accreditation, can now all benefit from this new range of insurance products and services which have been tailor-made to support the data centre sector and its users."

With several offices in England and one planned in the Netherlands, 8 Solutions offers data centre services such as cleaning, maintenance and airflow management.

The company says it worked closely with Allianz Insurance to produce bespoke



8 Solutions' MD David Hogg says his company worked closely with Allianz Insurance to produce "very competitive" rates.

wordings and "very competitive" rates for the niche sector. 8 Solutions MD David Hogg says: "This proposition has market-leading cleaning standards provided by 8 Solutions built into it, and the insurance underwriting has been customised to take this into account as one of the key differentiators."

Energy efficient supercomputer will benefit UK R&D

The high-performance computing needs of the UK's R&D teams are said to have received a "tremendous boost" with the launch of the latest energy efficient supercomputer.

The so-called 'Asian Cat' supercomputer comprises 24 nodes (2,304 cores). It has been developed by Lenovo, Cavium and Mellanox with the aim of being a computationally powerful and energy efficient platform based around the ARM v8 microprocessor.

The new system will serve as a primary resource in supporting the Hartree Centre's energy efficient computing (EEC) research programme. Part of the UK's Science and Technology Facilities Council, the Cheshire-based centre's goal is to accelerate the application of HPC, data science and cognitive techniques into industry.

When asked how the supercomputer will be connected, a spokesperson for Hartree's systems team said: "Our focus as a centre is currently on the internal networks for the compute facilities, which is why we use technologies such as EDR InfiniBand and multipath 40GbE networking to interconnect nodes within a cluster. Our site is connected to the high-speed Janet academic network.

"In addition to its local storage, the cluster will be able to access the 1PB Hartree central data store over 40GbE."

According to the developers, with the move towards exascale level HPC systems that are a thousand times faster than current computers, one of the primary challenges is to provide the power required to run



The new system will serve as a primary resource in supporting the Hartree Centre's energy efficient computing research programme.

these machines. They warn that current architectures do not scale efficiently with regard to power consumption, with current estimates being in the region of 20MW to power a system at the exascale level.

The Hartree Centre's EEC programme seeks to maximise the energy efficiency of computing architectures. It uses an integrated co-design approach that considers hardware and software, and is part of the global effort to help develop the next generation of exascale supercomputers.

CTO Dr. Robin Pinning believes the new supercomputer will bring substantial benefits to the many organisations working with the Hartree team.

"The machine is allowing us to push forward our programme of R&D, working closely with UK industrial and research HPC communities. The collaboration will lead to the development of tools, applications and, ultimately, the co-design of future generations of energy efficient supercomputing hardware."

VoIP Unlimited turbocharges connectivity for F1 team



Sahara Force India needs to ship the huge amounts of data it creates, for example, from the race track back to its HQ.

The Sahara Force India Formula One team is hoping to reach new speeds with superfast connectivity provided by VoIP Unlimited.

Currently sitting fourth in the F1 Constructors' Championship, the Sahara Force India team works to the finest detail to improve car performance.

Poole-based VoIP Unlimited is providing MPLS and VPN services to connect the team's wind tunnel in Europe back to its HQ in Silverstone. Time in a wind tunnel can cost millions of dollars and so any loss of connectivity can be extremely damaging.

Sahara Force India uses the wind tunnel to test a 60 per cent scale model

of its F1 car at 180kph. The replica is designed and manufactured in house with more than 1,500 components made from steel, aluminium, carbon fibre and 3D printed materials. It contains more than 500 sensors which generate 37GB of data a week, all of which needs to be available live back in the UK for analysis and decision making.

Sahara Force India IT director Bill Peters says: "We generate vast amounts of data from the track, the wind tunnel and our various simulations, so it is imperative that we can ship this data to where it is needed. If connectivity was compromised, we would lose our competitive edge."

TNP will enable council to own and operate carrier-class WAN

TNP (The Networking People) says it will provide a “unique and innovative” WAN to Warrington Borough Council which gives it the opportunity to own and operate a carrier-class fully integrated telecoms network.

Under a recently agreed five-year contract with the council, TNP has proposed infrastructure based on the provision of a new core LLU network. As a government accredited Communications Provider, TNP says it has been able to use its status to procure and manage network carrier facilities not normally available to local authority and enterprise customers. It adds that carrier-to-carrier pricing and products equip the council to reduce costs whilst retaining flexibility and scalability.

Access to the national infrastructure of the telephone exchange network will allow the council to consolidate its network, regardless of last-mile vendor, around secure, static PoPs which can

remain fixed as the network evolves. TNP says this offers the council flexibility in its estate strategy to easily accommodate personnel relocation, building acquisition and other changes without full redesign of network topology. Council sponsored and affiliated organisations will also benefit from transparent access to networking-based services.

In addition, TNP will also provide a range of associated services for the council, including technical, commercial and training support, plus billing management. It says the ultimate aim is to create an integrated service that future-proofs the council's networking requirements.

Implementation of the solution is being undertaken as a turnkey project-managed solution by TNP's Prince2 and MSP accredited team. The firm says this keeps the council fully aware of the network deployment whilst releasing its ICT staff for other critical tasks. ■



North Wales Police will use Frequentis' 3020 LifeX comms control platform integrated with Hexagon's Intergraph computer-aided incident management and dispatch system. PHOTO ©HEXAGON

North Wales Police unifies its communications platform

North Wales Police (NWP) has contracted Hexagon Safety and Infrastructure to upgrade its communications system. The US-based mission-critical solutions specialist will provide the force with a single platform for both emergency and non-emergency forms of contact centre and control room communications, including radio, telephony, email and web chat.

Hexagon will upgrade NWP's current 3020 Integrated Communication Control System provided by Frequentis to the vendor's latest 3020 LifeX software platform. This will be integrated with Hexagon's Intergraph computer-aided dispatch incident management and dispatch system.

Hexagon says the upgraded platform enables configurable skills-based routing of communications, provides more information on both people and properties at the point of contact through integration with other police systems, and delivers automated management information reporting.

The firm says the integrated solution also facilitates infrastructure consolidation through the use of a single workstation per operator position and commercial-off-the-shelf hardware, as well as virtualisation in the data centre. In addition, 3020 LifeX will also support the transition to the Emergency Services Network (also see News, Jan 2016) for NWP in the coming years. ■



THE WORLD ACCORDING TO...

