



## Path to cloud enlightenment

How 2020 has made it's mark on the tech landscape

Dave Glasgow,  
IPL, p7



## Meeting the comms demand

How firms are striving to give customers what they want

Neil Hammerton,  
Natterbox, p11



## Questions & answers...

Networking+ talks to the CEO of Vapour Cloud

Tim Mercer,  
Vapour Cloud, p16



# ICO says parties must improve data protection



The Information Commissioners Office (ICO) has called on a host of political parties in the UK to improve their data protection practices and place a stronger focus on ensuring privacy.

This follows an audit on the back of the 2018 Democracy Disrupted? report into how political parties manage and protect personal data. It raised significant concerns over transparency and the use of data in political campaigning.

Published in the wake of the Cambridge Analytica scandal, the report suggested that a lack of transparency and cavalier approach to data protection could undermine democratic processes. Parties audited include the Conservatives, Labour, Liberal Democrats, as well as the Scottish National Party, Plaid Cymru and Democratic Unionist Party (DUP).

According to the watchdog, it made recommendations for improvements to all political parties audited and 70% of advisories classified as 'urgent' or 'high priority'.

Political parties legitimately hold personal data belonging to millions of people in order to help them campaign effectively. However, there are growing concerns that developments in the use of data analytics and social media by them mean that many voters are unaware of where their data ends up.

Earlier this year, a report from the privacy rights organisation, Open Rights Group (ORG), revealed that the incumbent Conservatives, as well as Labour and the Liberal Democrats were attempting to profile millions of voters on things like income, religion and their political views.

The publication of the report sparked claims that parties were stereotyping voters based on racial or religious grounds. Additionally, ORG warned that political profiles were often found to be "wholly inaccurate" and used to influence voters.

Speaking about the report, commissioner Elizabeth Denham said: "Society benefits from political parties that want to keep in touch with people, through more informed voting decisions,

better engagement with hard-to-reach groups and the potential for increased engagement in democratic processes. But engagement must respect obligations under the law, especially where there are risks of significant privacy intrusion."

Denham also insisted that parties must use personal information in ways that are "understood by people and lawful" to avoid damaging public confidence.

"The transparency and accountability required by data protection is a key aspect in developing and maintaining trust, and so there is an important role for the ICO in scrutinising this area," she added.

However, instead of taking action, the regulator outlined a series of recommendations that parties are advised to take.

These include providing the public with "clear information at the outset about how their data will be used," as well as carrying out "thorough checks on all contracted and potential processors" of political data.

*continued on page 2*

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## Political parties warned over data protection improvements

*Continued from page 1*

Parties must also carry out thorough checks on third-party suppliers to ensure they comply with the transparency, security and accountability requirements of data protection law.

Individuals must also be told when parties use "intrusive profiling," such as combining information on them from several different sources to establish interests or voting characteristics.

Nigel Thorpe, technical director at data security specialist SecureAge, told *Networking+* that "given the recent history of data breaches in general and of data theft from the Labour Party in particular", the security of personal information must be of equally high priority as its use.

"Political parties are high profile targets for cyber criminals of all sorts, so you might think that using the strongest protection available would be a given," he added. "However, organisations are often lulled into a false sense of security when told that their data is held on an encrypted disk. But any security specialist - and hacker - would know that this offers no protection when the computer system is running."

The data protection audits mark the first carried out on political parties and although much of it was damning, the ICO welcomed the response from all involved. ■

## Dundee Council 'saves £1m' by moving 95% of data to public cloud

Scottish local authority Dundee City Council has saved around £1m after migrating 95% of its data to the public cloud, managed by services provider Brightsolid.

The potential saving was spotted during the summer after senior management realised their own data centres needed significant upgrades to keep running.

An early cost analysis showed continuing with on-premises data centres would require an investment of up to £1m, so the council approached Brightsolid to discuss options.

The result was a colocation agreement to move the majority of the council's ICT to Brightsolid's Tier III designed data centre in Dundee. The project forms the Council's first step towards its long-term goal of relying largely on the public cloud.

By choosing to colocate to Brightsolid's Dundee data centre, the council achieved increased resilience and improved the management and monitoring of services, and off-set that future investment.

"Our approach to technology emphasises cost efficiency, best practice, and strategic fit," said Graeme Quinn, senior manager IT infrastructure at Dundee City Council. "Brightsolid's established reputation in data centre migration and management, and experience with other government organisations provided us with additional peace of mind. We have been particularly impressed with Brightsolid's tailored approach to our needs and environment and are confident it is the right choice of partner for us."



**By choosing to colocate to Brightsolid's Dundee data centre, the council achieved increased resilience and improved the management and monitoring of services, and off-set that future investment**

Elaine Maddison, chief executive officer at Brightsolid, added: "Dundee City Council is not unique in its desire for flexibility and scalability alongside lower costs. These are precisely the demands colocation meets. By moving to our data centre the Council will enjoy increased resilience and the flexibility to scale

infrastructure based on need, leading to cost savings in the long run."

The remaining 5% of Dundee City Council's ICT will stay onsite to aid the council in connecting with Brightsolid's data centre.

Brightsolid also works with other government organisations including NHS Tayside and Aberdeen City Council. ■

## Cohesity forms new collaboration with AWS to deliver DMaaS

US software business Cohesity has formed a strategic collaboration with Amazon Web Services (AWS) to "address the growing customer need" for data management that is flexible, available, scalable and reliable.

Both companies are bringing to market a modern data management as a service (DMaaS) offering what they claimed is unlike any other on the market today.

The solution is designed to provide enterprise and mid-size customers with a simple way to back up, secure, govern, and analyse their data, all managed directly by Cohesity and hosted on AWS.

"AWS is delighted to establish a strategic collaboration with Cohesity as we share common goals - helping customers lower costs, become more agile, innovate faster, and do more with data," said Doug Yeum, head of worldwide channels and alliances, Amazon Web Services. "Working with Cohesity, we are charting a new course in how data is managed in an as a service model, leveraging disruptive, modern data management capabilities from Cohesity, and industry-leading cloud services from AWS."

As part of the collaboration, Cohesity and the AWS partner network (APN) are investing in resources to design the DMaaS solution on AWS and to engage in joint go-to-market activities. Additionally, Amazon has made an equity investment in Cohesity.

"This collaboration between Cohesity and AWS shows a continued commitment to bringing data management solutions to enterprise and mid-size customers that provide unmatched simplicity, flexibility, and



**"This collaboration shows a continued commitment to bringing data management solutions to enterprise and mid-size customers" said Mohit Aron, CEO and founder, Cohesity**

reduced total cost of ownership," said Mohit Aron, CEO and founder, Cohesity. "Cohesity and AWS are also focused on helping customers derive value from data. Through AWS, customers can access a wealth of AWS services, including Amazon Macie, to help customers meet compliance needs, and Amazon Redshift for analytics. We are thrilled to collaborate with AWS and look forward to ushering in a new era in data management for customers globally."

Meanwhile, Cohesity is set to release a new integrated, automated disaster recovery solution, which it claimed is the only web-scale, converged solution to protect applications across tiers, service levels and locations on a single platform.

The company said in a statement that the Cohesity SiteContinuity solution is integrated with the company's backup and continuous data protection capabilities and aims to help companies ensure data is not lost, applications are available, costs are reduced and that strict service-level agreements (SLAs) are met. ■

## Lawmakers criticise choice of cyber security headquarters

Britain's GCHQ spying agency ignored evidence and broke its budget in choosing an expensive central London headquarters for a newly created cyber security centre, according to a report by a committee of lawmakers.

The National Cyber Security Centre (NCSC), the body charged with protecting the nation from cyberattacks, was opened in 2017 by Queen Elizabeth at a tall glass building in London's regenerated Victoria area.

An investigation into the procurement of the office by parliament's Intelligence and Security Committee (ISC) found GCHQ prioritised image over cost, set inappropriate selection criteria and then changed those criteria without justification.

"Even disregarding the faulty criteria, it is clear that GCHQ selected Nova South against all the evidence," said an ISC statement by lawmakers Kevan Jones and Stewart Hosie.

Prime minister Boris Johnson said the government acknowledged there were lessons to be learned from the process, but defended its selection.

Rather than being based out in Cheltenham with the rest of GCHQ, the decision was made to locate it in London where it could be more accessible and open to business and government.

However, the decision to choose the expensive Nova South building, near Victoria station, has been heavily criticised by the ISC.

Even though Canary Wharf came out top of the shortlist, Nova South was recommended by GCHQ to National Security Adviser Mark Lyall Grant.

That was based on proximity to Westminster and also the fact Canary Wharf would be "very unpopular" with GCHQ staff.

The ISC scrutinises the work of Britain's intelligence agencies. GCHQ is the body which gathers communications from around the world to identify and disrupt threats to Britain. Its criticisms included "an arbitrary timetable, faulty criteria, an absurd weighting mechanism, unjustified score changes, a 'no-hoper' alternative and, finally, the Principal Accounting Officer being overruled."

