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HOW THE EXPLOSION IN CLOUD
ADOPTION REQUIRES A RADICAL
RETHINK ON DATA CENTRE
SUSTAINABILITY

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DO WE NEED TO
CONTROL EXACTLY
WHO CAN SPECIFY,
CONFIGURE,
INSTALL AND
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Upping the ante

CHALK HILL MEDIA

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▶ It would appear that last month's Question Time, which examined whether existing trade bodies and associations need to 'up their game', drew a tremendous response and I've spent a great deal of time listening to various views on the subject. It will be interesting to see whether it acts as a catalyst for change, or whether the status quo will prevail.

No one likes excessive red tape and bureaucracy and the network infrastructure sector has generally preferred to self-regulate. This is not altogether surprising but the fact is that anyone can set himself or herself up in business as a network infrastructure integrator without any qualifications, certifications and accreditations. Given that an end user would be prepared to employ someone like this, it would then be possible for he or she to work on mission critical infrastructures.

As governments across the world are starting to take notice of the importance network infrastructures in all areas of modern life, some have mooted that external regulation could happen in the future, so it could make sense for us to 'get our house in order'. To look at this issue in more depth we've asked a panel of experts to offer their opinions and you can read this month's Question Time by **CLICKING HERE.**

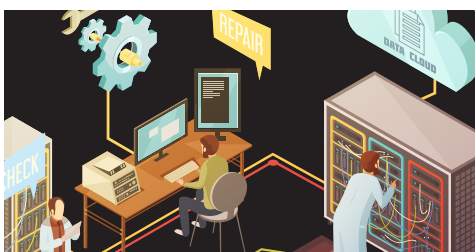Data centre sustainability is another issue that continues to dominate the industry. With cloud adoption expected to only accelerate over the next few years, Roger Tipley of The Green Grid looks at how the explosion in cloud adoption will require a radical rethink on data centre sustainability. **CLICK HERE** to read his views on the subject.

Finally, after dedicating 40 years to the development of structured cabling as we know it today, Alan Flatman recently announced his retirement. As someone I have known and admired since I joined the industry, it gave me great pleasure to conduct an 'exit interview' with him, where he reflected on his career, his achievements and the legacy he leaves behind. **CLICK HERE** to read it.

Don't forget that if you'd like to comment on any of these subjects, or anything else to do with enterprise and data centre network infrastructures, I'd be delighted to hear from you.

R.Shepherd

Rob Shepherd Editor

Inside_Networks
THE NETWORK INFRASTRUCTURE E-MAGAZINE

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Outdated IT systems will hold back firms in the big data economy

Big data is transforming the way businesses compete and operate, with 55 per cent of business leaders reporting that data has disrupted their operations in the past year. However, TmaxSoft has warned that legacy IT systems, which make managing data and making it actionable, are preventing many businesses from entering the big data fray.

Such is the pace of change that data is now considered the most valuable resource in the world, revolutionising what we know about consumer behaviour and offering completely new ways of working. However, many organisations lack the processing power, storage capacity, applications and tools in their legacy IT systems to make the most out of these opportunities, as they are not able to draw upon different repositories of data and derive insights from them in real time.

According to Carl Davies, CEO of TmaxSoft UK, organisations that do not take early strides to overcome these challenges are likely to face greater difficulties further down the line and will struggle to compete in the emerging economy. He commented, 'Legacy systems, such as mainframes, have worked extremely well in closed systems for decades, but technological developments such as big data, are forcing firms to think differently about how they manage their data. To realise the benefits of big data you've got to be able to mine different repositories of data and make it actionable in real time, which is a world away from the batch processing typical of mainframes.'

LMG introduces on-site certification audits

LMG, one of the earliest adopters of the Certified Network Cable Installer (CNCI) certification, has taken steps to further ensure quality of installation on-site. LMG has made a significant investment in CNCI certification, putting it at the very heart of its business and has now reached a point where the vast majority of its technical workforce holds the accreditation.

Ieuan Rowe

Consequently, LMG has committed to having at least 50 per cent of its technical workforce CNCI certified on all project sites at all times. To demonstrate its confidence in its ability to fulfil this objective, the company has engaged CNet Training to conduct unannounced certification audits on its sites. This is in addition to providing customers with unrestricted access to training records and encouraging all potential clients to review LMG's internal and external training records.

Ieuan Rowe, managing director at LMG, said, 'We believe that this is the next significant step for our industry in ensuring that we create and maintain the skill sets required. We will also be encouraging our competitors to follow this path.'

Gartner claims global IT spending will grow 6.2 per cent in 2018

Worldwide IT spending is projected to total $3.7tr in 2018 – an increase of 6.2 per cent from 2017 – according to Gartner.

'Although global IT spending is forecast to grow 6.2 per cent this year, the declining US dollar has caused currency tailwinds, which are the main reason for this strong growth,' said John-David Lovelock, research vice president at Gartner. 'This is the highest annual growth rate that Gartner has forecast since 2007 and

John-David Lovelock

would be a sign of a new cycle of IT growth. However, spending on IT around the world is growing at expected levels and is in line with expected global economic growth. Through 2018 and 2019, the US dollar is expected to trend stronger while enduring tremendous volatility due to the uncertain political environment, the North American Free Trade Agreement renegotiation and the potential for trade wars.'

Excel gets a footprint in the USA

Excel Networking Solutions has appointed Paul Mills as its director of sales for the North America region, widening its international footprint as a worldwide brand.

Nadeen Tisi, international sales director at Excel Networking Solutions, commented, 'Positioning the Excel Networking Solutions brand in the Americas is not only a massive step forward in terms of our international status, but also a financial and impressionable message to all our customers and competition that we are a truly global brand.'

This is not the first time Mills has worked with the company. In 2005 he was the

Paul Mills

sales manager for Mayflex, owner of Excel Networking Solutions. He has since gained a wealth of experience in the field with his own installation company in the UK, as well as working in America for a number of years within the structured cabling and distribution industry.

Talking about the role and the challenges to come, Mills commented, 'The Excel Networking Solutions brand has continually grown in Europe and the Middle East, giving a solid foundation to support further growth and become a key player within the USA.'

Wi-SUN Alliance announces 60 per cent growth in global membership in 12 months

Wi-SUN Alliance has seen a significant increase in its membership by more than 60 per cent in the last year. According to the latest figures, 70 new members including product vendors and utility companies, have joined the consortium in the last 12 months, taking total membership figures to 180.

Representing Asia Pacific (Australia, China, India, Singapore, Japan, Korea, Taiwan), the Americas (Brazil, Canada, USA), Europe (Denmark, Finland, France, Spain, Sweden,

Phil Beecher

UK) and South Africa, Wi-SUN members include globally recognised companies, as well as national companies and utilities, offering more than 80 products between them. According to Navigant Research there are more than 89 million Wi-SUN capable devices worldwide.

President and CEO of Wi-SUN Alliance, Phil Beecher, commented, 'Wi-SUN is the leading technology in large-scale outdoor networking and the most widely deployed Internet of Things (IoT) technology worldwide – and this is reflected in our growing member base.'

CNet Training's technical education programs approved by IEEE

The Institute of Electrical and Electronics Engineers (IEEE) has approved CNet Training's technical education programs. Those who attend CNet Training's programs, and who are IEEE members, benefit from gaining IEEE Professional Development Hours (PDH), which result in IEEE continuing education units (CEUs). Not only will those who successfully complete CNet Training's programs receive the official certification, they also have the option to apply for an IEEE CEU certification, making it even more credible.

All of CNet Training's programs from its Global Digital Infrastructure Education Framework are approved by the IEEE, from qualification Level 3, right through

Andrew Stevens

to the world's only Masters Degree in Data Centre Leadership and Management, which is a Level 7 program.

CNet Training's president and CEO, Andrew Stevens, said, 'Our programs are of huge value, but we are delighted that they are IEEE approved too. Having this approval makes them even more valuable and sets them apart from the rest whilst providing extra benefits to the IEEE members. Now, those who attend CNet Training's programs can benefit from being awarded CEUs, which will be instantly recognisable by those in the industry. It also demonstrates a commitment to continuing education, demonstrating their efforts to ensure their skills remain professionally certified and current.'

Vertiv defines four primary edge archetypes and their technology requirements

Vertiv has released Defining Four Edge Archetypes and their Technology Requirements, a global analysis of network edge use cases, resulting in the identification of four main archetypes for edge applications and the technology required to support them. The four archetypes are data intensive, human-latency sensitive, machine-to-machine latency sensitive and life critical.

Experts identified data-centric sets of workload requirements for each edge use case and corresponding needs for performance, availability and security. They examined specific performance requirements, including latency, availability, scalability and

Giordano Albertazzi

security, in conjunction with the need for encryption, authentication and regulatory compliance. They also looked at the need to integrate with existing or legacy applications and other data sources, while considering the number of edge locations in a given network.