Johan Pellicaan, MD EMEA, Scale Computing

Four hidden infrastructure costs for the SMB

Small and medium-sized organisations require fault tolerance, high availability, mobility, and flexibility as much as larger enterprises. Unfortunately, the complexity of traditional data centre and virtualisation architecture can hit the SMB the hardest. Here are four of the hidden costs:

Training and expertise: setting-up a standard virtualised infrastructure can be complex; it requires server virtualisation, networking and storage expertise. In the SMB data centre with smaller teams and limited budgets, expertise can be harder to come by. Self-led training and research can take costly hours and admins may only have time to achieve a minimum level of expertise to maintain an infrastructure.

Support runaround: a standard virtualisation infrastructure has components from a number of different vendors for storage, server and hypervisor. Problems arising in the infrastructure are not always easy to diagnose and, with multiple vendors in the mix, this can lead to a lot of finger-pointing with no resolution. Long troubleshooting times can correspond to long outages and lost productivity because of this vendor support runaround.

Admin burnout: the complexity of standard virtualisation environments containing multiple vendor solutions

and multiple layers of hardware and software mean longer nights performing maintenance and dealing with outages caused by non-optimised architecture. Administrators who continuously work overtime to deal with infrastructure issues are not as productive in daily tasks, and have less energy and focus for initiatives to improve process and performance.

Brain drain: knowledge of all the complex hardware configurations and application requirements is concentrated in a very small group, in some cases one administrator. While those individuals are around there is no problem. But when one leaves, for whatever reason, there is a huge gap in knowledge which might never be replaced. There can be huge costs involved in rebuilding the knowledge or redesigning systems to match the expertise of the remaining or replacement staff.

So what are the solutions here? Although complexity makes costs more acute for the SMB, it doesn't mean they have to give up on the benefits of technologies such as virtualisation. On the contrary, modern hyperconverged infrastructures developed specifically for the SMB offer simplicity, as well as one vendor to go to for speedy support, availability and scalability, thus eliminating these hidden costs.



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Train Wi-Fi – an open platform for hackers?

Intel Security is warning that Wi-Fi on trains could leave commuters vulnerable to hackers. Following a £50m government initiative to increase wireless connectivity on trains, the company has discovered that this is not linked to any funding for a specific cyber security strategy. Intel says while the Department for Transport will suggest some cyber security guidelines, it is not a mandatory requirement for train operators to follow these in order to be deemed eligible for financial support. In a demo carried out earlier this year, the firm created a fake Wi-Fi hotspot to prove that those who access the network can be targeted with ransomware. The ransomware then lies dormant on the user's computer until they return to the office and log on to the business network. ■

Broadcom in £5.9bn Brocade buyout

US-based Broadcom will acquire Fibre Channel SAN specialist Brocade for \$12.75 per share in an all-cash transaction valued at around \$5.5bn plus \$0.4bn of net debt. Broadcom plans to sell-off Brocade's IP Networking division. This comprises wireless and campus networking, data centre switching, and routing and software networking solutions. The IP Networking division also includes Ruckus Wireless which was only bought by Brocade in April 2016 in a deal valued at around \$1.2bn. The finalisation of the Broadcom-Brocade transaction, which isn't expected until the second half of Broadcom's 2017 fiscal year, is not subject to the divestiture of the division. ■

Boosted connectivity for SMEs

BT says it has automatically upgraded 46,000 business fibre broadband customers to speeds of up to 76Mbps completely free of charge, thereby doubling their speeds. The telco says it has now adopted up to 76Mbps as the new entry-level speed for its business fibre broadband service. Existing customers began receiving the upgrade in September. Citing research from Populus, BT says 64 per cent of SMEs in the UK predict they will need faster broadband speeds from their current provider in the coming years. ■

Council's Wi-Fi network is a hit – especially on Thursdays and Fridays

Nearly 37,000 people have signed up for free Wi-Fi in Watford town centre since its launch a year ago – equivalent to more than a third of the local population.

The free public Wi-Fi network is delivered by Harrogate-based intechologyWiFi for Watford Borough Council. It provides seamless, always-on connectivity for users out and about in the town, at no cost and without time or bandwidth limitations.

Figures provided by users as they register for the WiFi service and published in early November show 36,549 total registrations. In the census that took place in 2011, Watford's local population was recorded as 90,301.

The data revealed that free WiFi is most popular among students – 14,191 have signed up. The next biggest group are visitors (9,613), followed by “others

“(4,869), shoppers (4,157), business owners (2,038), and those on a night out (1,331).

Registrations by age reveal that 15-24-year-olds are by far the biggest group to sign up, with 17,962 doing so. Next are: 25-44 year-olds (8,256); 35-44 (4,852); 45-54 (3,158); 55-64 (1,403); and 65-plus (656).

According to the figures, the most popular days for users are Thursday and Friday. Apple's iOS is the most popular smartphone operating system with around twice as many registrants than Android users.

intechologyWiFi says its network uses “state-of-the-art” 3x3 MIMO technology and the latest chipsets, providing maximum coverage across the 5GHz and 2.4GHz bands.

The firm claims it can offer this unique solution because it possesses its own hardware and software as well as the in-house



Where is everybody? Probably surfing the web thanks to Watford Borough Council's free town centre Wi-Fi service which has seen thousands of registered users since its launch.

expertise needed to design, install and maintain a “seamless” public Wi-Fi network from conception to completion. ■

Opal packages network for global creative firm

Newcastle-headquartered IT solutions provider Opal has won a further contract with a global creative and packaging firm which provides designs for companies such as Phillips, GSK and Oreo Biscuits.

Opal has worked with US-based SGS for more than eight years. But due to the latter's continued expansion in Europe, Opal has now been tasked with helping SGS to deploy and manage its growing network of production systems.

The firm will integrate new servers, storage and backup systems across SGS sites in Tamworth, Hull, Belfast, Birmingham and Amsterdam. This will allow SGS, which

SGS' Jonathan Hadley says Opal will deploy and manage a growing network of production systems.



employs more than 3,000 staff including 550 across its seven European locations, to access and protect the thousands of files it uses to make the designs for each product.

Opal will also implement a multi-site disaster recovery solution to protect its

client against hardware and software failures, and natural disasters such as a fire or flood.

“In our line of business we have to have flexible production and management information systems that are operational 24/7,” says Jonathan Hadley, IT and facilities manager at SGS. “As our business grows, it's vital that we have a more efficient, secure and robust IT infrastructure across our European sites.”

Hadley adds that Opal is helping to deliver this by providing comprehensive support which includes the supply, installation and integration of vital hardware and software. ■

Schneider unveils digital service for connecting DCs

Schneider Electric has launched a new service with the claim that it could “fundamentally change” the DCIM software market as well as the data centre services engagement model.