The Nova building, part of which houses the NCSC, was named Britain's ugliest building in 2017 by competition judges who criticised its angular form and red spire as an assault on the senses and a hideous mess.

Johnson said in a statement: "Nova South met all the key criteria required by government... A further contributing factor to its selection was its availability which allowed the NCSC to be established at pace." ■

### EDITORIAL:

**Editor: Robert Shepherd**  
roberts@kadiumpublishing.com

**Designer: Sean McNamara**  
seanm@kadiumpublishing.com

**Contributors: Gerry Moynihan, Dave Glasgow, Song Toh, Vishal Barapatre, David Stokes, Fahim Sabir, Neil Hammerton**

### ADVERTISING & PRODUCTION:

**Sales: Kathy Moynihan**  
kathym@kadiumpublishing.com

**Production: Suzanne Thomas**  
suzannet@kadiumpublishing.com

**Publishing director: Kathy Moynihan**  
kathym@kadiumpublishing.com

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# Zivver launches Gmail security solution

Zivver, the European secure communications specialist, has launched Zivver for Gmail, a new enhanced email security solution for UK organisations using Google Workspace.

The smart technology alerts users of potential mistakes in real-time, while they are typing - before information is sent. They are then offered the option to send this information securely via the extension. The Zivver for Gmail extension gives organisations an effective way to prevent data leaks while not having to change their way of working.

"We are proud to be able to launch our secure email tool for the growing number of organisations using Gmail," said Rick Goud, chief information officer and co-founder of Zivver. "With Zivver for Gmail, organisations can share sensitive information via email with complete peace of mind. This applies to both the information in the email and files in the attachments."

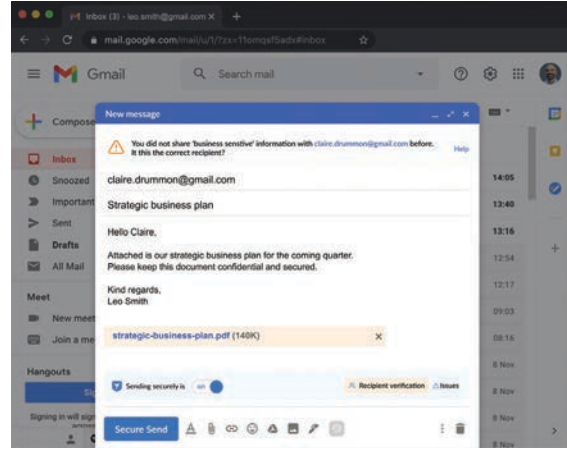
He added that "normal email" is not secure enough for organisations that share sensitive client, employee, or company information, "because email originated in the 1960s", when privacy and security were still relatively unknown concepts.

"Normal email lacks functionality to prevent human error (such as a wrongly addressed email), intercept messages and the ability to limit the impact of a data breach," Goud continued. "Our smart technology therefore provides real-time alerts when users are about

to make an error. What's more, our rock-solid encryption and two-factor authentication protect communications from unauthorised access, both from vendors such as Google and Microsoft, as well as malicious users and hackers."

Pioneering healthcare organisation Buurtzorg, active in 25 countries, participated in Zivver's Gmail beta testing. "Our employees already know Gmail," said Danielle Gérard, project manager of Buurtzorg. "The 'Zivver button' makes it possible to send emails - with attachments - safely and easily from our own Gmail client."

Zivver's recent \$17m new funding round is being used to accelerate its international expansion into the UK and other markets. ■



*The smart technology alerts users of potential mistakes in real-time, while they are typing - before information is sent. They are then offered the option to send this information securely via the extension. The Zivver for Gmail extension gives organisations an effective way to prevent data leaks while not having to change their way of working*

## Rittal's 'ground-breaking' RiMatrix Next Generation

Rittal has launched RiMatrix Next Generation (NG), described as a 'ground-breaking' new modular system for installing data centres flexibly, 'reliably and fast'.

Based on an open-platform architecture, RiMatrix NG means customised solutions, delivering future-proofed IT scenarios, can be implemented anywhere in the world. These include single rack or container solutions, centralised data centres, distributed edge data centres or highly scaled co-location, as well as cloud and hyperscale data centres.

Rittal also said the RiMatrix NG is the first platform that supports OCP direct current technology in standard environments.

"Right from the initial design phase, we thought ahead in terms of adapting to diverse and constantly evolving requirements when we were developing the open platform," said Uwe Scharf, managing director business units and marketing at Rittal. "Our customers have to adapt their IT infrastructures to developments faster than ever before to ensure business-relevant products and services can be continually created at the highest possible speed and without faults."

The RiMatrix NG modules cover five functional areas: racks, climate control, power supply and backup, and finally IT monitoring and security. This enables IT managers to create solutions that are tailored to their individual requirements. The number of potential combinations offered by Rittal and its certified partners means that users can both meet their own needs and any stipulated local regulations, wherever they are based across the world. ■

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Market intelligence firm IHS Markit ranked Vertiv the No. 1 supplier of remote IT management solutions worldwide in its KVM Switches and Serial Consoles Report 2019. For more information on the Avocent® ACS 8000 cellular and the full portfolio of remote IT management solutions, visit [Vertiv.com](http://Vertiv.com).



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## 'Most IT leaders look to data management'

A survey conducted by Druva, the cloud data protection specialist, found that 79% of IT leaders look to data management for competitive advantage. In addition, 70% of respondents said they were confident in their ability to maximise the value of data. However, 41% said the data they collect is not readily available or accessible when needed for decision making. "The rapid move to remote work has perma-

nently changed the way businesses operate, accelerated digital transformation and increased the value of data as a business asset," said Jaspreet Singh, founder and CEO, Druva. The results of the 2020 Value of Data Report offers insights from 700 IT decision makers in the US and UK and underpins the importance of maximising the value of data as businesses navigate an unprecedented global event.

## Ultima launches automated cloud platform 'reducing management costs by 66%'

Ultima Labs, the product development arm of Ultima, said MSPs can now purchase its proprietary automated cloud platform. The company said the IA-Cloud platform will enable MSPs to transform the way they manage and optimise workloads for their customers in the cloud. By leveraging IA-Cloud, Azure management "costs are reduced on average by 66%" and fewer fix issues increase customer satisfaction and retention rates and improve Azure consumed revenues, Ultima claimed. IA-Cloud is designed to simplify, through automation, the daily activities of managing and monitoring Azure cloud environments. Automated management allows for "effortless scaling" and automated workflow takes care of

business as usual, while direct integration with ITSM and native cloud platforms and automated fixing reduce technical issues significantly. "While developing our own automated platforms for our customers we were asked by our partners and Microsoft to build them for other MSPs so that's what we've done," said Scott Dodds, chief executive officer at Ultima. "With remote working continuing apace, MSPs are under pressure to manage new workloads and optimise workloads via the cloud at an unprecedented rate." He added that IA-Cloud is designed to build, monitor, manage and optimise Azure environments for MSPs with enterprise level architecture so that they can focus on customer service and innovation.

## Parallels announces RAS18 preview

Parallels, the cross-platform solutions vendor, announced the immediate availability of the public technical preview of Parallels Remote Application Server18, which it says simplifies end-user computing for service providers (SPs) and enterprises. The new Parallels RAS 18 integrates industry-preferred FSLogix Profile Containers for more robust and proficient user profile management and advanced session metrics, including Parallels' own User Experience (UX) Evaluator, to provide IT admins with superior user session management capabilities. Additional new features, including built-in automated image optimisation and a new web-based management portal, will be added to Parallels RAS 18 when it launches in December.



## Cambs and Peterborough get broadband cash boost

Businesses in rural areas of Cambridgeshire and Peterborough are being urged to apply for government funding to benefit from the fastest and most reliable fibre connectivity - before the money runs out. Connecting Cambridgeshire has secured £500,000

extra "top-up" funding from the Cambridgeshire and Peterborough Combined Authority to help premises with the slowest broadband cover the cost of installing new gigabit-capable connections that will more than double their speeds. The top-up fund-

ing is part of Connecting Cambridgeshire's Keeping Everyone Connected work, using digital connectivity to help businesses and communities to recover from Covid-19, and will be used to rollout fibre broadband to the hardest-to-reach areas.

## Ekinops launches SD-WAN solution

Ekinops a supplier of optical transport and enterprise connectivity solutions, has launched SD-WAN Home Office Connect, a networking solution tailored to support enterprises in overcoming the challenges of managing remote working. Utilising Ekinops' SD-WAN Xpress embedded in an employee-dedicated Ekinops router, enterprises can establish "a secure remote VPN connection" from the employee's location to the branch office. Combining broadband LTE and Wi-Fi connectivity, the solution uses the power of the existing enterprise infrastructure to deliver the same connectivity speed, security and efficiency as onsite. The solution isolates business traffic from personal traffic, enabling corporate rules and applications to be applied to remote connections, without affecting worker privacy, Ekinops said. "In recent months, compa-



nies across the globe have faced the sudden challenge of remotely connecting their employees quickly and securely," said Marc Bouteyre, head of virtualization at Ekinops. "But since flexible working has been a rising trend for well over a decade now, service providers and enterprises alike need a robust, cost-effective and simple solution to support remote connectivity long term." SD-WAN Home Office Connect is based on modular software solution, Ekinops OneOS6.