'The opportunity around edge computing is significant but so is the complexity. The aim of this research is to provide more clarity around key edge use cases and the implications for the design and operation of digital infrastructure,' said Giordano Albertazzi, president of Vertiv in Europe, Middle East and Africa. 'By analysing what edge really means in all its different forms – from content distribution to autonomous vehicles – we can help our customers, partners and other stakeholders accelerate and focus their edge strategies.'

NEWS IN BRIEF

Equinix has appointed Brenden Rawle as director of interconnection EMEA. Previously senior principal solution architect at Equinix EMEA, Rawle will lead Equinix's newly formed EMEA interconnection team, as it supports the successful launch of Equinix's Internet Exchanges across 11 new markets.

Robert Allison has joined 365 Data Centers as director of business development based in the company's Boca Raton and Fort Lauderdale, Florida offices.

NetScout has joined the Linux Foundation Networking ecosystem.

Colt Data Centre Services has formed a new partnership with Megaport that will connect its customers to the world's leading cloud platforms.

Body of **evidence**

Hi Rob

In response to comments made in May 18's Inside_Networks Question Time regarding the worth of the Fibre Optic Industry Association (FIA) as a trade body, it seems only correct that your readers should understand the truth as to why and how the FIA operates.

The FIA is dedicated to providing benefit to its members. A board of directors comprised entirely of volunteers, not remunerated for their efforts, endeavour to deliver real value for individual and corporate members' annual subscription. The majority of FIA members are installers, and the historic role of the FIA has been to support the contractual interfaces between those members and their customers – the end users of optical fibre cabling.

For more than 20 years the FIA has invested in the development of standards to support that objective and via Mike Gilmore has led the UK, Europe and the world in the management of standards such as BS 6701, BS EN 50174 and its international equivalents. The record of the FIA in this area is without parallel and while Mike has stood down as a formal director of the FIA, he still leads all these activities for the foreseeable future. In fact, Mike has only recently relinquished his wider role of FIA website management, but little else in practical terms. His recent articles for the FIA on CPR are fine examples of this continued work on behalf of our members.

We have focused on installation rather than component standards – we have few members in the component supply areas and, in truth, fewer such companies in the UK. The subtleties of optical fibre, cable and connector standards are, for most FIA members, arcane and of limited interest. It is these areas that our technical director referred to as 'the dullest possible way to start a seminar', a comment to which I am sure many will agree.

The FIA has a proud record in promoting

best practice and appropriate skills development amongst its members. We are fortunate to include the majority of the UK's leading training providers in our membership, enabling the members to select training suitable for the individual staff member. We currently offer members access to a network of approved training providers, and are conducting a review of appropriate training provision to ensure it exceeds the expectations of its members in this regard. A training and qualifications committee has been established to carry out this review.

Many aspects of training are under consideration including appropriate course duration, number of students per course, student to equipment ratio, and appropriate qualifications for learning outcomes. We are committed to maintaining and indeed increasing the quality of training delivered, and at the same time making it accessible and relevant to our members' requirements. The FIA has recently reviewed offerings and has endorsed the City & Guilds 3667 award as an industry standard qualification and as a principle the FIA prefers to endorse awards that are 'open' and offer a qualification recognised by the National Qualifications and Credit Framework (QCF).

The FIA directors are drawn from all parts of the telecommunications industry including consultants, installers, manufacturers, training providers, plus a telecommunications operator. We feel that our approach answers the question posed by Inside_Networks – that of our trade body being fit for purpose – with a most emphatic yes.

Jonathan Lewis
The FIA

Editor's comment

Last month's Question Time drew a great deal of reader response, so it's good that a trade association has put its opinion forward. Whether it will go any way to addressing some of the serious concerns that some of those in the industry have on this issue remains to be seen but I hope that the debate continues in a constructive manner.

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Speculate to **accumulate**

Hi Rob

For all the ambiguity surrounding the future impact of technology, unwavering confidence in the growth of big-brand enterprise IT hardware in 2018 may be justified – to a certain extent at least.

Morgan Stanley published a research note which highlighted the details of a 'perfect storm of conditions' that could drive double-digit earnings growth for big-brand enterprise IT hardware in 2018. It also made clear the factors that produce the perfect conditions for big-brand IT hardware.

More cash is now available for private cloud investment. Large US enterprises are being nudged by a range of financial dynamics, which are influencing cash availability and promoting aggressive spending. This includes lower corporate taxes, new incentives to repatriate cash

sheltered from taxation overseas and a weaker US dollar against a background of overall economic growth. This positive outlook is not just restricted to the US – in China, for example, a renewed global IT hardware spending is also predicted to grow at a rate of six per cent.

Reduced enterprise spending for on-premises hardware reflects not so much a desire to abandon private data centres, but to pause further capital investment while figuring out where public cloud fits into enterprise IT strategy. Public clouds can answer where demands are variable, intermittent, unpredictable, and novel. But where things are more predictable, private clouds are often cheaper – especially at the scales at which global enterprises work.

It is unclear whether the marginal cost

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advantage of hosting predictable apps on private clouds is sufficient to compel increased enterprise hardware spends. It is not entirely convincing that this outweighs the notion that enterprise IT needs to justify its existence by producing differentiating business value. In a truly value based IT cosmology, you don't put boring, predictable, commodified applications on private clouds – you rent them from software as a service (SaaS) providers.

Public cloud costs are not suitable for a company of a decent size, and often prove to be very expensive. But for private clouds to grow, they need to find a greater purpose than just hosting predictable, commodified applications more cheaply than Amazon. To be fully viable in enterprise hybrid clouds, private clouds also need to offer a public cloud experience in the on-premises data centre.

Large enterprises may look no further than products to turn on-premises

and public clouds into a continuous infrastructure as a service (IaaS) substrate, managed through single, familiar panes of glass. Though costly, these solutions provide full lifecycle management of the cloud framework, and can deliver the full spectrum of hybrid cloud benefits, including seamless workload portability and bursting.

With all these opportunities and trends in play, Morgan Stanley's prediction that a bounce is coming for enterprise data centre hardware seems more credible. Unfortunately, whether it will happen in 2018 is still an open question.

John Jainshigg
Opsview

Editor's comment
Lots to think about here, especially the idea that enterprise data centre hardware manufacturers could be looking at a surge in interest for their products and systems.

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Tighten up

Even though downtime can be catastrophic for enterprises and data centres there is no regulation concerning who is allowed to configure, install and maintain network infrastructures. Inside_Networks has assembled a panel of experts to examine whether the time has come to introduce external regulation and, if so, how it could be achieved

▶ Given how important network connectivity is to just about every facet of modern life, it seems somewhat strange that there are no regulations concerning who is able to work on these

So what's the alternative? External regulation has previously been dismissed as irrelevant to network infrastructures, as they do not involve anything that can endanger life, such as

> WITH THE INCREASING IMPORTANCE OF EXPERTLY CONSTRUCTED NETWORK INFRASTRUCTURES TO ENTERPRISES AND DATA CENTRES, DO YOU THINK THAT THERE SHOULD BE TIGHTER REGULATION CONCERNING WHO IS ALLOWED TO SPECIFY, CONFIGURE, INSTALL AND MAINTAIN THEM? IF SO, HOW COULD THIS BE IMPLEMENTED AND WOULD IT BE POSSIBLE TO EFFECTIVELY POLICE THIS TYPE OF REGULATION?

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mission critical infrastructures. Put simply, anyone can set himself or herself up in business as a network infrastructure integrator.

The general consensus has been that industry self-regulation is preferable to external regulation, as it means that those working in this sector are able to introduce schemes and guidelines that avoid red tape and bureaucracy. However, that's all well and good if it is effective but possible consequences of downtime are such that businesses need to know that their networks are in the best possible hands.

Although there are numerous training schemes, qualifications, certifications and accreditations available, these are voluntary and rely on integrators to recognise the value of ongoing learning. While there are many who do, there are just as many who don't.

gas or electricity. However, there is an argument that suggests that such is the reliance on IT to many emergency services that network downtime could put lives in danger.

Also, end users need to be able to differentiate the good integrators from the not so good. For most end users this is easier said than done and being able to weigh up the relative merits of the qualifications available is a tough task.

So, is there a need for stricter regulation or is the status quo good enough? Inside_Networks has assembled a panel of industry experts to discuss this and describe what they believe will ensure that end users get the best possible network infrastructures.

Don't forget, if you have a question that you would like answered in Inside_Networks, CLICK HERE and we'll do our best to feature it.

BARRY ELLIOTT
DIRECTOR AT CAPITOLINE

On the face of it this sounds a very attractive proposition for both the users and suppliers of IT services. Upon reflection, however, it soon becomes apparent that it would be impractical and unenforceable – governments can't even figure out how to tax multinationals never mind regulating their IT network infrastructure builds.