StruxureOn is a digital service that connects data centre physical infrastructure assets to the Schneider Electric cloud, enabling what's described as the delivery of “simplified and faster” services.

The company says the new service offers real-time visibility into system performance, maintenance and service requirements via a mobile app. *StruxureOn* uses data-driven analytics and is claimed to proactively advise of potential failures,



Schneider's Henrik Leerberg says StruxureOn harnesses the power of the IoT.

fundamentally improving the ability to service critical equipment prior to failure.

Henrik Leerberg, global director of ITD digital services with Schneider Electric, says: “With *StruxureOn*, Schneider Electric is harnessing the power of IoT to give data

centre and facility managers the insights, tools and support they need to proactively predict and prevent incidents and system downtime.”

The firm adds that as part of *StruxureOn*, its Service Bureau personnel are readily available to remotely troubleshoot an issue or dispatch a field service rep in cases that can't be addressed remotely. According to Schneider, the bureau acts as a ‘second set of eyes’, providing round the clock incident monitoring so that data centre and facility managers can “rest assured” that immediate action will be taken to curtail any impact on operations. ■

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Orange Business Services accelerates 'Network as a Service'

As a first step in its Network as a Service (NaaS) strategy, Orange Business Services (OBS) has launched *Easy Go Network*. It says the new platform provides fully-virtualised network functions (VNF) using SDN technology, and was extensively tested in a year-long trial with customers. The service will be available in 75 countries by the end of 2016.

OBS claims *Easy Go Network* enables enterprises to instantly provision VNF for branch offices with full digital self-service ordering, customer care and reporting functions via a user-friendly portal. The company says its service includes a plug-and-play router on site, eliminating truck rolls for more flexibility and rapid deployment.

According to OBS, *Easy Go Network* enables organisations to introduce new digital services faster in a more automated way, and deliver a consistent end-user experience on a global basis. It adds that the on-demand service is offered under a month-to-month contract, with no upfront investment and no minimum revenue commitment.

At launch, the firm is offering application awareness running on a virtual, adaptive enterprise firewall based on Fortinet's *Security Fabric* technology. Additional virtualised functions from selected vendors, including application optimisation and Wi-Fi management, are slated for launch in 2017.



OBS says its ultimate goal is an "adaptive network" which will be introduced by 2019.

"We are using an open-standards based approach to develop our SDN and NFV strategy, and we are planning to launch a universal CPE for larger sites next year," says Pierre-Louis Biaggi, VP of OBS' Connectivity Business Unit. "Our ultimate goal is an adaptive network, which we will bring to our customers within the next three years."

Is SD-WAN the future of enterprise networking? Feature pp11-13.



VIEW FROM THE TOP

Manish Sablok, head of field marketing, NWE, Alcatel Lucent Enterprise

How hybrid cloud is helping level the playing field for SMBs

The demand for cloud is driving investment and innovation across the market – IDC predicts worldwide spending on cloud services will reach \$141bn by 2019.

SMBs are next in line to reap the rewards, with today's workplace trends and requirements leading smaller businesses to mix on-premise solutions with cloud for the best of both worlds.

Hybrid cloud adoption is the ideal solution for SMBs. Keeping on-premise platforms makes the most of existing investment while being able to bolt-on cloud-based services when necessary, such as IM, multimedia collaboration or data storage. By going hybrid, any further transition to a full cloud solution is far simpler than starting from scratch, reducing the need for on-premise physical infrastructure and paid for on a per-user basis.

Traditional communication solutions have not offered the scalability SMBs require as they grow and expand, leading to companies making heavy investments in switching entire platforms. Hybrid cloud solutions are a response to this business challenge and enable SMBs to take full advantage of flexible work options without the capex. By selecting only the services

that they need and paying for them on a subscription basis, SMBs can keep their IT footprint small while enhancing productivity.

These tailored hybrid platforms simplify the licensing of new users and devices, eliminating the previous requirement to pay for separate licenses for different devices. This way, SMBs maintain a cost-effective 'pay per licence' model, minimise the cost of enterprise class IT capabilities, and are able to rapidly onboard new employees and their mobile devices without major infrastructural costs.

Furthermore, a hybrid approach keeps control in-house but shifts the responsibility of service maintenance and support to the provider. This removes much of the maintenance burden facing SMBs which may not always have the right IT skills available, and instead tasks the solution provider with maximising uptime. Plus, multi-year support contracts mean SMBs routinely benefit from major security and functionality updates.

Hybrid cloud is the perfect approach for SMBs, putting them on a technological par with large enterprises and million-pound cloud investments for just a fraction of the price.

The end for traditional IT teams?

A third of IT professionals reckon cloud will sound the death knell for the traditional IT security team, according to research by Lieberman Software.

The infosec software specialist anonymously surveyed nearly 140 attendees at the *Microsoft Ignite* show held at the end of September in Atlanta. Ninety per cent said that cloud computing is forcing them to learn new job skills while 33 per cent believe it will mean the end of the IT team as we know it.

Lieberman said the IT industry is changing as cloud and hybrid IT environments are becoming the norm. The company said it therefore only seems natural that traditional IT job duties will also evolve.

Additional findings from the survey revealed that 20 per cent think the cloud

makes it more difficult to track IT assets, while 43 per cent admitted that they do not change credentials in the cloud as frequently as they do on premises.

CEO Philip Lieberman warns businesses to remember that the security problems they face on premises follow them into the cloud. "This includes the security of privileged credentials, which are frequently used as the hacker's gateway into an organisation. Businesses must ensure that adequate steps are taken to secure access to their own data and privileged accounts, as cloud providers are often not responsible for this aspect."

According to the firm, while the IT industry is in transition, cyber security challenges remain and have merely moved into a new realm.

Mobile tracker to use SIMs from PodsystemM2M

Spanish software firm Trileuco will include Cambridge-based PodsystemM2M's connectivity solution in its tracking platform.

The *Tracktherace* platform is used globally in events such as the *Adventure Racing World Series* during which teams navigate through remote terrain using a mixture of hiking, canoeing and cycling.

As well as real-time mapping of competitors on the course via tracking devices, *Tracktherace* provides participants' details, information about the race, sponsor messages, multimedia information, and links to social media. Before the event, it also helps to manage registrations, adding participants' details and taking payments online.

One of the most important aspects is the security of the contestants. As a



Tracktherace is used in events such as the *Adventure Racing World Series* during which teams navigate through remote terrain.

result, Trileuco will use PodsystemM2M's multi-network SIM cards which cover 571 networks in 230 countries. The SIMs connect to the best network on device start-up and subsequently swap networks if they lose signal while roaming. This is said to be ideal for remote areas that have limited coverage on some networks.