## Lincoln Rackhouse, Sprott Korea team up for UK data centre purchase

Lincoln Rackhouse, the data centre division of US firm Lincoln Property Company, has partnered with Sprott Korea Investment on the acquisition of 145,000-square-foot data centre in Camberley, Surrey. The deal is a partial sale-leaseback with a Fortune 100 financial institution, which has signed a long-term lease for approximately 50% of the facility. Lincoln Rackhouse will lease the remaining space and capacity to enterprise users or a data centre operator. The deal is Dallas-based Lincoln Rackhouse's first of its kind outside the US.

## Viavi appoints Computacenter

Viavi Solutions has hired IT services firm Computacenter as an elite system integrator in the UK, in an extension of a partnership agreement with SOL Distribution. The two companies are working together with Computacenter to deploy integrated solutions "that deliver real-world value to enterprises across the UK". As part of Computacenter's Partnering for the Future Program, the Viavi network performance, management and diagnostics portfolio has received vendor accreditation and is now part of Computacenter's network assurance portfolio. Existing and new enterprise customers can take advantage of solutions like the Viavi Observer Platform.

## Word on the web...

**Driving application intelligence with visibility, by Bassam Khan, VP product and technical marketing engineering at Gigamon**

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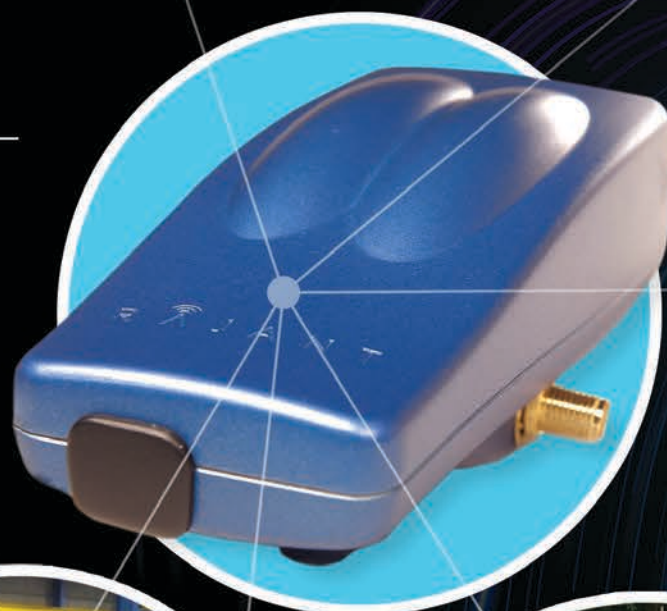
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# Education under cyberattack

Here are some techniques to help institutions protect themselves against those inevitable hacks

In September, the UK's NCSC (National Cyber Security Centre) issued an alert to the academic sector following a spate of online attacks against UK schools, colleges and universities. These coincided with preparations for students' return and prompted the NCSC to urge immediate steps to mitigate the risks, and deal with possible attacks.

Many of these attacks were ransomware, which typically involve the encryption of data by cyber criminals, who then demand money for its recovery. By targeting vital data, infected institutions cannot operate effectively, and services are obstructed. Depending on resilience levels, it can take weeks or months to return to normal.

At least seven higher education institutions in the UK were hit in a global ransomware attack targeting a US-based cloud computing provider. While no bank account, credit card details or social security numbers of individuals were accessed, hackers were allegedly able to steal names, gender, contact information, email address and donation histories.

## Lessons learned

An increase in attacks targeting educational establishments over recent years is down to two primary reasons: financial gain and data theft. Financially, universities and colleges, as well as private and specialist schools, handle student fees and multi-million pound budgets, so money is a strong motive.

Institutions can also hold student, staff and family information, including names, addresses and emails. These are valuable to cyber criminals who could potentially sell the information to third-parties on the dark web or use themselves for impersonation and fraud.

## Changing landscapes

While there is now some on-site teaching, COVID-19 has driven the move to remote learning. This has extended the traditional network perimeter, connecting thousands of remote devices not under control of the IT department and potentially putting more data at risk. The threat landscape for education has radically changed and presents new challenges for IT managers.

According to the Cyber Security Breaches Survey 2020, 41% of primary schools, 76% of secondary schools and 80% of further/higher education facilities have identified breaches or attacks in the last 12 months.

Education is a more challenging environment to protect than most businesses, largely because of a diverse

user base and wide range of personal and unmanaged devices connecting to networks. These devices may also be shared with family, so if they are compromised, or already infected with malware and then reconnected into the school environment, that could lead to a cyber incident or potential breach.

Humans – young and old – are often the weakest link and pose one of the biggest threats to cyber security, whether through error, or something more sinister. Security awareness and education has to be at the heart of any cyber security prevention policy – educating the educators, as well as their pupils and students.

We know about the risks of clicking on suspicious links, but many of us still cannot spot clever phishing scams, so one of the best times to learn is when an error has just been made. Users can be shown what to look out for to help with security awareness and training. It's also important to avoid blame games, so pupils and students can admit to mistakes without fear of repercussion.

## Defence in depth

Education is vital to create a 'human firewall' against attackers, but a layered technology approach to cybersecurity is also vital. Every network needs a strong firewall, but they also need an arsenal of scanning engines providing visibility, threat intelligence, and protection against spyware and viruses, malicious apps, data leakage and zero-day threats.

Then there's stolen or weak passwords. As we all struggle with remembering long, complex passwords, using multi-factor authentication (MFA) is compelling. MFA is simply a system requiring more than one method of authentication to verify the user's identity. This could be a one-time-password sent to a mobile, for example.

With so many students and pupils connecting to networks remotely, it is important to protect each end user device. Utilising tools to prevent attempts to connect to malicious web sites through phishing attacks, as well as preventing access to inappropriate content, is also a key consideration.

## Worries about the Wi-Fi?

As well as being a vital tool for study, many students use open, unsecured Wi-Fi networks to check emails and social media or for online shopping. But it's all too easy for hackers to compromise Wi-Fi and set up their own rogue hotspots that look genuine. Schools, colleges and universities need to provide a Trusted Wireless Environment (TWE), that is fast, easy to manage and, most importantly, secure.

It is more important than ever not to put barriers in the way of education, but the best way to combat the growing threat landscape for schools, colleges and universities is implementing a multi-layered approach to security to monitor, identify threats and improve defences.

*Martin Lethbridge, senior engineer,  
WatchGuard Technologies,*



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# The path to cloud enlightenment

*Dave Glasgow, founding director, director of strategic alliances, IPI*

The events of 2020 have certainly made their mark on the tech landscape.

While Gartner notes an overall decline in worldwide tech spending of 8%, cloud services have seen a healthy surge in uptake.

It's easy to see why. With the world and its dog needing to work from home, access the internet, and connect with customers and prospects over new channels, all in a bid to continue some semblance of business as usual (in a not-so-usual time), cloud-based technologies have unsurprisingly emerged as the front runner in must have technologies for organisations across the world.

The benefits here are clear as cloud provides organisations with the flexibility to adapt to change, an ability to scale easily and 24/7 availability, typically at a lower cost of ownership. All valuable attributes during a period of uncertainty. In fact, McKinsey puts cloud spending at \$29 billion for the first quarter of 2020 – a trend it expects to continue long past the end of the pandemic.

## Revisit your set-up

With cloud here for the long-haul, organisations – irrespective of their starting point – would be wise to review their current cloud set-up to make sure that they are getting the most out of their solution.

Organisations will fall into a number of categories here. Some arrived late, implementing a solution quickly in the rush to keep business – and staff – operating at the height of Covid-19. Others may be well-versed in cloud and are now looking to execute their next stage of cloud enlightenment. Some, may have yet to join the party and haven't been able to get their arms around the concept yet. Whatever the starting point, the key to cloud success lies in the foundations of execution.

## Laying the groundwork

Whether you're re-evaluating current solutions or about to embark on your cloud journey, the following is what we believe is the best path to cloud migration. Do this well and you will benefit from a solution that provides a single, consolidated view across your omnichannel cloud offering – providing a compelling cost proposition.

### Step 1: Analyse

To get the most out of your cloud solution it is essential to understand your current operations – how you interact with customers, the state of your employee engagement, as well as operational practices. You should look at all aspects of operations including: people, process, technology, security & compliance, and KPIs. Compare this to what your vision for the business looks like and this will help you to identify gaps and key areas to address. This will then enable you to draft a roadmap, outlining how to move from the current state to your future desired outcome.

### Step 2: Design

Using your roadmap as a basis, develop a migration plan unique to your business. Phase it so that it mitigates against downtime and disruption to your business. Assess your current system configuration, detailing any integrations, third party applications, and data storage needs that need to be taken into consideration. Include delivery timescales within the design process to ensure the plan is realistic. By taking the time to map out the design of your future cloud system, you will reduce the risk typically associated with projects of

this nature, and be able to identify early on (and smooth out) any hurdles.