Governments only get interested when safety is at stake – in the UK we have the Gas Safe Register (a service subcontracted out to Capita PLC). For electrical services we always think of a 'qualified electrician', but what does that mean? We have the Competent Persons Scheme in England and Wales that only considers compliance with Part P of the Building Regulations (England and Wales) for domestic dwellings, whereas the UK Electricity at Work Regulations talk very non-specifically about possessing knowledge or experience. It says 'No person shall be engaged in any work activity where technical knowledge or experience is necessary to prevent danger or, where appropriate, injury, unless he possesses such knowledge or experience, or is under such degree of supervision as may be appropriate having regard to the nature of the work'.

If it's that difficult to tie down regulation over gas and electrical work there is little chance of enforcing regulations about network infrastructures and data centres, especially in the cross border world of the latter. However, we should note that many other countries do manage to enforce requirements for qualified and regulated engineers working on low voltage systems.

If we can't implement or enforce regulations for the IT environment then the next best thing is to ensure that the right people have the right qualifications for the job at hand to achieve the technical knowledge or experience. A good start would be a more professional approach to facilities management engineering in data centres. How many times have we seen IT managers promoted to data centre managers? Yet a bagful of Cisco and Microsoft certifications is no qualification to handle and manage a large three-phase power generation system and associated heating, ventilation and air conditioning (HVAC) system.

In the light of Brexit it is more important than ever to develop qualifications in both IT and facilities management that are based on European standards and directives to ensure that UK industry stays fully engaged with the European data centre market as a whole.

> 'If we can't implement or enforce regulations for the IT environment then the next best thing is to ensure that the right people have the right qualifications for the job at hand to achieve the technical knowledge or experience.'

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Dca Example

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After Test

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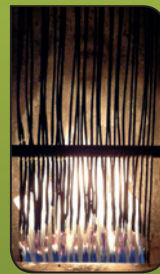
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BRAD WILSON
PRESIDENT AT GEIST, A DIVISION OF VERTIV

New regulations are seldom the answer and solid policy mechanisms are already in place for nearly every infrastructure build. If product quality is the real concern, then the existing myriad of quality control processes and systematic testing of components is more than sufficient.

Electronic products must already comply with stringent quality and environmental controls starting from design. Quality testing continues throughout the manufacturing process, often conducted and/or audited by third parties. Exported products are additionally subject to border control to verify that incoming products meet geographically specific safety regulations.

Furthermore, once products arrive at a customer site, they may face acceptance testing. Each component within a pre-configured solution carries an individual stamp of approval. Integrators building components into pre-configured solutions – a rack, for example – certify that the rack housing the combined products is safe, and further that it meets the exacting specifications of their customer.

Less common, but equally important, is the testing of products in combination. This responsibility is split between the integrator, the customer and the rack manufacturer. The latter can certify use as long as they completely understand how the end user intends to use the rack. Once a rack is shipped and something changes at the customer end, troubleshooting and responsibility becomes complex. This happens. Even products that work well on the bench don't always work together as expected in the rack. Sometimes individual products get the blame when in fact it's the integration that is the disruptive factor.

With this complexity, it's unrealistic to expect that that regulation can prevent problems or anticipate every possible situation. Regulation is a blunt instrument – it is hard to manage and police universally.

To use the aforementioned example, racks are a puzzle that can be configured in many ways. You would need regulations that could account for build variations as well as the requirements of different regions. For example, the environmental considerations in Dubai will be different than those for products deployed in Malaysia.

Understanding and adhering to best practices is the better approach. You can collate and mandate best practice approaches to specific situations in addition to capturing and reusing relevant experience. Requirements for employee training or certification for certain installations is also advisable, as both evolve in near real time with technology innovations. Regulations are static and hard to update.

> 'Regulation is a blunt instrument – it is hard to manage and police universally.'

JOHN DENTE
TECHNICAL DIRECTOR AT REDSTONE CONNECT

The networking industry has various qualifications for engineers and designers – but these are mostly for specific manufacturers or products. As the complexity of networks increases, how do we ensure that the person specifying, designing or configuring the network has not only the relevant manufacturer qualifications, but the project experience to go with it?

Before full regulation of the industry, a voluntary code of practice would be a good first step. This would test both the industry's appetite for regulation and the end user requirement to be able to see a register of works completed. This would also demonstrate expertise alongside the actual qualifications held by individuals. In addition, there should be a register of installers and integrators and numbers of their qualified staff.

At the point at which the industry decides to regulate, a single reference to each individual engineer would need to be created across the board. This would allow all qualifications to be registered for an individual, along with their relevant experience – enabling anybody to see they are getting qualified engineers.

This centralised approach would alleviate the need for manufacturers to each hold their own registers. Further down the line, this could then be supplemented by a centralised design qualification that is not manufacturer specific, allowing consultants to maintain their neutrality. This would be based around different technologies and methods, and this independent approach should ensure clients get the best advice.

To effectively police this I suggest that we need an independent board that maintains the experience register, and ensures listed qualifications are accurate. They would also be responsible for monitoring the new independent design qualification, ensuring this stays relevant in line with industry changes.

Implementing regulation will take time and a poll of manufacturers, integrators, consultants and clients will, in the first instance, show the appetite for such a change. In my opinion it will ensure that we, as an industry, take our responsibilities seriously. In addition, for those of us designing and specifying networks, I believe we need a higher level of qualification than what is currently available, covering everything from software defined networking (SDM) to gigabit capable passive optical networks (GPON) and all in between.

Now is the right time to see if we are ready for a change towards a regulated industry.

> 'Before full regulation of the industry, a voluntary code of practice would be a good first step. This would test both the industry's appetite for regulation and the end user requirement to be able to see a register of works completed.'

MIKE HOLMES
CHANNEL MARKETING MANAGER AT NEXANS

We work in an increasingly global economy, with international clients looking for consistent implementation across different countries, whilst recognising the fact that there are regional differences in terms of building and fire safety standards. We also have an increasing number of partners who provide services to these clients across international boundaries. Against this background, and in the absence of recognised international 'qualifications', enforced regulation becomes very difficult to implement.

We do, however, have a recognised international benchmark in the form of standards such as the EN 50173 and EN 50174 series, which define the minimum design and installation processes and parameters that should be met. The 'what' is therefore regulated – the key issue is therefore 'how' to ensure that these standards are known, understood, and correctly implemented.

We should always be enthusiastic about any initiatives that raise awareness and promote good installation practices, and work to support them. There are many different types of programmes including the Certified Network Cable Installer (CNCI) scheme, and other bodies such as

BICSI with its Registered Communications Distribution Designer (RCCD) credential, together with many other organisations, trade bodies, commercial training companies as well as manufacturers that have vested interest in making sure that these standards are known and implemented. All these sources should be seen as complementary.

When it comes to 'policing', if work has been correctly implemented in accordance with these standards, then the same question arises regardless of whether any recognised qualifications are held or not – who is responsible and who pays, as clearly there are associated costs. It is possible to independently audit the installation but that adds a cost, which many are unwilling to pay. Effectively, these costs are part of the price paid for using reputable well trained installers and manufacturers who will cover any risk as part of a warranty programme.

> 'We should always be enthusiastic about any initiatives that raise awareness and promote good installation practices, and work to support them.'

IAN BITTERLIN
CONSULTING ENGINEER & VISITING PROFESSOR AT LEEDS UNIVERSITY

When asked to opine about regulation and/or certification of data centres my instant reaction was 'never!' But my knee-jerk was tied in with the question above.

We do have EN 50600 that we could use to 'audit' against, or, if preferred, a choice of two mature ANSI standards – TIA-942-B and BICSI 002 – but to what purpose? Each type of data centre has its own budget and is built to meet the risk profile of the end user's business model – from the simplest and cheapest that is not concurrently maintainable, all the way up to the most resilient and expensive that is concurrently maintainable and fault tolerant.

The point is that each is 'perfect' for its intended purpose and we can't claim that one is 'less' or 'better' than another. Every 'classification' system, including the least proscriptive Uptime Institute tiers, has four 'levels' – ignoring the BICSI F(0), which is not suitable for a data centre. This is for one simple reason – we have dual corded loads, N=2, and two types of pathways to deliver power, active and passive, P=2. The number of combinations is N raised to the power of P, 22=4 – hence four tiers, types, classes etc.

I suspect that what is behind the question is when an end user moves into a cheap or badly designed, thrown together and/or inadequately tested facility.

However, that doesn't need regulation or certification, just the prospective client paying an expert for an independent audit against their business model – and, only if needed, against EN 50600. It did have a rocky start – the cooling part was embarrassingly flawed – but it will soon be corrected, and we now just have to buy it and use it! In our conservative industry probably easier said than done...

So, is there anything we should regulate? Maybe there is, since, so far, market forces have not worked. Server utilisation is criminally low in most enterprise and collocation data centres and most servers idle at far too high a power draw. Getting utilisation from <10 per cent to >50 per cent would be the answer but that seems to be a bridge-too-far for many user organisations.

> 'We do have EN 50600 that we could use to "audit" against, or, if preferred, a choice of two mature ANSI standards – TIA-942-B and BICSI 002 – but to what purpose?'