As a division of the Podsystem Group, PodsystemM2M forms part of an independent MVNO specialising in data connectivity solutions for the M2M and business travel sectors.

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The high tech behind sci-tech

How IT is helping to improve food, make weather forecasting more accurate, and cure disease.

LANDESK helps firm's bid to be best of breed

Hendrix Genetics aims to increase food production by improving the breeding of turkey, pigs, chickens (including egg laying), and fish such as salmon and trout.

Based in Holland and founded in 2005, it has sites in more than 24 countries and employs around 2,800 people. UK locations include a poultry breeding company in Peterborough and a salmon farm in Alloa, Clackmannanshire.

With rapid expansion, the company decided to make some changes, as Marc Vanlier, IT manager, support desk, explains: "We have more users and devices to support than ever before, and the rise of mobile working means an even more complex IT landscape is on the horizon."

"Our goal is for employees to have access to the same level of support

on any device, so that they can work just as productively in or outside of the office.

Vanlier says Hendrix's previous service desk solution could not deliver on this aim and was facing end-of-life within a couple of years. This presented the opportunity to find an alternative."

Hendrix is currently unifying its global business with integrated enterprise resource planning (ERP) applications. It is working with two different partners for the deployment, and given the scale of the project, Vanlier says support issues are bound to come up.

"The challenge is how to log these and ensure that they are passed on to the appropriate party for resolution. When it came to selecting a new service desk solution, it was important to find one that could help us manage this process better."

As a result, the company chose to install LANDESK Service Desk and upgrade to the latest version of Management Suite, working with LANDESK partner, Nutshell-IT.

Lanlier says: "When a user raises a ticket with the service desk, we use the LANDESK solutions to automatically log the issue and, if appropriate, forward it to one of our two ERP deployment partners for actions. In this way, the LANDESK offering helps us collaborate better with third parties and minimise the impact of the ERP rollout on our users."



Long-term outlook looks brighter for Met Office

To aid the accuracy and timeliness of weather forecasts, the Met Office has one of the world's most powerful supercomputers at its HQ in Devon. Its 500 scientists carry out research using data-intensive, high-resolution models to increase forecast accuracy and provide a deeper understanding of climate change.

Founded in 1854, the Met Office is now part of the Department for Business, Innovation and Skills and has a total staff of around 2,000. Its purpose-built headquarters building, costing £80m in 2003, is near Exeter Airport, and it also has a forecasting centre in Aberdeen and offices in Gibraltar and the Falklands.

The Met Office selected three vendors to provide high-performance computing (HPC) capabilities for its new Scientific Processing and Intensive Compute Environment (SPICE) which is designed to cut the time needed to analyse massive amounts of climate simulation.

It chose SGI to power its SPICE initiative and to upgrade its Managed Archived Storage System (MASS), a repository for the research data carried out on the supercomputer as well as global observational data. By 2020, MASS is predicted to grow to about 300 petabytes.

SGI, which installed DDN (DataDirect Networks) storage, says processing capacity has increased, furthering researchers' understanding of meteorology on a global scale.

The Met Office also chose to integrate Bright's Cluster Manager so that the hardware, operating system, HPC software, and users of SPICE can be administered from a single point. It also installed Bright OpenStack which is designed to enable easy deployment, provision and management of its OpenStack-based private-cloud infrastructure.

SGI says the Met Office can now scale SPICE storage predictably while delivering high throughput to handle simultaneous data reads/writes.

Researchers, it says, can spin up virtual machines easily and operate their own private virtual environments with full control and direct access to their local network. In addition, they can easily increase the capacity of the virtual environment by adding more servers.

SGI says scientists using SPICE have already noted significant performance advantages over previous systems, resulting in much quicker analysis to support ongoing research. It claims massive volumes of data are now analysed in hours rather than days.

World's biggest DNA project is aided by the cloud

Run by Genomics England, the 100,000 Genomes Project is the largest national DNA sequencing project of its kind in the world. Its aims are to diagnose rare diseases and cancers earlier, identify those who may be susceptible, and to aid the development of treatments.

Based in Clerkenwell, London, Genomics England is a £300m project owned by the Department of Health. It says it has already delivered diagnoses to some families, transforming the way NHS patients are cared for.

Patients in NHS hospitals are invited, along with their families, to take part anonymously. They attend one of 13 centres to submit five millilitres of blood (or sometimes a tumour sample) from which DNA is extracted for sequencing.

Dave Brown, head of infrastructure at Genomics England, had three months from the date of his appointment to prepare for the arrival of the first data. There was no IT infrastructure in place and installing equipment would take too long. "With such a short time to deployment, we needed infrastructure that was quick to buy and set up," says Brown.

After researching cloud providers on the government's Digital Marketplace, he selected UKCloud.

"The UKCloud platform is based in England, which does away with data residency and protection issues that are often associated with clouds delivered from outside the UK," says Brown. "It has all the required industry accreditations and certifications, so you know it's secure. On top of that, it was Pan Government Accredited, which adds yet another layer of assurance."

Once samples have been analysed at a sequencing centre, the resulting DNA data is sent to the Genomics England platform at UKCloud over secure, dedicated 10Gbps connections using UKCloud's HybridConnect service.

In addition, the company hosts and manages specialised storage equipment which is owned by Genomics England and integrated into the cloud environment.

Brown says: "We provided our own storage because of the sheer volume of data that will be generated by the project. The data from a human genome needs around 240Gb of storage; 24Pb will ultimately be needed to store 100,000 genomes."



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Comms365 believes SD-WAN offers a radical way to design, deploy and manage a multi-site WAN. It says configuration of the service is provided by netadmins in a business environment, rather than an engineer in a carrier environment.

Your WAN in the palm of your hand

A software defined wide area network not only offers the potential to reduce running costs but also promises to give users greater control, as RAHIEL NASIR finds out.

It's no secret that most enterprise IT managers and CIOs hate their wide area networks, according to Joachim Sinzig, VP of portfolio management at Colt Technology Services. "The WAN is typically an expensive, administrative nightmare, with lead times for bandwidth running into months. Putting it simply, the customer wants secure, guaranteed delivery with quality of service for their data network. But they don't want increasing data capacity requirements to mean more expensive bandwidth circuits."

Danny Phillips, Citrix Systems' EMEA director of NetScaler product marketing, agrees. He says traditional WAN options have been based around expensive MPLS offerings from operators, and typically have long delivery times as well as multi-year contracts associated with them. "With bandwidth demands continuing to increase year-over-year, organisations see traditional

WAN services as putting increasing pressures on the IT budget."