### Step 3: Migration

With the plans in place, our recommendation is to take a phased approach to migration – 'start small and extend'. Try to do everything at once and you run the risk of jeopardising ongoing and critical business operations. Instead, get small groups of users utilising core cloud functionality whilst the others remain using the on-premise solution. Then slowly extend the cloud functionality to more users, retaining the ability to 'roll back' to the on-premise solution if

required. Remember, the success of your implementation will depend on staff fully understanding the new solution – so training is essential at this stage.

### Step 4: Review & improve

Cloud strategies don't come to an end when the migration is done. To maximise your return on investment, make sure that you are using your system in a way that drives your business forward. Do this by conducting periodic reviews to analyse success and validate that your performance indicators are aligned to your goals. You will then be able to make informed recommendations about how to adjust your system to better align with

objectives. You should aim to use the cloud platform to its full capability and over time consider how you can extend the use of the system to incorporate advanced technologies that require a cloud-based infrastructure.

Migration into the cloud holds many advantages, not least the ability to operate flexibly, which over the past months has been invaluable to organisations. During a period of uncertainty, where businesses are unsure of what lies ahead, making sure that your cloud infrastructure is robust is a wise move. Taking a strategic approach to implementation, and indeed to reviewing and refining existing solutions, is a solid bet that will serve organisations well in the long term.

HellermannTyton

## The Deca<sup>10</sup> Jack is retiring...

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## What's the main reason behind the growth of SDN?

**Song Toh, vice president, global network services, Tata Communications:** While network transformation is an integral part of an enterprise's digital transformation journey, the recent catalyst for the growth of Software Defined Network (SDN) is the pandemic and maturity of the technology. Businesses were impacted significantly when the countries underwent lockdown for people's safety. Employees started working remotely but most of the enterprises' network infrastructure was not ready for it.

In the past, the legacy network architecture could cope when a limited number of people (typically fewer than 30% for knowledge workers), who decided to work from home at a certain time, were trying to connect to the VPN. Now the case is completely different. With the majority of the workforce working from home, it doesn't make sense for everyone to connect to their office and then to the cloud.

I believe the deployment of agile SD-WAN or zero-trust clients on devices for users to work from home will be one of the next big steps for global network infrastructure.

As countries are looking to recover from the economic impact of the ongoing pandemic, organisations are interested in transforming their network and digital infrastructure to ensure speedy recovery and growth of their businesses. They have realised that they need to be ready for unforeseen situations like this pandemic. A more resilient, secure, and agile network is the only way to work around such uncertainties.

**Fahim Sabir, director, architecture and development, network on demand, Colt:** The rapid pace of change in today's business networks and their architectures are driving demand for SDN as a solution for allowing companies to quickly adapt. Technology drivers like cloud adoption and the dynamic network edge (growth of remote working, IoT, 5G) require networks where bandwidth can be rapidly scaled up and down to meet ebbs and flows in traffic, and where new sites and services can be quickly connected or provisioned. Furthermore, the ability to combine multiple access mechanisms, dedicated connectivity and various grades of internet connectivity allows businesses to build a cost-effective solution whilst still getting the performance they need.

**David Stokes, senior manager, solution marketing, Ribbon:** SDN adds flexibility and network efficiency, as well as the ability to support new high-value services which require deterministic performance. For the reasons above, 5G becomes a massive driver as we move past basic enhanced Mobile Broadband (eMBB) services. In addition, since the IP and Optical transport domains have to work as part of a complete ecosystem in a 5G sliced network, the centralized, autonomous control that SDN provides means the SDN controller can easily work under the control of an end-to-end orchestrator.

**Vishal Barapatre, CTO, In2IT Technologies:** The biggest trend influencing SDN is cloud computing, which underpins a company's digitalisation and Artificial Intelligence (AI) efforts. As a result, the connectedness of AI, Machine Learning and SDN collectively makes the combination so much more powerful in terms of functionality. The increasing adoption of SDN is aligned with the ever-steady rise of cloud computing – as seen during the COVID-19 pandemic as businesses were force to accelerate their digital transformation strategies.

## Why is latency an issue in SDN?

**Vishal Barapatre, CTO, In2IT Technologies:** Latency is not necessarily an issue if the network is combined with new age technologies such as AI and machine learning. Enhanced benefits can be leveraged by these technologies when it comes to routing, traffic identification and load balancing. This improves performance and reduces network latency. For example, AI can identify which applications are used by which branch or site and can implement the best policies for that site. This will improve the overall performance of the network and the user experience.

## How is SDN different form traditional networking?

**Vishal Barapatre, CTO, In2IT Technologies:** When compared to traditional networking, Software-defined Networking (SDN) offers organisations the ability to implement and manage network services centrally. However, this is done whilst using software to control and define equipment in addition to services. It therefore enables simplified management, faster provisioning, automation, programmability as well as many other benefits for data centres and Wide-Area Networks (WAN).

**David Stokes, senior manager, solution marketing, Ribbon:** SDN splits the data and control planes and moves the control plane to a centralised location. This provides benefits

in terms of delivering an end to end, multilayer view of the whole network, thereby allowing traffic engineering tools to operate across multiple layers of the network.

**Fahim Sabir, director, architecture and development, network on demand, Colt:** While traditional networking relies solely on physical hardware, SDN is software-based. It enables users to control resource allocation and provisioning across a network virtually, without the need to change the physical infrastructure. This allows users to adapt their network more quickly and easily to meet dynamic requirements and can result in much more efficient use of the network.

## How does SDN make a network manager's life easier from a technical point of view?

**Fahim Sabir, director, architecture and development, network on demand, Colt:** The capability to remotely control resource allocation across the network is invaluable in this time where companies must react quickly to change to ensure their businesses aren't negatively impacted. SDN can enable near-real-time provisioning of new services to connect new sites, scaling bandwidth up or down across existing services to meet changing traffic volumes, policy-based dynamic traffic routing and path conditioning to optimise network performance, and more.

**Vishal Barapatre, CTO, In2IT Technologies:** Network processes are policy-driven and this means they can be automated. So, you may ask what is the real game change here? Well, if processes are automated then changes can be made on the fly without causing downtime, it increases reliability and enhances functionality.

Furthermore, if you were connected to multiple sites or branches, it could take up to two months to implement a solution or network. With SDN and the influence of current trends, this can now be done in approximately eight hours.

**Song Toh, vice president, global network services, Tata Communications:** SDN allows IT managers to have a centralised view of their company's entire network, helping them with centralised and more controlled management and provisioning of network configurations.

As an enterprise network grows beyond branch to data centre connectivity, with increased SaaS, cloud, and Internet adoption, the architecture complexity has made it difficult for network managers to continue with legacy management practices. SDWAN and SDN help keep things simple, stable, and secure, while at the same time, offer an open and accessible architecture, bring agility and value to the business, and future proof it.

As we look forward, I expect network managers to take advantage of the full capability of SDN/NFV so business users and developers can have an agile and programmable infrastructure to run a business on. Only then can enterprises realise the value of digitising their business and infrastructure."

**David Stokes, senior manager, solution marketing, Ribbon:** SDN provides the network manager a "big picture," end-to-end view of the network for service provisioning, and with

this view better ability for analytics and correlation. In addition, where the services being transported have strict SLAs and/or deterministic requirements, the network can perform network planning and ensure the planned network design and traffic routing is implemented by the network (i.e. the network itself does not choose the routing).

**David Stokes, senior manager, solution marketing, Ribbon:** It's not really an issue as it only tends to happen if there is an obvious difference between real time decisions being made by the control plane and the centralized decision making. However, this is only really an issue when we want dynamic restoration. So, if we are to achieve very fast dynamic restoration, then schemes should be designed by the SDN controller, which use hardware detection and switchover as part of the network design.

## Does an enterprise need to spend substantial amounts of money on new equipment if it wants to use SDN and is the main benefit OpEx savings?

**David Stokes, senior manager, solution marketing, Ribbon:** Deployment of SDN costs much lesser than what enterprises spend on managing their legacy infrastructure. It also allows for faster deployment of applications and reduces the overall cost of deployment. Enterprises usually have an equipment refresh cycle of 3-5 years, though some may run a little longer. At the time of this refresh, it often makes sense to update the network design and replace the equipment at the same time. This is when businesses can adopt a software-defined network without much additional cost. While replacing the equipment is a capital expenditure, it is required to run with up-to-date technology.

So, revamping network design along with the equipment ensures consistency as well as cost-effectiveness.

**Fahim Sabir, director, architecture and development, network on demand, Colt:** No – compared with traditional networking, the capital expenditure required is much lower, as a large portion of hardware is virtualised. Benefits also extend to better network performance, better user experience, greater visibility and control of the network, reduced time to provision new services.

**David Stokes, senior manager, solution marketing, Ribbon:** SDN will not normally work with previous generations of equipment. The equipment has to have open interfaces for reporting and control. This is mainly a software issue – so it depends, just how old the equipment is and whether it can be software-updated to bring it under SDN control. The main advances of SDN are; rapid service velocity – new services, and the connectivity and capacity they require can be implemented extremely

rapidly and improved availability.