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INTERNATIONAL LEAD NETWORK INFRASTRUCTURE AT CNET TRAINING

Firstly, there is a need for a better understanding of the importance, and criticality, of network infrastructure. It is often not considered, or deemed as low tech, when in fact it is essential in many critical situations such as air traffic control, hospitals and traffic lights. What happens when they go wrong? Industry needs to recognise network cabling infrastructure as the fourth utility and give it the importance it deserves.

Yes, there should be tighter regulation to help increase quality of service, enhance professionalism and allow customers to feel more confident and trust the quality of the installation. This is in addition to helping to safeguard the industry, making it more attractive for new talent – after all, we are in competition with other industries to attract good people.

Many deem regulation as being a time consuming paper exercise, however, it is needed. You wouldn't dream of being an electrician without having the right qualifications and it should be the same for those working within network cabling, considering the importance of the task being carried out. Everyone talks about quality of installation but how do we currently know they have adopted the current standards and codes of practice during the process?

It could be self-regulated, however, this would involve the entire industry working together to agree processes that would work for all. Creating our own benchmark as a minimum and this being accepted and recognised throughout the industry is the first step. Yes, it would need to be policed and externally, otherwise it has no value whatsoever.

This echoes previous discussions about the need for a trusted trade association that could take this on, put the processes in place and manage it for everyone – effectively becoming the central watchdog for all. Government regulation may occur in the future, as public awareness focuses more on connectivity. I believe the penny will drop soon within governments and we would be in a far stronger position if we already have effective self-regulation in place.

Where to start? Looking at other industries is not a bad thing, as they already have tried and tested systems in place.

'Government regulation may occur in the future, as public awareness focuses more on connectivity. I believe the penny will drop soon within governments and we would be in a far stronger position if we already have effective self-regulation in place.'

End to End solution or 'open' to innovation –

Can you have the best of both?

When it comes to choosing a surveillance solutions there are two solution methodologies end users can consider, an end to end solution from a single vendor or an open platform approach. Making the wrong decision can often be an expensive and painful experience.

End to End solutions –

The benefits of an end to end solution from a single vendor are clear; the products are designed to work together from the ground up making integration between systems and devices easy and results predictable. In effect the manufacturer validates the system.

However, customers are now limited to the product portfolio of just one vendor, and reliant on their continued investment in the technologies and innovations.

Best of breed solutions –

The open platform approach argues the case for using best of breed products and integrating them together to provide solutions bespoke to the application. This allows for the use of innovation and excellence from a broad range of vendors not just one. Typically, open platform solutions include more advanced features than end to end solutions which can be an advantage on larger more complex applications.

But there are drawbacks, integration between devices is a complex process and if products from different vendors don't work correctly together who is responsible? Ultimately, it's down to the whoever installs the solution, and proving who is at fault and resolving issues is time consuming. Whilst an elevated feature set is useful are you paying for advanced feature you will never use?

The best of both?

From its inception, Axis Communications have been an 'open' company aiding and collaborating with other security equipment and software vendors to ensure our products are integrated into surveillance solutions around the world. This partnership approach embraces several programs including an Application Development Partner (ADP) program, this assists our software partners create software applications directly onto our devices safely and securely.

Due to increasing demand from our end users, Axis have developed network video management software (AXIS Camera Station), server and recording hardware, network switch and other peripheral IP products to form an end to end solution.

The Axis approach allows customers to choose an end to end solution that brings all the benefits of a complete single vendor solution whilst still allowing for the inclusion of innovation of other vendors via Axis partner programs.

Should your application over time become more complex and require features typically outside that of an end to end solution the fact that Axis partner with all the open systems vendors means the investment in Axis products is protected as open platform software can be deployed taking over the management and recording of the devices within the solution.

Other IP products

Support

Complete portfolio

Analytics

Switches

Integrator tools

Recorders

Excel appoints new director of business development

Excel Networking Solutions has expanded its business development team with the recent appointment of Jason Holroyd as director of business development.

Holroyd was previously responsible for driving specifications of the Excel brand as a midlands-based business development manager between 2009 and 2016. He will now focus on gaining Excel approval within targeted end user vertical markets, IT consultancies and main contractors.

Andrew Percival, Excel's managing director, commented, 'Jason's appointment is fantastic news for Excel. We have strong market share and are present in most vertical markets, however, it is important that we continue to build on this foundation through increasing the number of specified opportunities that we become involved in and be enhancing our position in verticals where we are currently under indexed.'

Jason Holroyd

The Royal Corps of Signals gains CNCI certification

The first Certified Network Cable Installer (CNCI) certification for the Royal Corps of Signals has been awarded at its base camp in Blandford, UK.

Leaders in IT and communications for the British Army, the Royal Corps of Signals entered a collaborative agreement with CNet Training to internally deliver the Level 3 CNCI program to its installation technicians as part of their ongoing education curriculum. Those who have successfully completed the program have obtained the official CNCI certification and are able to demonstrate the highest levels of knowledge, skills and expertise in copper and fibre optic cable installation.

President and CEO of CNet Training, Andrew Stevens, said, 'We are privileged to be delivering the CNCI to the Royal Corps of Signals. The CNCI content is constantly being updated to reflect the latest changes in the sector, those who are certified can remain confident that the program material is of the very highest standard.'

Staff sergeant Andrew Poole, course co-ordinator at The Royal Corps of Signals, added, 'It is evident that the content of the CNCI is of the highest quality which is exactly what we need. The information they have taken away from the program has proved to be integral for their job roles. We're looking forward to continuing this partnership with CNet Training and seeing more of our installation technicians CNCI certified in the future.'

Colt Data Centre Services launches new channel partner programme

Colt Data Centre Services has launched a channel partner programme that takes a tailored approach to suit the evolving needs of businesses and will focus specifically on data centre solutions. In the lead up to the partnership programme, Colt will introduce training, certifications and marketing development funds (MDF) to ensure partners are well integrated and able to work collaboratively towards generating leads that transition into building a long-term pipeline for their business.

The programme will initially be available in UK before being rolled out into the wider European markets with events in Spain and Brussels. Colt DCS aims to roll out the programme across regions in the US and Asia over the coming months, and over the next two years will aim to double the amount of indirect sales each year through the channel programme alone.

'Colocation has always been a significant factor for resellers, often proving to be the springboard of selling services, highlighting the need for reliable infrastructure and cloud service providers. We will work in true partnership alongside our channel partners to increase revenue and help one another sell these important services,' said Ben Tuckwell, global director of indirect channel at Colt Data Centre Services.

Ben Tuckwell

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Sudlows achieves UK government Cyber Essentials Certification status

Sudlows has successfully achieved full certification status under the UK Governments Cyber Essentials scheme.

The Cyber Essentials scheme was developed to improve organisations' IT defences and to emphasise a company's wider commitment to internal cyber security. The scheme helps organisations to protect the confidentiality, integrity and availability of client and business data, stored on devices that connect to the internet.

By achieving this key accreditation, Sudlows offers assurance to all clients and suppliers that their IT and data held within the company is protected against a potential cyber attack. Kfir Cohen, head of IT at Sudlows commented, 'We have been at the forefront of designing and installing secure data centres and critical infrastructures for a number of years and our commitment to the Cyber Essentials Certification scheme demonstrates our ongoing approach to supporting secure working practices across all aspects of our organisation.'

Mayflex signs distribution agreement with Ideal Networks

Mayflex has formed an agreement with Ideal Networks to distribute several products from its cable certification and security portfolio. Mayflex will place an emphasis on the Ideal Networks range of security testers including the newly launched SecuriTEST IP – an all-in-one CCTV tester that can connect, power, configure and document which helps to increase productivity from start to finish.

Jason Rudge, commercial procurement director at Mayflex, commented, 'I am delighted to welcome Ideal Networks on board. Its range of testers will introduce exciting new opportunities to Mayflex with both our existing and potential new customer base. The range of products from Ideal Networks fits perfectly into both our Infrastructure and IP security portfolios and offers our customers further choice in terms of which brand and products are right for them.'

Tim Widdershoven, global marketing manager for Ideal Networks, added, 'We are confident that our collaboration with Mayflex will help more technicians to install, test, troubleshoot and document CCTV camera systems, networks and cable effectively.'

CHANNEL UPDATE IN BRIEF

Digi International has appointed Chris Bowen as vice president of sales for the EMEA region.

365 Data Centers has announced that Jeff Slapp has joined the company as vice president, cloud services and support. In this role, he will lead the delivery, reliability and expansion of 365 Data Centers' cloud and virtual managed services product offerings.

Vertiv has been selected to join the Ericsson Energy Alliance, a competitive interface that aims to evolve telecom access to 5G.

Mobotix has been named a Platinum partner by Genetec.