The proponents of SD-WAN believe it offers huge potential to lower costs by managing how applications use different WAN services, thereby limiting the need for MPLS circuits for all applications. For instance, Sinzig says enterprises can use the public internet for services that are not latency critical (such as email or web browsing), while reserving the data network for high-bandwidth applications that are mission critical.

According to Silver Peak, as adoption of cloud applications and services continues to grow, the SD-WAN market is emerging as an economical and effective way to connect users to applications and for enterprises to operate at 'cloud speed'. Citing predictions made by Gartner, the company's EMEA VP Nick Applegarth says that over the next two

years SaaS will become the dominant model for consuming application functionality for around 80 per cent of all organisations. "To keep up with this pace, businesses need to re-evaluate their WAN requirements, and SD-WAN is now a viable option to overcome challenges such as improving responsiveness and agility of the business and network, as well as reducing costs and providing better performance for cloud applications."

Clearly then, SD-WAN is not just all about saving money. Milton Keynes-based Comms365 is a B2B mobile data and fixed line communications provider. It believes the ever-growing consumption of cloud computing and SaaS is putting "significant pressure" on traditional WAN architecture which is struggling to deliver application performance to users over legacy router hardware, complex network systems, and increasingly congested access 'pipes'.

Like many of his peers, Nick Sacke, Comms365's head of product and IoT, agrees that existing WAN solutions based on MPLS technology are expensive, adding that they don't easily allow the use of 'commodity broadband' access connections to help lower the overall network costs. "The prospect of replacing CPE branch routers with software has driven many networking vendors to launch SD-WAN offerings. Carriers/managed service providers are also now launching managed SD-WAN services as an alternative to the original managed routers installed five years or more ago."

Sacke also quotes Gartner which has reported that the effects of rapid adoption of SD-WAN by enterprises globally is making it all but impossible for incumbent equipment and service providers to maintain their revenues, margins and market shares. "As a result, industry giants

such as Cisco, Citrix, HP, BT and others have formally committed to the SDN and NFV business models to 're-invent' their networking businesses as software, opening up new revenue streams. The investment by these technology giants (in particular the carriers who are responsible for the bulk of WAN technology solution decision-making) and growing customer appetite for the solution benefits, makes SD-WAN an extremely attractive, fast-growing networking technology solution."

SDN has been around for several years now but still remains a hot industry topic. And in the words of Paul Hennin, international marketing director with enterprise mobility specialist Aerohive Networks, it is driving the future of networking by "shifting the mindset around planning, implementing, managing and using networks". But he points out that SDN can be seen as less of a network-wide technology and more of a data centre solution. "As a result, while SDN is a starting point, it's not the definitive protocol so cannot alone shape which direction networking is heading. This is where SD-WAN can help."

Defining the software defined WAN

So what exactly does a software defined wide area network entail? As Hennin explains, the SD-WAN separates the control and data planes of the WAN, and enables a degree of control across multiple WAN elements, both physical and virtual, that were otherwise not possible. "Importantly, a portion of the WAN community recognises the need to software-define the WAN in a manner not necessarily identical to the protocols that today define SDN – so they're related but different due to essentially different requirements."

He goes on to say that there's something else that businesses also need to take into account: SD-LAN. "This is extending software-defined techniques into the access layer of switches, APs, and perhaps even eventually into client devices (via drivers). Crucially, success in SD-LAN ultimately depends to a very large degree on the architecture of a given WLAN system solution."

Hennin says architecture has traditionally been thought of as benefiting the overall performance characteristics of a given installation. But now it's contributing to advances in capacity, reliability, operations productivity, security, scalability, total cost of ownership and much more. "With

the next frontier based on a wireless-first approach, the WLAN industry is set to continue evolving, and businesses need to take advantage of this."

Others may not entirely agree with this approach. For instance, Citrix's Phillips says many vendors focus on different elements of SD-WAN, with these elements typically representing the "DNA" of their products. He accuses vendors of "creating confusion" in the hopes of reinforcing their own offerings, and this presents a challenge that many organisations will face when looking at SD-WAN.

Citrix says SD-WAN is about combining a collection of branch edge functions – routing, path selection, WAN optimisation, firewall and web gateways – into a single appliance with a common management tool. "This is not vCPE loaded with different vendor's virtual appliances, as this merely puts the challenge of management back on the organisation," says Phillips. "SD-WAN solutions offer network functions that are orchestrated by a simple-to-use management application. These network functions must provide reliable, secure and effective application delivery, and the management tool greater simplifies the cost of network administration."

All this seems to illustrate a point made by Paul Griffiths, senior director of Riverbed's Advanced Technology Group, who says all vendors will have their own definition of what SD-WAN is. But he adds all of them should realise that it offers three distinct benefits. As well as the cost-savings capabilities that have already been discussed, Griffiths says SD-WAN permits an increased level of availability, and also provides a greater degree of flexibility and agility.

"SD-WAN offers the ability to deploy equipment with a 'zero-touch provisioning' methodology, make on-the-fly adjustments to a network's performance and application delivery, and meet a business' ever-changing needs."

"It also enables organisations to direct traffic and deploy network services across a WAN from a centralised location. Ultimately, this translates into reduced costs and operational complexity, and increased optimisation to deliver superior-performing apps and experiences to users."

Migrating to a network

Riverbed points out that there's work to be done before the migration to SD-WAN even starts. According to Griffiths, network managers need to

begin by taking a "top down" approach to see how their business applications are performing. Using visibility tools within the ecosystem environment will give them a holistic view of the IT infrastructure and enable them to determine how users interact with the applications in real time.

"This allows the manager to see the 'bigger picture' before the business looks to migrate to an SD-WAN environment," says Griffiths. "Without this insight, enterprises will have no indication of the expectations or what the benefits will be when you move to SD-WAN."

If there is one thing that all vendors agree on when it comes to SD-WAN, it is the clear need for centralised management. It is this that will enable network managers to carry out their jobs with the 'zero-touch provisioning' alluded to above. For instance, Comms365's Sacke adds his support when he says: "SD-WAN services should offer a management console/portal where network managers can set up and manage their sites. The console should allow visualisation and control of the current site connectivity status, configuration, routing policies, alerting and security settings."

Colt proved this earlier this year when it announced that it had expanded its managed SD-WAN service to multiple countries across Europe (see News, Oct 2016). Sinzig says: "Colt claims both agility and economic advantage in the delivery of NFV-based services for the WAN and branch office by accelerating time-to-service while reducing total cost of ownership due to centralised management for all sites."