**Vishal Barapatre, CTO, In2IT Technologies:** For large organisations such as telcos, financial services and organisations in the healthcare industry, SDN can revolutionise the network and fundamentally change the way these industries operate. Moving away from physical networks toward SDN can drive down costs by reducing management complexity and physical footprint. Centralised management from a single operations centre simplifies implementation and maintenance. Operational costs can also be reduced through centralised management and deployment and troubleshooting network problems is also far easier. Financial services organisations can benefit from improved security, and for healthcare organisations, the ability to prioritise traffic and ensure QoS as well as guarantee constant uptime is advantageous. However, organisations need to understand that the lifespan of networking products is typically three to five years. SDN may be ill suited to businesses whose digital

## SDN is not a security solution, so how is that element managed?

**David Stokes, senior manager, solution marketing, Ribbon:** First of all, SDN will mandate better security of communications from NEs to SDN orchestrator. The SDN orchestrator needs its own levels of security as in any control system for critical infrastructure. Network security is relatively stable; firewalls, IDS/IPS, anomaly detection, encryption – all act on the point of access to the network. These days firewalls, IDS/IPS, anomaly detection can all be provided by VNFs making much easier to update as security vectors change. The management of the VNFs is from a centralized MANO.

**Fahim Sabir, director, architecture and development, network on demand, Colt:** Security features and services can be integrated within an SDN solution, for instance deployed as a virtualised network function (VNF).

**Vishal Barapatre, CTO, In2IT Technologies:** From a security perspective, because the control or management system is now centralised, one breach in security could cause the entire network to fail. Organisations therefore need to ensure they secure their network including each component that surrounds it in order to avoid the network being compromised.

SDN enables changes to be made on the fly from the likes of a mobile device, as opposed to an individual sitting at a control desk making individual or network wide changes. As there are a number of new points where the entire network can be accessed, there is a parallel equivalent number of potential cyber-attack points. A single unprotected mobile phone can be hacked and result in a total takeover of the entire network of the business. Essentially, a business needs to ensure that they have adequate, enforceable security and access management policies in place which define who may make changes, from which secure devices and with what identity controls.

## How does SDN support edge computing?

**David Stokes, senior manager, solution marketing, Ribbon:** To the extent that the edge computing is a resource "attached" to the network, its resources can also be assigned. SDN is a massive advantage for effective edge computing. One of the big advantages of edge computing is that VMs and VNFs can be spun up and down as required to support an application. i.e. if the application requires more compute resource more VMs can be spun-up. If the application needs to add a service, this service can be added to the service chaining. None of this can work unless the transport network is providing the connectivity and capacity required by the edge compute resources – SDN allows this to happen dynamically – without the need to overprovision the network.SDN,

edge computing and NFV all go hand in hand to create a more dynamic, better utilized network able to support more deterministic services with higher availability.

**Fahim Sabir, director, architecture and development, network on demand, Colt:** SDN underpins a true edge computing model where flexibility can be offered not only on the edge infrastructure, but also the connectivity that is used to access it. The combination of these two capabilities results in a powerful solution.

**Vishal Barapatre, CTO, In2IT Technologies:** SDN was not intended especially for edge computing but is an enabler of this technology and will in fact assist by simplifying processes.

## Why should an enterprise deploy SDN?

**Song Toh, vice president, global network services, Tata Communications:** The current situation is a perfect reason for the deployment of SDN. The scalability required to deal with the effects of the ongoing pandemic is often limited by the hardware-centric management model. As a result, the use of software-driven, cloud-native network-as-a-service, and VNF-based multi-service cloud edge is the need of the hour. For example, we rolled out 200+ remote workers in less than six hours for a customer, via our software-centric remote access.

In addition, enterprises need to see the outcome regardless of the choice of technology. They need to realise the faster deployment of network functions, routing policies, which could not be achieved without SD-WAN.

The promise of automation and virtualisation with SDN is so vast that soon an enterprise's network will be

the ladder to the success of their digital transformation strategy. For all their blueprints and plans for successful implementation, if businesses don't put together a network that is ready to enable them, the vision to operate as a digital business would be hard to realise.

**David Stokes, senior manager, solution marketing, Ribbon:** They will get much more value from the network. Resources can be moved and applied wherever and whenever they are required – thereby increasing their network utilization overtime.

**Vishal Barapatre, CTO, In2IT Technologies:** The first consideration before investing in SDN should be the size of the business concerned business and the scale of its network. For example, larger businesses with a higher adoption of digital trends and applications will

benefit most from this technology. SDN will have the biggest impact on large networks geared towards new age technology adoption; this is where user adoption will be highest, too.

The main advantage of SDN is the ability to centralise network provisioning, which means that all network devices can be deployed from a single location without the need to visit each site. SDN is therefore advantageous for enterprises with multiple branches spread across geographies. In addition, all networking tools and systems can be managed from a single application, so the need for multiple software management systems is eliminated. As a result, this simplifies complexity and reduces management costs. However, SDN is not a silver bullet solution for all enterprises and markets, being best suited to large scale networks carrying mission-critical data.



# Smart manoeuvres with traffic

Road traffic is the bane of everyone's life. Here's what's being done to improve it



## Commercial vehicle incident prevention programme

Overweight commercial vehicles are not only a safety issue (they are more likely to be unstable and put more strain on axles and tyres) but they damage the carriageway.

The damage caused by a load is roughly related to the load by a power of four and the passage of one legal HGV is roughly equivalent to the movement of 10,000 cars.

If the drive axle on a 2+3 articulated HGV is illegal, that single axle causes as much road wear as approximately 18,000 family sized saloons – 4th power law.

The lifetime of a road can be severely reduced by illegal HGVs necessitating costly repairs and journey time delays. The number of “active” ANPR/ WIMS sites in the strategic road network has fallen over the last few years and Highways England is looking to establish next generation sites at strategic locations on the strategic road network.

These sites will have the latest quartz sensors and cover all carriageway lanes to monitor the compliance of both heavy and light commercial vehicles.

As well as supporting day-to-day weight and compliance checks, the sites will provide valuable intelligence, including commercial vehicle weights/weight distribution, volumes, vehicle speed, and close following data.

To take forward this strategy a pilot site on the M6 Southbound (J27/J28) has been established with polymer piezo sensors in all lanes and an additional quartz sensor in lane 1. The pilot will run for 12 months and provide valuable intelligence about commercial vehicle traffic on the M6, the benefit of installing weigh in motion sensors in all lanes and the viability of using quartz sensors to accurately record vehicle weight.

The pilot site on the M6 started to collect data in June 2019. Summary anonymised data for each vehicle class is being collected. Lane 1 will collect data from the piezo sensor and separately for the quartz sensor. The site sensors will be calibrated regularly and also checked against the DVSA weighbridge at the Cuerden check site.

The aim at the end of the 12-month pilot is to have a clear picture of the ANPR/WIMS technology and supporting processes that Highways England and DVSA should be installing at key locations on the strategic road network.



## Sheffield gets smart

Waste bins that say they're full, grit bins which tell you they're empty, drains which ask to be cleaned and trees which demand water.

It sounds futuristic, but the technology is available, and it's arrived in Sheffield.

The city's highways contractor, Amey, will have created a digitised public highway network for Sheffield, with thousands of individual sensors communicating wirelessly via smart sensors deployed to the cities assets.

Amey, which operates Streets Ahead, the city-wide highways maintenance contract, is positioning itself at the forefront of smart city technology to deliver a more efficient service to the city of Sheffield via a platform provided by smart city operator, Connexin.

Using an Internet of Things (IoT) foundation for its digital strategy, Amey will use Connexin's CityOS platform to integrate, view, manage and respond to information to improve highway maintenance services and revolutionise service delivery across Sheffield, from Stocksbridge to Mosborough.

Connexin's CityOS platform is described by the firm as the “Operating System of a Smart City”, is being delivered in partnership with Cisco and Quantela and will digitally connect essential highway maintenance services and inform operatives about the condition of street assets in real time.

For example, when to; empty high street bins to avoid overflowing, water trees for preservation, refill grit bins ready for icy conditions and clear gullies to reduce the risk of flash flooding. By alerting operatives, Amey's maintenance managers will always be one step ahead.

Another huge benefit to the system will be a reduction in air pollution, with staff making fewer journeys across the city and being able to avoid spots where air quality levels are poor, to reduce the impact.

As a result, residents of Sheffield will benefit from a better quality of life with cleaner and safer living conditions and improved maintenance services which are delivered in a more efficient, sustainable manner, contributing to the city's Clean Air Strategy.

“This is very much about us working better and smarter towards a greener and cleaner future for Sheffield,” comments cabinet member for environment, street scene and climate change at Sheffield City Council, councillor Mark Jones. “By investing in this new initiative, our contractors will be undertaking fewer journeys, which in turn will result in a reduction in energy consumption, pollution and congestion, whilst ensuring our streets are kept clean and our bins are emptied using a more efficient and effective approach.”