Aqua Comms DAC has engaged APTelecom to serve as its international sales partner in the development of new client markets in Asia and the United States.
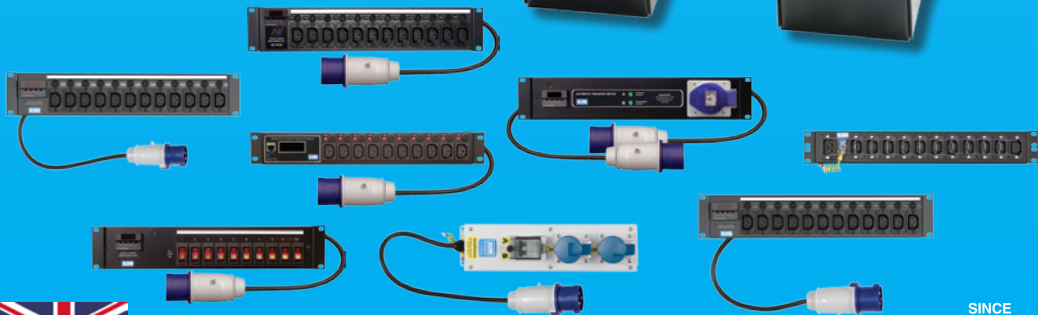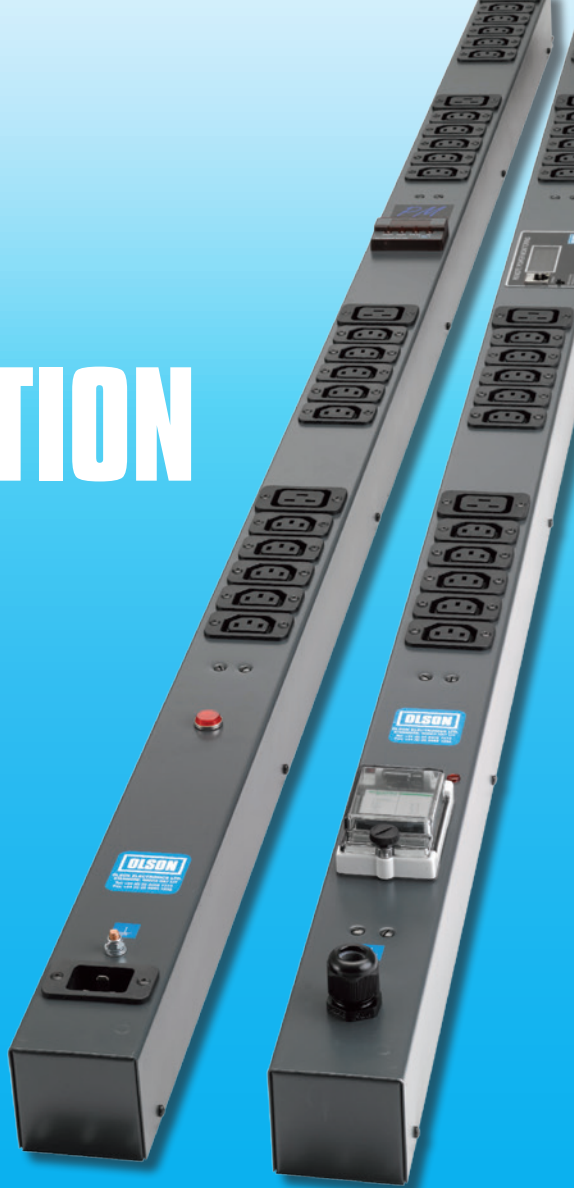
Neat and ti

Clive Partridge of Rittal exp
effective IT rack cable mana

There are several areas for IT and data centre managers to consider when it comes to planning future rack developments. One of the most critical is deciding the precise configuration of the internal components. This critical step typically underpins the success of the whole project, especially when IT racks are not installed in a standardised data centre environment. Choosing the right rack to install requires an understanding of its purpose, the routing of cabling for power supply and networks, and the ideal cooling solution.

IN THE KNOW

Here is a summary of some of the key questions to ask to help ensure the success of any future installation and commissioning of racks.

• What will the rack be used for?

The number and type of components will impact the size of the rack. If it will simply be used to house servers, then an IT rack 600mm wide will suffice. If it is primarily for network components, the rack should be 800mm wide to accommodate the cabling. However, increasingly, enterprises are combining server and network components within individual IT racks.

As IT takes on an increasingly significant role within organisations, more and more components are packed in to make best possible use of existing infrastructure. This means the largest available racks should be selected in line with space constraints. An IT rack that is 42U high, 800mm wide, and 1,200mm deep provides ample room for custom configurations, and allows for future expansion.

• What form of climate control is needed?

Will the rack be installed in a room that does not have an integrated cooling system? If so, then a suitable cooling system needs to be considered from the outset.

dy

plains how to achieve
agement

'There are various options for cooling IT rack interiors depending on their use. For example, inside server enclosures the cool air should flow from front to back, while in network enclosures it should be directed through the parts that need to be cooled.'

If just a single IT rack is needed then cooling could simply be provided by roof mounted fans or, if a greater cooling capacity is required, then a compressor cooling unit can be added, either externally or internally in the form of a DX system – although a higher IP rated rack will be required.

DX systems are becoming more popular, as they are relatively easy to install and can be deployed in office environments thanks to the low noise levels of the internal components. Should the rack be deployed in a conventional data centre – with either perimeter cooling units or in-row cooling units adjacent to the racks – then perforated doors should be used.

Additional benefits can be obtained here by also deploying aisle containment or cocooning, where either the cold or the hot aisle –or in some cases both – is enclosed. The major benefit here is lower operating costs and more efficient cooling.

• How can cool air be prevented from leaking?
There are various options for cooling IT rack interiors depending on their use. For example, inside server enclosures the cool air should flow from front to back, while in network enclosures it should be directed through the parts that need to be cooled.

In both scenarios, it is important to seal around the front 19-inch section to ensure cool air does not leak into the 'hot zone' at the rack rear and thus lower the Delta T across the rack. All open Us should be closed off with simple 1U snap-off section blanking plates for effective separation. To this end, there is a range of accessories available to enhance cool air routing, enabling horizontal airflow for side 'breathing' switches, and more.

Effective seals and climate control solutions tailored to the IT rack's specific purpose will translate into improved energy efficiency. A little bit of planning goes a long way when it comes to reducing

energy costs for IT operations.

• Where do cables need to be placed?
A detailed plan for interior and exterior cable routing should be in place before a server enclosure is purchased and configured.

The power supply, in particular, has to be considered. Many active IT components require a redundant power supply, which generally means two rackmounted vertical power distribution units (PDUs) at the rack rear, left and right for an A and B supply respectively, making cable management a bit more complex. Moreover, best practice usually recommends power and copper data cables should be kept physically apart to avoid the unlikely possibility of electrical field interference. Special attention must be paid to the minimum bend radius of the fibre optic cables to prevent signal attenuation.

If the racks are to be placed on a raised floor, then power and network cabling can simply be laid on separate cable trays underneath. Cables can also be mounted

under the ceiling and routed above the top of the racks. In this scenario, the roof plate needs to be configured correctly – openings should be closed off with brush strips to create a tight seal, simplifying cable management, and improving energy efficiency. It also means that, even after cables have been installed, accessories – including roof plates with multiple parts – can be easily removed for simpler maintenance and retrofits.

Many rack vendors offer a choice of elements for effective cable management, enabling customised component configurations. Both open and closed

cable duct systems are available – for horizontal and vertical cabling, and cabling between thermal zones.

Typically, air-tightness and a defined air pressure must be maintained to prevent warm air and cool air from mixing. This important consideration is often built into the design of many products. The enclosure supports the need for air circulation in conjunction with the corresponding cable installation components.

• What about external cable management?
Crowded IT racks have little available space to squeeze in new components. One answer is to route cables outside the racks such that cable ducts pass through the side of the rack, routing cabling over the top so that it re-enters the rack from the opposite side. Although this approach can save a great deal of space, it may make identifying individual cables more difficult, and maintenance work more complicated.

Wherever easy maintenance is a priority, cables should be routed inside the racks. Remember, pinpointing and replacing a single cable is far simpler if there is a failure or if a reconfiguration is required. ∎
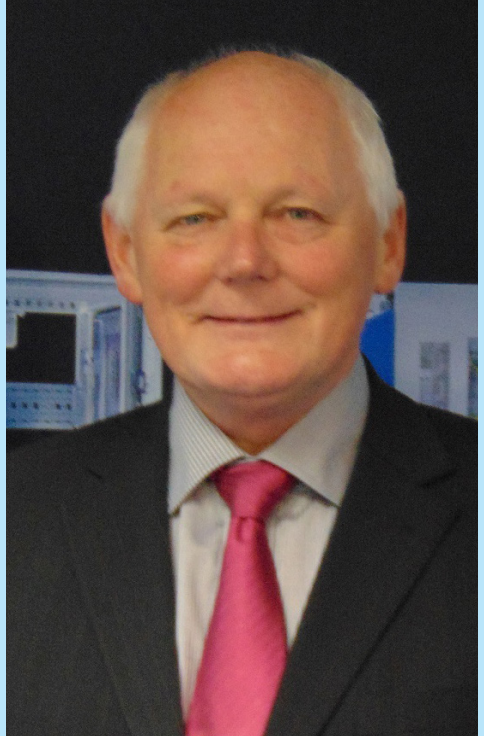
CLIVE PARTRIDGE
Clive Partridge is Rittal's product manager for IT infrastructure. He began his career in the merchant navy before becoming a project manager for Siemens in Germany. He joined Rittal in 1994 as a product manager for electronic and data communications enclosure products. His experience of water cooled rack products and environmental monitoring allows him to provide expert advice and sales support for colleagues and customers alike.