That "agility" he refers to is made possible thanks to an NFV-based platform that integrates on-demand elasticity and multi-tenancy, and combines SD-WAN software with open and scalable general purpose server hardware at the customer's premises.

So what other tools, hardware, software and services should network managers look for when migrating to an SD-WAN? Silver Peak says once a decision to employ either a physical or virtual appliance has been made, network managers should also ensure that WAN virtual overlays offer encrypted tunnels and provide high levels of performance, security and segmentation edge-to-edge.

"Path conditioning technologies will also ensure that packet loss, latency, jitter and throughput is monitored and managed within SLA thresholds," advises Applegarth. "This is important, especially



"When using internet connections and even MPLS, path conditioning can reconstruct packets lost in transit without incurring the overhead or latency of retransmitting them."

Nick Applegarth,
VP of EMEA,
Silver Peak

when using internet connections and even MPLS, because path conditioning can reconstruct packets lost in transit without incurring the overhead or latency of retransmitting them.

"Finally, SD-WAN solutions should seamlessly integrate WAN optimisation to further accelerate applications and reduce the amount of data passing across the WAN."

So what about existing and legacy IT assets – where do they fit in? Griffiths says it is important to realise that an SD-WAN environment is not a 'rip and replace' technology framework. "Ideally, it should provide a way for customers to move away from legacy deployment and management of IT, as 20th century approaches and technology systems are simply unable to scale and move with 21st century business needs. It does not have to be instantaneous though as this could cause widespread disruption for some organisations."

Riverbed claims its *SteelConnect* platform provides organisations with the SD-WAN tools and products needed to be able to fully migrate towards an SD-WAN environment. It also ensures that technology is able to interact with legacy routing infrastructures and security mechanisms in such a way that allows a phased approach to deployment.

Furthermore, the firm adds that organisations can control their design and deployment in a way that allows them to build out the complete SD-WAN infrastructure within the management system of *SteelConnect* without installing a single device. "Then, when the time is right, they can deploy SD-WAN capable components on a case by case basis," says Griffiths.

Silver Peak also points out that moving to an SD-WAN should not be an all or nothing approach. "One of the biggest concerns with SD-WAN technology is the extensibility with traditional WAN architecture," says Applegarth. "Some SD-WAN vendors require existing traditional WAN equipment to be replaced when migrating to their products, resulting in disruption to the WAN and interruption to applications during the transition. However, there are SD-WAN solutions



If there is one thing that all vendors agree on when it comes to SD-WAN, it's the need for centralised management. For example, by using its SteelConnect platform, Riverbed claims organisations can build out a complete SD-WAN infrastructure without installing a single device.

available today that are extensible with existing WAN infrastructure and interoperate within an existing WAN, providing a seamless migration.

"Indeed, companies can begin their journey to an SD-WAN by deploying a hybrid WAN which allows them to move at their own pace. With a hybrid WAN, businesses can deploy lower-cost broadband internet services as an alternative to connecting to cloud applications when MPLS contracts come up for renewal. This creates the opportunity to downsize MPLS bandwidth and migrate additional services slowly to the cloud, as desired."

Colt supports this type of approach. Typically, for customer sites that are 'on-net' (i.e. directly connected with Colt fibre), Sinzig says bandwidth scales in a very cost-efficient way but adds that this has not been the case with off-net sites.

"The introduction of SD-WAN removes these limitations by enabling a path to the public internet for those apps which are not latency-critical. Customers can then reserve off-net data capacity for more business-critical applications. The end result is that a hybrid network is formed where non-critical data is offloaded to a secured internet tunnel, freeing-up MPLS bandwidth for business critical data, efficiently increasing the total bandwidth to branch sites. Data over the internet is secured by using IPSec tunnels, and the customer is free to use their existing ISP if they so wish."

The role of the network manager

SD-WAN promises to not only reduce the cost of running a wide area network but also simplify its management. So where does all that leave the network manager?

"Businesses are adding more commodity internet into the traditional WAN mix to better balance network performance and price," says Sinzig. "The result is increased overheads in terms of network management, configuration and orchestration – until now. SD-WAN reduces the level of expertise required to configure the branch to what Gartner claims is the equivalent of setting up a basic home wireless network with consumer-grade equipment."



"20th century approaches and technology systems are simply unable to scale and move with 21st century business needs."

Paul Griffiths,
senior director,
Advanced Technology Group,
Riverbed Technology

Sinzig says Colt's intelligent SD-WAN platform enables customers to dynamically route traffic to manage both secure and internet data in real time. This can be configured by Colt or the customer. "So the network manager can in fact take on as much or as little of the management as they desire, potentially giving them more time and resource back."

Silver Peak agrees that SD-WAN technology makes the role of the IT or network manager inherently simpler. Applegarth says: "This is not least because SD-WANs are managed or 'orchestrated' centrally. While operational training is required, it is only necessary for IT staff based at a company's headquarters, as branch locations no longer require specialised networking expertise."

As an example, he says configuration changes can be handled centrally with IT programming, and all it takes is a single command to 'push' this to all of the SD-WAN appliances. Similarly, zero-touch provisioning capabilities mean new site setups can be handled centrally with no localised expertise needed. Furthermore, policy management can be handled centrally in alignment with business aims.

"Once an SD-WAN is up and running, many of the day-to-day tasks can be automated and monitored via a centralised management system," says Applegarth. "This enables IT staff and resources to be directed toward initiatives that will advance business objectives including revenue growth, improved productivity and ultimately higher profitability."

Comms365 describes SD-WAN as a "radical" new way to design, deploy and manage a multi-site WAN. As a result, Sacke says the IT manager can now play an active role in the programming and ongoing administration of the WAN, no longer having to rely on carrier engineering helpdesks to make required adds, deletions or changes.

"Configuration of the service is provided by network administrators in a business environment, rather than an engineer in a carrier environment," says Sacke. "Edge and core devices automatically and securely route traffic from the customer edge based on application and availability over multiple access links, which are carrier agnostic. Customer sites become 'application aware' to enhance the customer experience of the cloud."

SD-WAN can be a revolutionary concept for some IT teams to understand as it provides a completely different way of operating wide area infrastructure. But through education, Griffiths says they can move away from a mindset that previously encouraged configuration on a device-by-device level.

"IT managers should steer away from a siloed mentality when it comes to discussing IT infrastructure. For example, [there should be] distinct conversations about the data centre and network, separated from the wider discussions centred on business goals. With SD-WAN, these should no longer be treated as mutually exclusive. All parties must work together to migrate to an SD-WAN environment successfully."