## Telent keeps traffic flowing in Kent

Telent became the proud recipient of a five-year extension of its Kent County Council traffic signal maintenance contract. Used by thousands of drivers, cyclists and pedestrians every day, the county's traffic signal system is vital for keeping people safe across the region.

The extension will run from April 2021 until March 2026 and follows on from the existing contract which started in April 2016.

Initially awarded as a traffic signals and ITS maintenance contract in 2006, Telent's maintenance responsibilities now involve assets including variable message signs, vehicle actuated signs and speed indicator devices which are vital to ensuring the roads are as safe as possible. The contract also includes the supply and installation of new sites and refurbishments.

“Close Customer Collaboration is key in everything we do at Telent and our work with Kent County Council has been a real precedent for our approach to other projects,” says Nigel Weldon, business development director – Highways at Telent. “Having such a close working relationship and a dedicated team with deep local knowledge of the area has meant we've continually hit the council's Key Performance Indicators at a rate of 100% and corrected 99.9% of traffic signal faults on time throughout the contract.”

The Telent team is comprised of 15 staff from various roles across the business. Over the years, the two teams have co-located in the Kent County Council Highways Depot meaning communication has been efficient and immediate. Emergencies can be dealt with instantly and Telent can address urgent issues remotely if the team is unable to visit the live site.

Michael Payne, Cabinet Member for Highways and Transport at Kent County Council, adds: “The contract extension is testament for the high standard of service provided to the public of Kent during the past five years, and I hope that the excellent working relationship and performance will continue during this period. Our priority is to ensure that the county's transport system operates at a level of safety and quality that our residents expect. This contract extension, partnering us for a further five years with Telent's dedicated team, means we can continue doing so.” continually hit the council's Key Performance Indicators at a rate of 100% and corrected 99.9% of traffic signal faults on time throughout the contract.”



## Using 120 billion IoT sensors to improve London traffic

London has some of the worst traffic on the planet, according to the 2019 INRIX Global Traffic Scorecard. It identified, analysed and ranked congestion and mobility trends in more than 900 cities, across 43 countries and found that the UK's capital ranked as the most congested city in the country where the average commuter sat idle for 149 hours per year to congestion.

Congestion costs drivers, businesses and the UK economy billions of pounds each year,” says Trevor Reed, transportation analyst at INRIX, said: “With the rising price of motoring, consumers are getting hit hardest.”

It comes as no surprise then that Transport for London (TfL) wanted to explore innovative uses of traffic data to find new ways to reduce road congestion. To make this happen, it invited Datatonic and some of London's brightest data teams to a week-long, traffic-beating hackathon.

Designed to gather data from all over London, TfL's Urban Traffic Control (UTC) system collects car activity records via 14,000 individual road sensors located throughout the city. We were given three-months' worth of these records to create our model — totalling over 120 billion data points.

We began by building a live visualisation of driver activity in the city, converting TfL's raw sensor data into common traffic engineering metrics — occupancy and flow, and using them to infer the volume, frequency, and location of traffic throughout the city, at any given time.

Next, we designed a deep learning model capable of accurately predicting traffic conditions 40 minutes into the future. We did this by identifying the traffic conditions associated with congestion and using machine learning to understand and identify patterns in the vast dataset.

In the end we built a robust model to predict road congestion independent of road network layout, enabling proactive identification (and potentially prevention) of congestion, quickly respond to road incidents, and better coordinate the flow of rush-hour traffic on a daily basis — with the potential of saving countless travel hours for drivers all over London.





# The communication the customers want

Neil Hammerton, CEO & co-founder, Natterbox

Communication is diversifying and customers are now using more channels to communicate with others than ever before. And businesses are striving to meet them there.

If you had asked a CRM specialist in 2015 whether businesses would soon be communicating with customers via platforms like TikTok, I can bet that most would say no. Yet, in 2020, 34% of businesses across the US and UK are using TikTok to communicate directly with customers.

Further to this, according to global research by the CMO Council last year, 28% of respondents said they wanted a company to be "where I want, when I want, ready to share and communicate how I want." A further 59% supported this for when they "really need something." Omnichannel communication, in other words, is now the norm.

With businesses now using an array of channels to interact with customers, the question becomes one of potency. A wider surface area to cover could mean a diluted message. It is therefore vital that businesses counteract this by striving to unite all channels under one banner. In the customer experience arena this has largely become known as 'unified communications'.

We now live in a world where we have several generations favouring different communication platforms. For example, millennials regularly use the likes of WhatsApp and Snapchat, while older generations still prefer to speak to someone over the phone or use email.

The buyer dynamic has also changed. In our world of mobile apps, social media, and an 'always on' culture, vast amounts of information is at our fingertips. This has raised our expectations when it comes to self-service and responsiveness. When you consider the rise of digital brands such as Amazon, Uber, Netflix, and Airbnb, this sentiment rings especially true.

Speed and quality of service are now vital. As a result, businesses need to serve customers across a wider range of channels than ever before to meet demand. But using multiple channels of communication means any agent a customer engages with is probably going to be a different person each time. This threatens to create disparity for businesses in terms of consistency and personalisation, and frustrate customers who are seeking effective assistance, where resolutions can be found via their first interaction.

Evolving technology has already transformed the communication world over the past five years. Online chat, for example, has been developed with front-end artificial intelligence (AI) filtering, which comes into play before a human needs to be engaged. A breadth of solutions are also being developed to tie multiple channels together into an omnichannel agent view. However, the challenge for many businesses today is that these omnichannel solutions do not work with every channel. Perhaps more importantly, it is proving difficult to make existing solutions affordable or easy to deploy.

The main challenge for businesses then is to determine the channels they will offer to customers. They must develop a customer persona and decide which platforms will address 80-90% of communication volume from their customer profile. It's vital that businesses only implement channels they can deliver a consistent, high quality service across – all too often, businesses spread themselves too thinly and don't deliver.

These channels need to be tied together

into one homogeneous customer service strategy. Customer data should be shared between them so all tickets and relevant information are presented to the agent alongside the current customer interaction. And of course, organisations must ensure they have the resources to train their customer service agents to make use of this integrated approach. For example, too often the default is to always rely on the channel communication was initiated on. Why not show agents how to switch to the most appropriate channel for each situation? While a customer may have raised a concern over email, it may be best to reply with a phone call to avoid the risks of written

communication such as misinterpretation.

New channels are constantly entering the market, from Snapchat to WeChat.

In response to this trend, we can expect omnichannel business offerings to widen their integrations and allow agents to switch more easily between channels. For example, a customer Twitter DM about a broken device can be switched to a platform for video share to view the issue. The channel can then transition to voice so the agent can guide them through a fix – a powerful ability.

The promise of 5G will enable the increased use of more valuable channels like video chat as bandwidth barriers are removed. This will be vital as customers move

to new communication platforms (perhaps some that we don't know about yet) and remote working becomes more prevalent.

Ultimately, businesses must recognise that the communications frontier is ever expanding. The customers you're trying to reach may be using a channel you've forgotten about. While there are obvious challenges to using multiple channels, businesses must remember three key things: customer experience impacts loyalty and therefore revenue; a customer's voice is only truly heard when it's on a channel of their choosing; and unification across channels is critical to serve the consumer of tomorrow.



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# eSIM and the IoT: why eSIM technology requires a managed service approach

Jon-Paul Clarke, leader of the business development team at Wireless Logic, explains what the much-talked-about eSIM technology requires to be successful

For businesses operating in the world of cellular IoT, it has become increasingly clear that traditional SIM cards can often restrict opportunities for connectivity and flexibility, especially for large scale deployments. With customers locked into one mobile network on a standard SIM card, it's inevitable that the only way to change networks is to change the SIM itself. In reality, this process is either operationally impossible or prohibitively expensive for globally distributed IoT devices, or those devices that are difficult to access.

This is where the concept of eSIM (or eUICC) comes into its own. Many people use these terms interchangeably, but they have different meanings. UICC, also known as an Universal Integrated Circuit Card, is a small plastic card that houses the SIM, plus other data, and ensures users can access the mobile network. eSIM is simply an embedded SIM card and has the ability to store and accept multiple network profiles and change from one to another remotely based on a set of defined rules. To keep things simple, we'll use the term eSIM when referring both to the physical card and the technology for storing and provisioning multiple profiles remotely.

## Bringing scalability and operational efficiency to global deployments

eSIM solutions have the potential to bring cost efficiency and new features aimed at improved flexibility for large IoT projects. For OEMs and solution providers, this technology can help increase scalability of global deployments with the ability to provision different operator profiles depending on where a product ends up in the world. This means customers can leverage local connectivity rates and avoid expensive roaming charges. eSIMs also open up the potential for a far more streamlined user experience for connecting a device at the point of use. Devices can come connected, just requiring a simple activation to connect to the best network in that location. This gives OEMs and solution providers a direct relationship with end users and even generates new ongoing revenue streams for them.