Nexans

Nexans' FIBREROUTE trunking system for data centres is now supported with a new design and planning tool.

FIBREROUTE Planner is a Visio plug-in that allows the user to create fibre trunking layouts to scale and then export a bill of materials to Excel for use in pricing calculations. It quickly and efficiently enables system designers, installers and integrators to create professional data centre layout drawings showing the row of racks overlayed with the trunking design.

The software simplifies the design methodology through its additional tools such as:

- Libraries of unique intelligent shapes
- Elevation and section views of the data centre room layout
- Metric and US unit templates
- A product selection tool to easily find any Nexans FIBREROUTE shape
- The bill of material (BoM) exporter from Visio to Excel
- The provision of hyperlinks to the data sheets on Nexans' website

The tool is supported with a series of video tutorials and a comprehensive manual.

For more information **CLICK HERE.**
www.nexans.co.uk/LANsystems

EDP Europe

Hubbell iFRAME, distributed in the UK by EDP Europe, is an advanced network hardware management system that saves valuable floor space, provides 10 per cent more rack space, offers better cable management and has fewer parts to make installation easier and quicker.

The cornerstone of the iFRAME system is the iFRAME column. It is a super strong 2.13m high I-beam that bolts vertically to the floor every 610mm, while networking equipment mounts between the columns, and the cabling is fed and managed within the columns. Covers over the columns then conceal the cable to provide a more aesthetically pleasing appearance.

The design produces a rigid solution, with no need to secure the top of each rack to the wall or leave the top of the rack unused, as with traditional systems. A host of accessories means your cables will be managed better than ever.

CLICK HERE to find out more, call our sales team on 01376 501337 or **CLICK HERE** to send us an email.
www.edpeurope.com

CMS

CMS stands for Cable Management Supplies, which fits perfectly with this feature!

CMS provides everything the data installer needs to create, test and maintain a structured network, and a big part of that is managing cabling. D-Line embodies that spirit and works hard to provide innovative and stylish cable management solutions.

CMS is a proud distributor of D-Line products and is happy to work with you to provide any product in its extensive catalogue. CMS is particularly impressed with D-Line's Safe-D Fire Rated Clips, which can hold full cable loads for two hours at up-to 930°C.
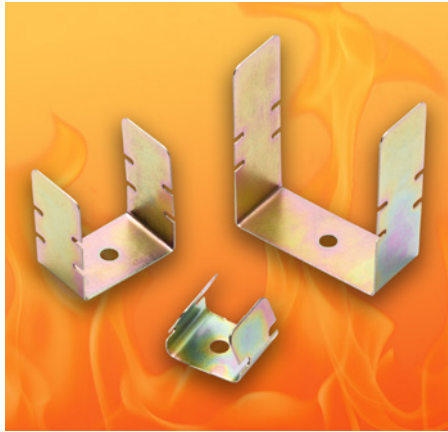
Also, the Speed-D Clamps can uniquely align rows of network cables to potentially save a fortune in time, disruption and lost revenue, while D-Line's Cable Protectors offer easy to use, robust drive over cable protection.

CLICK HERE to find out more about D-Line and other cable management solutions from CMS.
www.cmsplc.com

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Chatsworth Products (CPI)

CPI has introduced eConnect Electronic Access Control (EAC), a networked locking solution for data centre cabinets that allows data centre managers to keep a log entry of each cabinet access remotely, adding another layer of security to the cabinet.

eConnect EAC fully integrates with CPI's vertical eConnect power distribution units (PDUs) that have proprietary auxiliary ports, removing the need to power and network the locks separately. This integrated solution combines rack level power management, environmental monitoring and remote access control into a single, easy to use PDU based system.

Secure Array IP Consolidation, an eConnect feature that allows up to 32 PDUs to be linked under one network connection, works with the integrated cabinet ecosystem using a single network connection and one interface to monitor all three elements, which greatly simplifies rack management.

Additionally, EAC works with CPI's Power IQ for eConnect and other third party DCIM software to provide a single source for white space/rack level monitoring and control, and to consolidate data into a single database for cross reporting.

To find out more **CLICK HERE.**
www.chatsworth.com

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HellermannTyton

The two post patching frame and vertical management solution from HellermannTyton provides high quality cable management and equipment access.

The open frame design and large capacity cable management makes this the ideal for installation in telecommunications rooms and high capacity patching areas within data centres.

The central frame is a two post 19 inch wide 45U high floor standing unit with its wide foot plate ensuring good stability once installed. The frame includes six earthing points to support shielded system installations.

The vertical cable management is also 45U and available in two widths (300mm and 150mm) to suit the capacity and positioning of the frames. The front half is supplied with a removable dual hinged front door and finger bar to manage patch leads for all types of copper and fibre cable.

The rear section of the vertical cable management is designed for backbone/trunk cabling and is fitted with three hinged retainers offering further cable management. The central divider has multiple pass through/access points and retaining points for managing and securing the cables.

CLICK HERE to find out more.
www.htdata.co.uk

Leviton

Ideal in enterprise and data centre applications, the Leviton SDX platform of fibre enclosures, adaptor plates and accessories simplifies cable routing and organisation, while creating storage options for any project.

The versatile SDX range includes rackmount and wallmount enclosures with designs for both economical and high-end applications. It also offers mounting options for non-traditional network areas like under desks or inside cubicle walls, giving IT managers and network designers much more flexibility.

SDX enclosure benefits:
• Multiple sizes and styles for small to large enterprise applications
  • Stylish enclosure design in durable polycarbonate or black-coated steel
  • Up to 72 LC fibres per RU
  • All SDX enclosures are made in the USA

To explore the full product line **CLICK HERE.**
www.leviton.com

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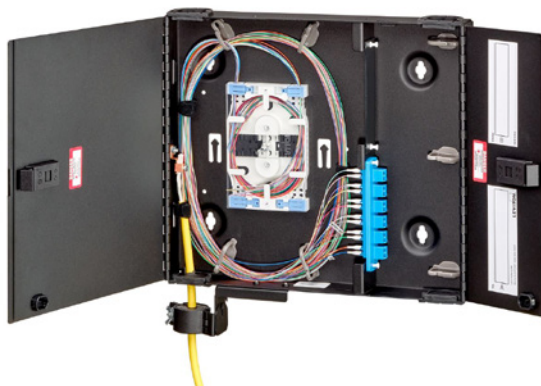
Inside_Networks 2018 CHARITY GOLF DAY 23rd MAY

Playing the Hanbury Manor PGA Championship Course:

This prestigious golf course was the first to be designed by Jack Nicklaus II and still incorporates features from an earlier 9-hole course designed by the great Harry Vardon. The course is now widely recognised as one of the best in England.

The event will ask for 4-ball teams to compete in a 'best 2 from 4' full handicap Stableford competition over 18 holes (with a 2-tee start from 10:30am).

Live Scoring sponsorship available.

Golf will be preceded by tea, coffee and bacon rolls at registration and will be followed by a 3-course private dinner and prize giving with charity raffle.

There will also be opportunities for sponsorship of all aspects of the day – all raising money for Macmillan Cancer Support – since 2005 this industry event has raised over £55,000 through our charity golf events!

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WE ARE MACMILLAN. CANCER SUPPORT

Indoor Simulator Competition

The cost of a 4-ball team will be £575 (+VAT).

There will also be discounted accommodation at Hanbury Manor Hotel & Country Club, which will include breakfast and use of the extensive leisure facilities. Price to be confirmed.

As in previous years – teams will be asked to provide a raffle/auction prize on the day in support of the charity.

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To book a team or for further information email **info@slicegolf.co.uk** or telephone **077 69 69 69 76**

Go with the flow

Luca Rozzoni of Chatsworth Products (CPI) looks at how to reduce data centre cooling costs through airflow containment

▶ The data centre market continues to grow and more demands are being placed upon facilities to increase energy efficiency and better manage operating costs. However, with the average heat load per cabinet rising steadily and cooling already being one of the largest consumers of energy in a data centre, the task is clearly not an easy one.

HOT AND COLD
Data centre cabinets have traditionally been configured in open hot/cold aisles. The equipment is kept at operating temperature ranges by the room being oversupplied with cool air – a method that wastes energy and is both inefficient and expensive.

Airflow containment, that is the ability to isolate, redirect and recycle hot exhaust air, can lower operational expense (OpEx) by reducing cooling system energy costs and prepare a site for an anticipated increase in server capacity. Only last year, the European Commission published a set of best practice guidelines on data centre energy efficiency in which one of its key recommendations was the implementation of a suitable airflow containment solution.