Griffiths believes that collaboration between IT teams results in an open approach to IT management. "Whether siloed or not, the IT team needs to be able to understand the language of business. One of the other skills the IT manager or network manager needs to hone is working towards a way of communication with the wider business in a way that both groups can talk a common language – SD-WAN enables this bilateral conversation."

VeloCloud claims first with new SD-WAN system that offers voice quality monitoring



With its Edge device, VeloCloud says users can deploy a cloud-delivered SD-WAN in two minutes.

VeloCloud Networks has launched what it says is the industry's first SD-WAN solution to offer a fully featured voice-quality monitoring capability.

VeloCloud VQM comprises a passive agent on the company's Edge CPE. According to the US-based cloud SD-WAN specialist, it continuously monitors voice calls to proactively identify any performance issues on enterprise and service provider networks. This then enables them to monitor, diagnose and troubleshoot network issues before they can impact business-critical voice communications.

VeloCloud has developed its new VoIP performance management software to support an extensive array of codec technologies. It adds that *VQM* provides listening and conversational call-quality metrics in both R-Factor and MOS (mean opinion score) formats. It is said to offer detailed diagnostic information, giving network managers both high-level

metrics and the ability to drill down to identify specific problems.

VeloCloud claims to have more than 300 enterprise customers and service providers around the world. The company reckons *VeloCloud VQM* will deliver "significant" benefits to these users, including fast installation, continuous monitoring and pre-emptive identification, and resolution of network issues even before a customer becomes aware or is impacted by a problem.

Furthermore, VeloCloud says its platform reduces the branch office footprint, and that it continues to build on the benefits of its cloud-delivered SD-WAN architecture by delivering support for on-premises or in the cloud voice services. "Integrated *VQM* with single click virtual service enablement eliminates multiple physical appliances in enterprise branch offices and expensive truck rolls," says Steve Woo, vice president of products and co-founder at VeloCloud. ■

Real future or just hype?

Aerohive reckons that as an emerging architecture, SDN offers great possibilities in an era that will be defined by the demand for ever higher bandwidth. "SD-WAN and SD-LAN take this to the next level and will become increasingly essential in the coming years," says Hennin. "Modern networks must continuously adjust and adapt to keep up with the pace of change that mobility has created. This is unachievable in traditional network architectures, which makes the move to SD-WAN and indeed SD-LAN inevitable for any organisation that wants to stay ahead of the competition."

So does that mean SD-WAN represents the real future for enterprise networking? Not quite, according to Citrix's Phillips: "SD-WAN is still quite new and loosely defined, and so it might be a step too far to say the move to SD-WAN is 'inevitable'. However, organisations are constantly looking at new technologies that offer the ability to add reliability and security into their WANs, while also offering the promise of lowering the costs of application delivery."

Riverbed reckons that a positive side effect of SD-WAN will see applications become more distributed again. This requires the WAN to evolve toward a hybrid mix that combines the performance of on premise hardware with the agility and elasticity of cloud based network functions. So does the firm consider SD-WAN to be the future?

"We've seen pendulum swings of various technologies from one extreme

to another over the past several years," says Griffiths. "There was the move from consolidated architectures to distributed architectures back to some sort of consolidation again, and this is perhaps where we are moving away from once more. Organisations saw the benefit of consolidating applications centrally, and now they can move those applications and push them to the public cloud as users are demanding access to applications virtually anywhere."

For Silver Peak, the shift to SD-WAN is inescapable. Applegarth says this will be mainly driven by the accelerating migration of applications from the data centre to the cloud.

"The adoption of virtualisation and the cloud across traditional WAN architectures, such as MPLS, are proving costly and ineffective in connecting users in branch offices directly to cloud-based applications. As cloud initiatives gain momentum and traction, companies are quickly embracing the favourable economics and relative simplicity of leveraging broadband connectivity to connect users to applications with the performance, security and reliability required to move forward."

Other companies also see SD-WAN playing a key role in the future networks. For instance, Comms365 forecasts that every multi-site network will at least evaluate, if not adopt, SD-WAN as a solution. And Colt points out that while the technology doesn't act as a silver bullet for all an organisation's WAN problems, it does address some of the biggest pain points. ■

off-the-shelf: enclosures

Contain yourself

It's hard not to get carried away by these exciting solutions to help house and protect your kit.

Chatsworth Products claims its *EF-Series EuroFrame* cabinet uses a simplified design with fewer technical features to offer a quick and easy-to-install storage solution for data centre managers.

With a static load rating of 1,500kg, the company says the cabinet is able to meet today's requirements for high-density switching and server applications.

Manufactured in Germany, the *EF-Series EuroFrame* is available in several standard configurations to allow flexibility to fit most data centre designs. They include 42U and 47U, 600mm and 800mm widths, and 1,000mm and 1,200mm depths.

Chatsworth says the cabinets manage and protect cabling and equipment in a "simple, affordable way".

It adds that they offer better control of



thermal dynamics through specific in-cabinet geometries to ensure uptime. The cabinets use an Air Dam kit and Snap-In Filler Panels to seal all open U spaces as well as the gap around the mounting rails.

According to **Emerson Network Power (ENP)**, the *Knurr Miracel 2* has been designed to stay ahead of today's growing customer needs and market requirements. It claims the modular, fully configurable server and network rack allows more space for PDUs, built-in units and cables.

According to the firm, the *Miracel 2*'s "light yet robust" aluminium-framed construction tolerates loads up to 800kg while the "easy access" design enables quick servicing. ENP adds that optional tilt restraint ensures safety for service staff.



With fixed 19-inch mounts at front and rear for fixtures in accordance with IEC 297-3, the rack features a perforated single front and rear door. ENP claims the perforation degree of 83 per cent guarantees ideal airflow.

It adds that an integrated T-slot system also allows free arrangement of accessories and enables users to mount fixtures easily. Cable entry is via the base and top cover and enables easy installation and/or removal after wiring.

ENP says the *Miracel 2*'s aluminium design makes it a "genuine" lightweight with a low raised-floor load. As a result, the vendor says the rack is easy to transport and set up.

Rittal has boldly proclaimed that the time-consuming business of assembling and positioning of components in IT racks is now a thing of the past.

Using its new fastener, the company reckons components can be quickly and easily installed on, or removed from, the 19-inch (482.6mm) mounting level of racks.

According to Rittal, the 'plug and play' fastener is simply slid onto the rail from the inside and then locked. At the same time, integrated contacting ensures the potential equalisation needed, says the company.