Most importantly, eSIM technology offers huge benefits when distributing global IoT applications, particularly large-scale deploy-

ments, such as global Smart City solutions, eScooters or automotive installations. With this future-proof technology, OEMs and solution providers can easily commit to global deployments with the confidence that they are protected from the impact of long-term network changes and service termination. eSIM global profiles can also be managed under a single SKU, bringing huge operational efficiency for global deployments. What's more, eSIMs minimise the risk from mobile network operators (MNOs) unilaterally imposing restrictions such as changes in permanent roaming agreements. As network loyalty is no longer guaranteed, the technology offers the freedom for customers to choose a solution that works best for them at the end of a contracted period.

## Overcoming the challenges

While eSIMs address a number of customer pain points, the industry has some challenges that need to be addressed before the full benefits can be realised. Traditional SIMs are owned and operated by MNOs, giving them control over pricing and other aspects. However, eSIM technology shifts that control directly towards the customer. MNOs may also be concerned with the possibility of lost revenue as it's much easier for customers to switch providers, which may result in some reluctance to make their subscription profiles widely available. However, this is likely to change as we see large IoT deployments taking place with buyer power allowing eSIM service providers or OEMs to negotiate for better profile control in the deployment and adoption of IoT technologies.

Managing commercial and operational relationships across several MNOs can also be complicated and time consuming. With a traditional 'fixed network' SIM, OEMs would use Connectivity Management Platforms (CMPs) to manage the MNO SIMs, whereas a global eSIM IoT deployment that involves multiple MNOs will require a different approach from OEMs. In the medium term, IoT connectivity providers need to collaborate with MNOs to remove that complexity. They have the relationships, expertise and experience to manage such processes, as well as navigating the complexity of negotiating multiple eSIM profiles and



*eSIM technology is the key to revolutionising large-scale IoT deployments - particularly for OEMs and solution providers. It promises great potential for streamlining connectivity and ensures devices can be flexible to future network changes or disruptions*

remotely provisioning MNO profiles.

Consumer eSIM solutions, such as those used by Apple, have laid the groundwork for opening up IoT eSIM solutions. Today, there are many of these propositions already available, with many companies selling a 'future proofed' solution. Unfortunately, many of these lack the range of operator profiles, network provisioning process and 24/7 support to back it up. In reality, today very few users have actually already swapped to a different operator using eSIM technology. It's now time for the industry to consider how it can deploy these solutions realistically, with a managed service approach that is capable of providing constant support across multiple global MNOs to ensure that the solutions deliver on the promises of flexibility, global scalability and a frictionless user experience.

## Developing a managed eSIM solution for OEMs

As with any technological transformation, customer trust will grow as there are more and more live deployments and people can see eSIM success in real life scenarios.

They are set to be a key facilitator of global IoT growth and remote management can make the technology an attractive alternative in the ever-changing business environment. Even though eSIMs are often complex to coordinate, with the right fully managed service approach, they can deliver major returns in operational efficiency, flexibility, performance and usability.

In effect, eSIM technology is the key to revolutionising large-scale IoT deployments - particularly for OEMs and solution providers. It promises great potential for streamlining connectivity and ensures devices can be flexible to future network changes or disruptions. At Wireless Logic, we believe eSIM solutions will be most effective as an end-to-end managed service proposition, across the deployment lifetime of a SIM. Ultimately, IoT project owners do not have the time, expertise or resources to manage remote provisioning and securing new profiles - it's up to MNOs and connectivity providers to remove this burden and provide 24/7 support to help ensure the success of their projects.

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# Living on the (computing) edge – five top tips

Alan Stewart-Brown, VP EMEA, Opengear

With the exponential increase in IoT devices across the globe, data is set to continue to grow in the coming years. From mobile devices to street lights and buildings, the proliferation of use cases has led data centres to be overloaded by large volumes of information being transferred. This is where edge computing comes in. Smaller local sites process data closer to where it's needed, at the 'edge' of the network, before being sent back to a cloud-based data repository, colocation facility or data centre.

Without doubt, edge infrastructure can provide a variety of benefits across aspects such as security, speed, cost and scalability, but with a range of edge computing products and options on the market, it can be difficult to know what to consider when investing in a new solution. Check out these 5 top tips to consider.

## Single out your security

With an increase in IoT devices comes an enhanced risk of cyber-attack across an expanded network. It's vital that businesses take this into account to ensure they don't fall victim to a potentially catastrophic breach. Investing in network-resilient edge

## PRODUCTS

The **Cradlepoint E3000** series, the firm claims, is the industry's first 5G-optimised, all-in-one wireless edge router for enterprise branch deployment. The clean-slate design optimises performance and investment protection, enabling customers to deploy a wireless wide-area network (Wireless WAN) today using the latest LTE and Wi-Fi technology and seamlessly upgrade to 5G in the future. Cradlepoint further claims the coronavirus pandemic has fueled an already growing demand for agile and rapidly deployable wireless WANs based on LTE for primary connectivity. Packaged as part of the Cradlepoint NetCloud Enterprise Branch Service, the E3000 series utilises the latest multi-core, wireless system-on-chip technology to deliver compelling price/performance relative to traditional wired-branch routers. The all-new, all-in-one design provides a mid-sized, enterprise-class

infrastructure with console servers at remote sites is key. Distributing processes across different devices makes infiltration of a network a much more difficult task for a cyber-hacker and transferring information through secure connections such as MPLS further enhances security and enables easier compliance with security standards.

## Optimise for speed

Edge computing infrastructure that prioritises speed is crucial to ensure that data is processed quickly and efficiently. It's vital to consider the IoT applications that will need to use the edge computing provision. For applications which process data for quick decision-making such as autonomous vehicles, investing in infrastructure that allows for higher latency reduces any delay in data transfer to the end device. Ultimately, this will improve the end user experience and make the difference in terms of customer satisfaction.

## Don't put resilience on the backburner

Looking for scalability in an edge computing

solution? You definitely should be! Investing in infrastructure that doesn't have built-in network resilience for scaling could lead to any resulting outages not being addressed quickly, and while network redundancy can make a difference in terms of preventing total downtime, it's not able to fully fix a network when disaster strikes. Avoid focusing purely on redundancy and utilise an edge solution that also integrates resilience. Edge computing infrastructure that features a scalable Smart Out-of-Band management solution enables secondary dedicated access to network devices, separate from the primary network, minimising the risk of extended downtime.

## Choose a cost-effective solution

Businesses can be prone to the mistake of purely investing in costly data centre infrastructure, which can be an expensive outlay, and copying and processing large amounts of data from one system to another can result in strain on bandwidth and resulting expenses. Investing in the right edge computing infrastructure allows data to be filtered at the origin source,

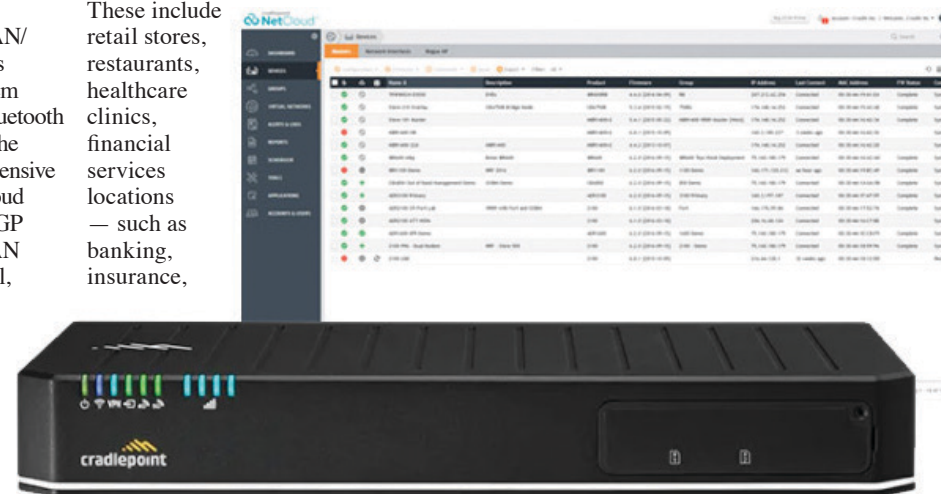
without it having to return to the data centre. Edge computing solutions that are utilising small, remote locations usually means that engineers aren't on-site to remedy any issues, access to a centralised software system allows any problems to be monitored and fixed remotely, saving further costs and increasing staff efficiency from not having to send engineers to site.

## Integrate edge computing into your network

Putting a robust and reliable software-defined wide area network (SD-WAN) in place is key to the effective implementation of an edge computing solution. Choosing an edge product solution with out-of-band deployment capability ensures the wider SD-WAN can continue to operate in the event of other circuits being unavailable, ensuring that the always-on requirements of the edge are always met. Choosing the smartest edge solution for your network can ensure the best and most optimal use of data, ultimately providing competitive advantage in an increasingly fragmented market.

wireless connections with robust WAN and LAN networking and security capabilities. These include retail stores, restaurants, healthcare clinics, financial services locations — such as banking, insurance,

and tax preparation — construction sites and field service offices. [cradlepoint.com](http://cradlepoint.com)



Dell Technologies has a very long and rich history of innovation in providing data centre equipment and different services to enterprises. In a series of product announcements made earlier this year, it became apparent that Dell views its data centre "expertise" and existing customer relationships extending out of centralised data centres to central offices, enterprise campuses and even cell sites. These are all potential locations for edge computing infrastructure. Dell's edge products, include:

- Dell EMC PowerEdge XE2420 is a ruggedized "short-depth" server designed to fit more easily into the challenging physical environments that are part of the edge.
- Dell EMC Modular Data Center Micro 415 is tailored to fit customer requirements but includes IT, power, cooling and remote management.