Complete containment has significant advantages. Hot spots can be eliminated, data centres with air handlers can reduce energy consumption through turning off a number of units or reducing fan speeds, and cooling units efficiencies can be improved to allow for more free cooling hours –that is the number of hours that an economiser can be used instead of a chiller.

THREE OF A KIND
There are three basic methods of complete containment. It is important to know the differences between these three methods to understand the potential benefits and, therefore, be able to determine the best containment solution for a specific need.

COLD AISLE CONTAINMENT
Cold aisle containment (CAC) is frequently used to retrofit data centre environments where a raised floor cooling system already exists. A roof and/or partitions are set up over the cold aisle, with doors at either end. This isolates the cold intake air within the cold aisle, keeping it separate from the hot air in the adjoining hot aisles. The hot exhaust air rises up freely in the hot aisles, and returns through the room to the air handlers.

BENEFITS OF CAC INCLUDE:
• Retrofit suitability for existing hot aisle/cold aisle environments, especially over a raised floor supply air plenum
• The contained aisle is the cold aisle and provides supply air
• Some CAC solutions can be deployed over uneven aisles
• Sliding doors that require no additional clearance for door swing

CHALLENGES OF CAC INCLUDE:
• It is more complicated and more expensive to deploy and change than a ducted exhaust cabinet system
• Cabinet rows need to be same length, similar height, parallel and aligned

- Additional aisle clearance may be required for the doors at the end of each aisle
- Containment structure may have to be constructed around building columns and other support structures
- Auxiliary equipment has to be in a hot aisle space, which may reduce performance
- A fire suppression system will require changes

HOT AISLE CONTAINMENT

Hot aisle containment (HAC) is commonly used as a containment solution. Essentially, the contained aisles are the hot aisles and the entire remainder of the room is the cold aisle, and provides supply air. By containing and isolating the hot exhaust air from the room, an HAC solution prevents the hot air from reaching the adjacent cold aisles and mixing with the cold air.

In this method, a configuration of ductwork and baffles are set up over the hot aisle, with doors blocking the aisle entrances at either end. The hot exhaust air in the hot aisles is then usually returned to the cooling units through drop ceiling plenums.

BENEFITS OF HAC INCLUDE:

- Eliminates the need for a raised floor
- Delivers cold air from anywhere in the room
- Allows auxiliary equipment to be cooled anywhere in the room (because the room is cool)
- Requires minimal or no changes to the fire suppression system

CHALLENGES OF HAC ARE:

- HAC is more complicated and more expensive to deploy and change than a ducted exhaust cabinet system

- Cabinets must be placed in adjacent hot aisle/cold aisle rows and deployed in pairs to create hot aisles
- The system may require row lengths to be evenly sized, parallel and aligned
- The system requires an overhead plenum and the addition of collars on the air handler units to

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'Complete containment has significant advantages. Hot spots can be eliminated, data centres with air handlers can reduce energy consumption through turning off a number of units or reducing fan speeds, and cooling units efficiencies can be improved to allow for more free cooling hours.'

create a closed return, as well as the duct being constructed over the hot aisle
- Optimising operating conditions may require the addition of some instrumentation or heating, ventilation and air conditioning (HVAC) controls

DUCTED EXHAUST CABINETS (VERTICAL EXHAUST DUCTS)

Ducted exhaust cabinets are enclosed server rack cabinets with an attached vertical exhaust duct. The hot exhaust air given off by the servers is enclosed within the cabinet, completely isolating the air from the room. The hot air exits the cabinet through an overhead vertical exhaust duct, which directs the hot air into a plenum above the drop ceiling and back to the cooling units or to outside vents.

BENEFITS OF THE DUCTED EXHAUST CABINET INCLUDE:

- It is the simplest and most cost effective method to deploy and change
- The ducted exhaust cabinet can be placed anywhere in the room and in any position
- No additional aisle clearances are required to deploy a ducted exhaust cabinet, as the locations of building columns and support structures do not impact deployment

- Eliminates the need for a raised floor
- Cold supply air can be delivered from anywhere in the room (strict front of cabinet delivery is not required)

CHALLENGES OF THE DUCTED EXHAUST CABINET INCLUDE:

- A system requires an overhead plenum

and the addition of collars on air handler units in order to create a complete closed return, and ducts to be placed above each cabinet. The ducts must be able to extend to the overhead plenum
- Fan speeds on the air handlers need to be adjusted to closely match equipment requirements, which may require some

units to either be shut off or upgraded with variable speed fans
- Requires the addition of some instrumentation or HVAC controls to optimise operating conditions

CHOOSING THE RIGHT SEAL

Whatever containment solution is chosen, it is vital that the seal is given due consideration. A seal's performance is often judged in terms of leakage. This is typically a percentage based on a particular volume of airflow to each cabinet under a specific operating pressure. When comparing these values, it is important to understand that conditions may not match. The volume of airflow should be the maximum sustainable volume across the entire room at the planned static pressure during operation.

Ensuring a seal is effective is not just about having containment barriers without leaks. It also requires total pressure management of the contained environment, particularly with CAC. A complete containment architecture should include an effective pressure differential management system, which may include either introducing or updating the HVAC controls.

BEST PRACTICE

To eliminate bypass airflow within or through the cabinet, the application of the following are recommended:
- Air dams and seals around rackmount equipment to prevent recirculation of hot air around the sides of the equipment
- Seals around cable openings in the cabinet body and raised floors
- Seals between cabinets to block airflow between cabinets into the contained space
- Proper racking techniques to block airflow around rackmount equipment
- Blanking panels to seal all unused rackmount spaces to block airflow between rackmount equipment
- Panels to block airflow under the cabinet into the contained space ∎

LUCA ROZZONI
Luca Rozzoni joined Chatsworth Products (CPI) in 2015 as European business development manager. In this role, Rozzoni is responsible for identifying and developing products and solutions that will enable CPI to further meet the needs of its customers in Europe. Rozzoni studied electronic and electro-technic engineering at the Istituto Tecnico Paleocapa and also holds a business degree in strategy development and implementation. He is also a BICSI Registered Communications Distribution Designer (RCDD).

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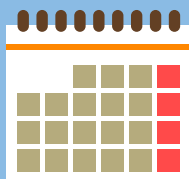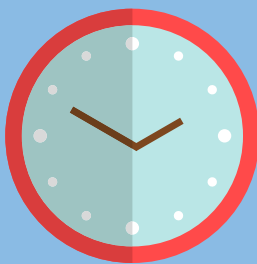
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from

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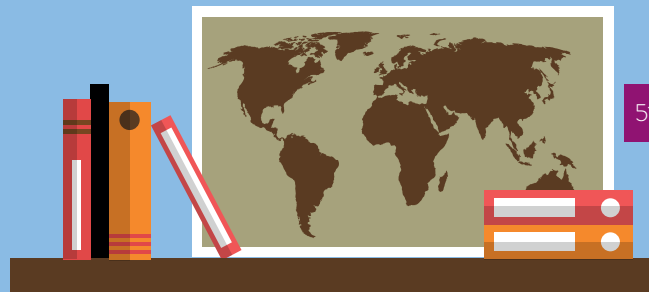
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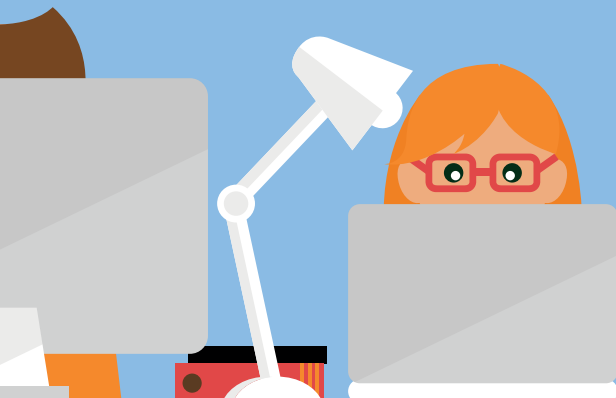
Think again

Roger Tipley of The Green Grid looks at how the explosion in cloud adoption will require a radical rethink on data centre sustainability

▶ The digital transformation is giving every organisation the tools they need to optimise their technology operations, make significant cost savings and reduce their digital carbon footprint. By adopting cloud infrastructure-as-a-service (IaaS) solutions and transitioning to a virtualised data centre model, organisations of any size are able to monitor individual server and storage devices across a network and utilise automated data centre infrastructure management (DCIM) and workload management systems to improve environmental sustainability.

GROWING UP

Research from Gartner reveals that the trend of cloud adoption is expected to only accelerate, reporting that by 2020 spending by businesses and other organisations on public cloud infrastructure will have reached $411.4bn, up from $260.2bn in 2017.