The fastener is available as a pre-assembled 1U support with three captive nuts, including centre attachment, to standard EIA 310. Rittal says integrating three captive nuts within the mounting profiles in just one click "saves time



and nerves". The company adds that the fastener is of a robust construction, ensuring it can be repeatedly dismantled and re-used. It is compatible with every enclosure in the Rittal product range.

The **APC NetShelter SX 'Grey Racks'** range from **Schneider Electric** have a powder coated finish throughout to provide a much greater visual contrast between the cabinet and the equipment it contains.

According to the firm, contrast ratio testing performed under strictly controlled lighting conditions in its labs has shown up to a four times improvement when using the racks. It says this improves the ability to see and coordinate movement in low-light areas or during power outages.

The *NetShelters* also feature Schneider's *Vertical Exhaust Duct* in a matching finish. The firm says this provides a completely integrated passive



solution for increased cooling performance with higher density equipment loads.

Other features include a vertical zero-U accessory channel for direct fastening of cable bundles, and tool-less mounting of cable management accessories or zero-U rack power distribution options.

Cabinet mounting rails are said to be easily adjustable for simple alignment, and side panels and front/rear doors are removable for safe and easy handling.

The *NetShelter SX* racks have a static load capacity of 3,000lbs, and are available in 600mm, 750mm and 800mm widths, and 1,070mm or 1,200mm depths.

Siemon's Wall Mount Cabinet is an EIA/ECA-310-compliant NEMA Type 1 enclosure.

Made in the US, the cabinet has an adjustable mounting rail system to support any standard 19-inch rack mountable equipment.

With a right- or left-hinged locking back plate design, Siemon says the cabinet offers easy rear access to equipment and wiring thanks to integrated vertical cable management, as well as ample top and bottom cable knockouts.

It adds that the enclosure's sturdy design, IP20 ingress rating, and locking front door and back plate ensure "superior" security and protection.

Compliant with UL 60950 safety standards, the *Wall Mount Cabinet* has a load capacity of up to 91kg and is



available in 12U, 18U and 24U sizes, and in 24-inch and 30-inch depths.

It comes with either a Plexiglass, solid or vented front door that features a standard locking swivel handle which, says Siemon, is easily retrofitted with access control, or biometric handles for authentication in high-security applications.

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More than a third hope to move to a new employer next year

Thirty seven per cent of IT pros plan to begin searching for a new employer next year, according to Spiceworks.

In its 2017 *Tech Career Outlook* study, the company found that while 69 per cent plan to switch jobs to advance their IT skills, 64 per cent are looking for a more competitive salary, and 40 per cent want to work for a company that makes IT more of a priority.

In terms of the tech skills needed to be successful next year, 95 per cent cited cyber security, soft skills, and computer networking expertise. When asked which skills they want to improve in 2017, only 29 per cent said they're planning to work on soft skills, such as better team management and communication, but 62 per cent said they plan to focus on improving their cyber security expertise via certifications or training.

However, Spiceworks also found that organisations are often hesitant to invest in security training for IT pros, despite the fact that 55 per cent do not employ or contract a cyber security expert. As a result, many respondents said they are seeking employers that are willing to help advance their skills.

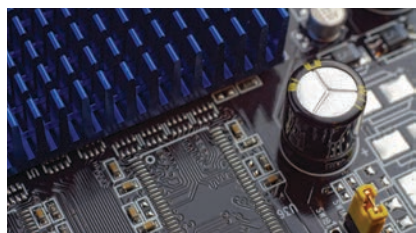
Spiceworks conducted its survey in October. Respondents were members of the firm's network for IT pros who work in the private and public sectors in Europe, North America, the Middle East and Africa.

New firm aims to help with EMC challenges

New company EMC Standards believes many electromagnetic compatibility (EMC) issues can be solved using practical techniques that cannot be learnt in a classroom. The firm says it will therefore educate design engineers and practitioners by using actionable information to solve real-world problems.

Although based in Staffordshire, EMC Standards plans to share its electrical engineering expertise through its website. As well as hosting what's claimed to be "vast amounts" of downloadable information, the site is also said to feature a wide range of practical guides to regulations such as the 2004/108/EC directive which is currently the basis of the UK's EMC law.

"EMC is generally not taught as part of conventional engineering qualifications, so we find that many engineers and designers are not as knowledgeable about EMC as they should be," says Keith Armstrong at EMC Standards. "We will help designers, development staff, installers and maintenance staff to gain a better comprehension of EMC at each stage of the product cycle."



EMC standards says electromagnetic compatibility is generally not taught as part of conventional engineering qualifications.

He goes on to explain that EMC problems usually occur when equipment is not installed according to the manufacturer's guidelines or when it does not conform to EMC regulation. Armstrong says this leads to electromagnetic and RF interference that can raise energy costs and affect telecoms hardware as well as interfere with other equipment on the network.

Armstrong adds that EMC Standards has developed many ways to resolve such problems which can save companies large amounts of time and money.

NEW COURSES

Microsoft SQL 2016 certification – Global Knowledge

Earlier this year, Microsoft released three new *SQL 2016* certifications which are important for professionals working with

both on premise and cloud-based databases. Global Knowledge says individuals who currently hold *MCSA: SQL Server 2012/2014* certification can upgrade by taking and passing the following two exams: 70-761 – *Querying Data with Transact-SQL*; and 70-762 – *Developing SQL Databases*. They will then earn *MCSA: SQL 2016 Database Development* certification.

MCSA: SQL 2016 Database Administration can be achieved by passing 70-764 – *Administering a SQL Database Infrastructure* and 70-765 – *Provisioning SQL Databases*.

MCSA: SQL 2016 Business Intelligence Development can be gained by passing the 70-767 – *Implementing a SQL Data Warehouse* and 70-768 – *Developing SQL Data Models* exams.

Global Knowledge offers courses corresponding to all six exams. <http://tinyurl.com/okrcbtw>

Data Science and the Cloud – New Horizons London

New Horizons London (NHL) is continuing to offer free webinars to help IT teams keep up to date with the latest technologies and best business practices.

It is hosting a number of sessions over the next few weeks including *Data Science and the Cloud*. Presented by Richard Moore and Matthew Clark of Dell EMC Education Services, it promises to provide motivational examples for the power of data science, and review the challenges of managing the data science infrastructure.

NHL says it will also make the case for how cloud can provide flexible, agile support for data science efforts, maximising ROI and minimising time to market.

The webinar takes place on 7 December at 4pm. Register at <http://www.nhlondon.com/resources/free-webinars>.

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