Dell said it's smaller than a parking space.

Dell EMC iDRAC9 Data-center software is a remotely deployable tool for analysing streaming data. Dell EMC Streaming Data Platform is a scalable tool for data ingestion and storage. Matt Baker, senior vice president of strategy and planning at Dell Technologies, says that the company's portfolio reflects that edge computing has its own unique challenges such as constrained bandwidth and environments. However, he adds that edge computing is



also part of a data processing continuum that includes cloud and data centre.

"Edge, core and cloud have to operate seamlessly with each other as part of a broader system," explains Baker. "But edge computing is defined by constraints and is more complicated than the data centre." [delltechnologies.com](http://delltechnologies.com)

Schneider Electric has expanded its IP and NEMA rated EcoStruxure micro



data centre R-Series for rugged indoor environments. The company said the new micro data centres offer a faster and simpler way to deploy and manage edge computing infrastructure in challenging indoor spaces for industrial use. Schneider says the EcoStruxure micro data centre solutions are configurable, pre-packaged, enclosed rack systems that include power, cooling, security and management. Advanced automation technologies come with significant cost-saving, safety, and productivity benefits, but to reap the benefits, IT must

be located closer to the end point — in spaces that weren't built with IT in mind," said Jean-Baptiste Plagne, vice president offer management, rack and edge systems, energy management, Schneider Electric. "To ensure reliability of IT networks on the factory floor, we are introducing the new IP and NEMA rated R-Series EcoStruxure Micro Data Center. These micro data centres provide a solution that's simple-to-deploy and simple-to-manage for IT and industrial channels and for end users like manufacturers and distributors." The six new models are available in 16U, 24U, and 42U sizes will be available in Europe early next year. [se.com](http://se.com)

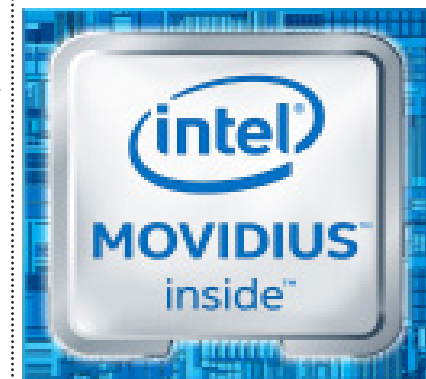
The Iceotope, Avnet and Schneider Electric partnership to jointly develop innovative, chassis-level immersion cooled data centre solutions has been joined by Lenovo to deploy its ThinkSystem SR670 servers in a highly scalable, GPU-rich, liquid-cooled Micro Data Centre solution. Sealed at chassis level, the new solution enables Artificial Intelligence (AI), Machine Learning (ML) and high performance computing (HPC) workloads to be deployed in close proximity to the location of data generation and use regardless of how harsh or hostile the environment. The Lenovo ThinkSystem SR670 2U rack

server "delivers uncompromised" HPC performance with support for up to four double-width GPUs per server. Integrating the servers with Iceotope's Ku:l Chassis eliminates the requirement for any air cooling, delivering game-changing efficiency in energy



consumption. >95% of the heat is captured and rejected via an in-rack Heat Rejection Unit (HRU) (5kW solution) or dedicated external HRU (46kW+ scalable solution). Iceotope's new Ku:l Micro DC solution enables many industry-standard servers to be liquid cooled and deployed outside the data centre. The new solution is offered in two scalable configurations: Ku:l Micro DC (Small) <5kW and Ku:l Micro DC (Medium) 46kW+. [iceotope.com](http://iceotope.com)

Intel, for the most part, has been at the forefront of chip manufacturing. However, it is now very much a player in edge computing, too. The Silicon Valley giant's Movidius vision processing units or VPUs are designed to meet the demands of computer vision workloads with efficiency. They couple highly parallel programmable compute with workload-specific hardware acceleration. What's more, Movidius VPUs enable intelligent cameras, edge servers and AI appliances with deep neural network and computer vision-based applications in areas such as visual retail, security and safety and industrial automation. [intel.co.uk](http://intel.co.uk)



This is Fujitsu's IoT Solution INTELLIEDGE A700 – see what it did there? The company claims that the product comes replete with the right mix of hardware components and software solutions that enables IoT applications. This is particularly useful for organisations looking into optimising and improving operational efficiencies by using AI, deep analytics and machine learning, while gaining better insights into their businesses.. [fujitsu.com](http://fujitsu.com)



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Tim Mercer, CEO, Vapour Cloud

## What is the best thing about your job?

Choice. When I founded Vapour back in 2013, my life was – perhaps unsurprisingly – just ‘work, work, work’. I held almost every role within the business, and my weeks were defined by what I needed to do to make the organisation a success.

Fast forward to 2020, and I feel lucky to have been that person, but I'm also now thankful to have a talented team around me. This means I now enjoy more freedom to do the bits I want to, either in the office or at home, and I have more ‘focus time’ to be creative. I can concentrate on the direction of the business with a more objective pair of eyes, which perhaps sees me take different risks and experiment with different approaches, when it comes to things like the people we hire and the identity of our brand.

## Who has been your biggest inspiration?

My kids. I think part of being a good dad is acting as a strong role model. For me, this isn't about leaving legacies – although they'd be welcome to come into the company if they wanted to, when it comes to mapping out their own careers. But my son and daughter act as my barometer – they give me a sense of focus during the more pressured weeks and have certainly made me think more about what truly matters. Children make us far less selfish, I believe.

## What is your biggest regret?

That I didn't do it sooner – isn't that everyone's? It's easy to say in hindsight perhaps, and looking back, the market wasn't ready for a cloud-only technology firm in 2013. So, if I'd taken the plunge even earlier, it could have been a flop.

But the corporate rat race wasn't for me and I think if I'd had the confidence to get out sooner, I could have made it work at a younger age. However, I was afraid of failing. I had a senior job with a comfortable income and that was difficult to give up.

This is why I try to mentor my colleagues now, so that in five years' time – for example – they feel ready to give their own business a try, I'd support them wholeheartedly. For me, that's a sign of a job well done, from an employer's perspective.

## If you had to work in a different industry, what would it be?

A close second answer to the previous question, is that I do regret not becoming a para. I began my career in the military and I was a great soldier. I had the opportunity to join the Parachute Regiment and, for various reasons, I turned it down. I look at some of my peers now, such as those who went on to serve in the Special Forces, and I know I could have made it. So if I had my time again, I'd go down that path.

## Who was your hero when you were growing up?

For the same reason people say you should never meet your heroes – because they'll let you down – I don't have them!

This doesn't mean I don't respect lots of different people from all walks of life – I enjoy reading about businessmen and women who have innovated beyond the possibility, to athletes who have demonstrated unparalleled discipline to get to the top of their game.

## The Beatles or the Rolling Stones?

Cue the controversy, but I really, really don't

like The Beatles. I don't understand what all the fuss is about! So, of the two, I'd say the Rolling Stones. I like a good band, but a group such as INXS is a bit more me.

## What would you do with £1m?

Probably what everyone should do – spend a bit, save a bit and invest a bit. I'd enjoy some adventures with the kids and put some aside for when we need it. I'd split the rest between some safe investments such as a couple of houses, and then I'd push boundaries with some riskier tech stock.

## Which rival do you most admire?

I think our industry is actually quite staid, so at the moment I'm more wowed by companies that have grown and followed their instincts such as ANS in Manchester. This organisation has moved into a fully public cloud model which isn't an easy decision to make, but it seems to be the right one.

## What's the weirdest question you've been asked in an interview?

It takes a lot to shock me, so I honestly can't recall a question that's made me think – well

that was inappropriate! I remember when someone asked me to sell a pen though. I thought, does this sh\*t really happen?!

## If you could change one UK law, what would it be?

I personally think the various levies imposed on drivers – from road tax to parking fines – are outrageous, even more so for people such as NHS workers. There seems to be too many laws to mention that, I feel, are outdated and no longer reflect how swiftly the world is evolving.

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GXT5-5000IRT2UXLE	5U	1-Ph	5kVA	(6) C13 & (2) C19	£ 1,868.00
GXT5-6000IRT2UXLE	5U	1-Ph	6kVA	(6) C13 & (2) C19	£ 2,180.00
GXT5-8000IRT2UXLE	5U	1-Ph	8kVA	(4) C13 & (4) C19	£ 2,827.00
GXT5-10KIRT2UXLE	5U	1-Ph	10kVA	(4) C13 & (4) C19	£ 3,409.00
GXT5-16KIRT2UXLE	9U	1-Ph	16kVA	Hardwired	£ 5,083.00
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