The data centre industry is expected to be a major beneficiary of the rapid growth in cloud adoption, with the number of hyperscale data centres set to grow from 386 in 2017 to 628 in 2021, according to Cisco's Global Cloud Index. The scale of these massive facilities, which may account
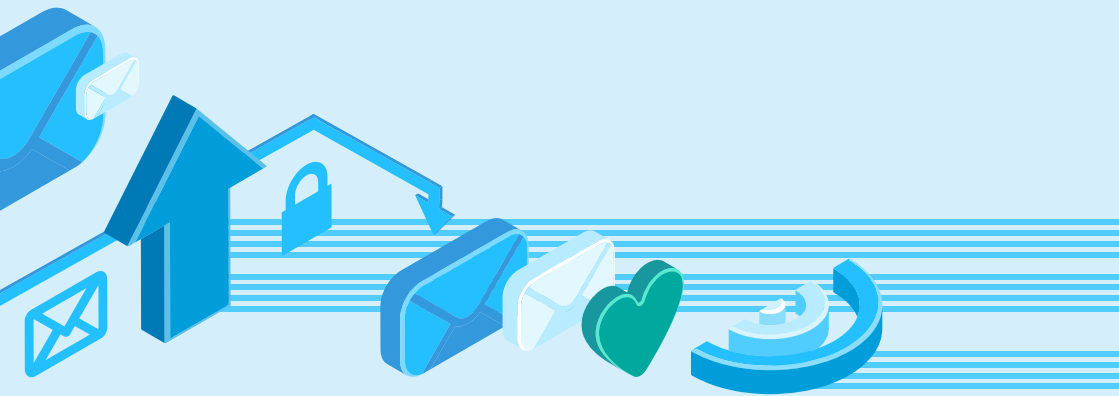
for 53 per cent of the installed base of data centre servers and 87 per cent of public cloud workloads, and the rate at which they are constructed, means that the sustainability of the industry is likely to take on even greater importance.

TO THE EDGE

Edge computing, supporting a more decentralised model to achieve low latency connectivity, further increases cloud complexity and changes how the data centre industry can measure and deliver sustainable IT. Other technological developments such as the Internet of Things (IoT) and big data analytics have further increased demand for high performance data processing and storage, and as we see adoption of these technologies over the next 3-5 years, we expect the data centre again to experience a corresponding increase in workload.

To ensure that data centre providers can cope with this growth in demand, manufacturers have developed innovative servers which utilise components that use alternating capacity and power requirements to make selections, with updated formulas that measure energy consumption fluctuations against output to accurately gauge the overall power usage. As businesses transition to cloud based environments and the power management capabilities of their IT equipment becomes progressively more sophisticated, it is vital for data centre managers and operators to have the appropriate metrics in place if they hope to ensure long-term sustainability.

TOOLS OF THE TRADE

The Green Grid's development of industry approved measurement tools, such as the Power Usage Effectiveness (PUE) and Performance Indicator, have been instrumental in helping companies optimise their overall power usage.

However, regulators in both the US and Europe often focus on outdated metrics including idle power, which fails to take workload capacity and speed into the equation. Idle power is deemed unworkable because it limits the availability of higher performing servers that support greater workloads in a smaller space and it cannot measure the relationship between performance and power that favours lower

'The data centre industry is expected to be a major beneficiary of the rapid growth in cloud adoption, with the number of hyperscale data centres set to grow from 386 in 2017 to 628 in 2021, according to Cisco's Global Cloud Index.'

power and performance servers. This could result in the disproportionate exclusion of higher power performance servers, resulting in up to 35 per cent more energy consumption, an unintended negative consequence. To avoid this problem, data centre managers must focus on the active efficiency metric, measured by workload delivered per unit of energy consumed, which is now accepted as the most accurate formula for monitoring server energy requirements.

WORKING TOGETHER
Understanding these changes, Energy Star and the US Environmental Protection Agency collaborated with the Standard Performance Evaluation Corporation (SPEC) to create a suitable efficiency evaluation tool suite. Working with them, The Green Grid developed the Server Efficiency Rating Tool (SERT) and the active efficiency metric, which has been proposed as the preferred measurement

framework by the European Union (EU). This is now ready for deployment and offers the optimal approach to assess server energy efficiency, measuring the work delivered per unit of power consumed – the true assessment of efficiency – to provide a meaningful assessment of a server's energy use.

As businesses make the transition to the cloud, they will be looking to invest in superior hardware and management tools – often replacing traditional blade and tower systems with rack and multi-node servers that minimise idle power consumption and offer increased performance. The SERT active efficiency metric will be imperative for any company that requires a more accurate energy assessment of their latest server

configurations, as it measures the dynamic range of power management against performance capabilities and offers the most accurate reading of true efficiency.

MAKING AN EFFORT

It is the responsibility of the data centre industry to ensure that every effort is made to minimise the impact of energy use. Adopting new metrics, such as active efficiency, will play a crucial role in improving the accuracy and effectiveness of energy usage analysis across the commercial data centre industry. This will be a critical first step in improving the overall sustainability of the industry and must be used as a springboard to accelerate the productivity and effectiveness of IT equipment, accurately control energy consumption and enhance environmental sustainability. ∎

ROGER TIPLEY

As well as being president and chairman at The Green Grid, Roger Tipley is also vice president of industry and government alliances at Schneider Electric

As a founding director of The Green Grid, he has spent many years as a board officer and content contributor to The Green Grid. Tipley also participates in industry influencing associations, such as the Information Technology Industry Council and DigitalEurope, and has contributed to the development of the Energy Star and Electronic Product Environmental Assessment Tool (EPEAT) standards. In the past, he also served as president and chairman of the board for the non-profit PCI-SIG.

Theory of evolution

Steven Jones of Amido examines how the cloud is changing in light of the commoditisation of IT and network infrastructure

▶ Gartner predicts that public cloud service revenues will reach $411bn by 2020 – and with this rise comes the changing shapes of cloud. Gartner has also stated that across 2016 and 2017 software as a service (SaaS), platform as a service (PaaS) and infrastructure as a service (IaaS) all outperformed expectations, as businesses continue to crave the convenience of the cloud over on-premise deployments. In practice, this move has often led to the replacement of capital expenditure with ongoing operational expenditure – rather than buying servers outright, many businesses are renting computational capacity at an equivalent level, paying the longer-term, reduced rate for reserved instances to cover their peak usage.

LESS IS MORE

The cloud computing evolution was initially brought on the creation of IaaS. IaaS led to PaaS, PaaS led to SaaS and the emerging functions as a service (FaaS) or back-end as a service (BaaS) – known as serverless computing. Serverless promises to enable enterprises to treat cloud computing as a true utility – paying for resources per-request rather than reserving the capacity upfront. This is an exciting development, as there are huge cost reductions, but it also necessitates a significant shift in software design and deployment which has a profound impact on network infrastructure and its response to supporting enterprises with achieving the benefits of cloud computing.

The cloud brought about the commoditisation of IT and a standardisation that allows for inexpensive products to work well together within the cloud ecosystem, enabling them to be delivered at scale and opening the door to current architectural trends such as containerisation and microservices.

In the software world, containerisation is an efficient method for deploying applications, as it encapsulates a service with its own operating environment, enabling it to be placed on any host machine without special configuration. As a container image consolidates everything it needs to run, it also sidesteps the issue of dependencies, and the common development phenomenon of 'well... it works on my machine'.

MICRO MANAGEMENT

In a microservice architecture, an application is split into logical modular
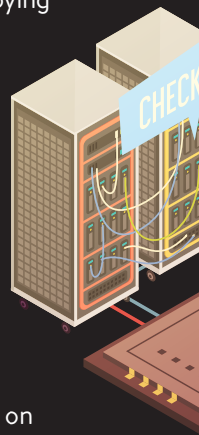
components, which are separated by a network – typically RESTful application program interface (API) or event driven – and collectively collaborate and work together to achieve the same goals as a monolithic application.

Each microservice is given a specific role in the application, such as 'stream video' or 'capture payment' and can scale independently to provide agility where required. Individual microservices should also be fault tolerant, meaning that transient failures will not bring down the application as a whole. Global scale online businesses have been vocal in extolling the virtues of containerisation and microservices – Netflix

announced on its blog in 2017 that it reached the benchmark of launching over one million containers per week to run its microservices platform.

Microservices are increasingly being deployed in containers because their inherent isolation and portability is a natural fit. As a result, the rise of this type of computing has birthed a skill shift within IT engineering that demands a more collaborative approach to developing and operating software, known as DevOps.

UNDER DEVELOPMENT

In the enterprise, development of software has historically been focused around tooling and processes, with day-to-day operations such as support and monitoring handled by a separate team – which didn't design the software in the first place.

Deploying applications in containers brings that final piece of the puzzle back to the development teams. The container deployed in production will be identical to the container running on a developer's laptop, all defined via code and configuration, highlighting that the skills required in maintaining a containerised infrastructure, as well as dealing with independent applications associated with microservices, extends beyond the traditional enterprise skillset.

REPAIR

DATA CLOUD

MICRO CHIP
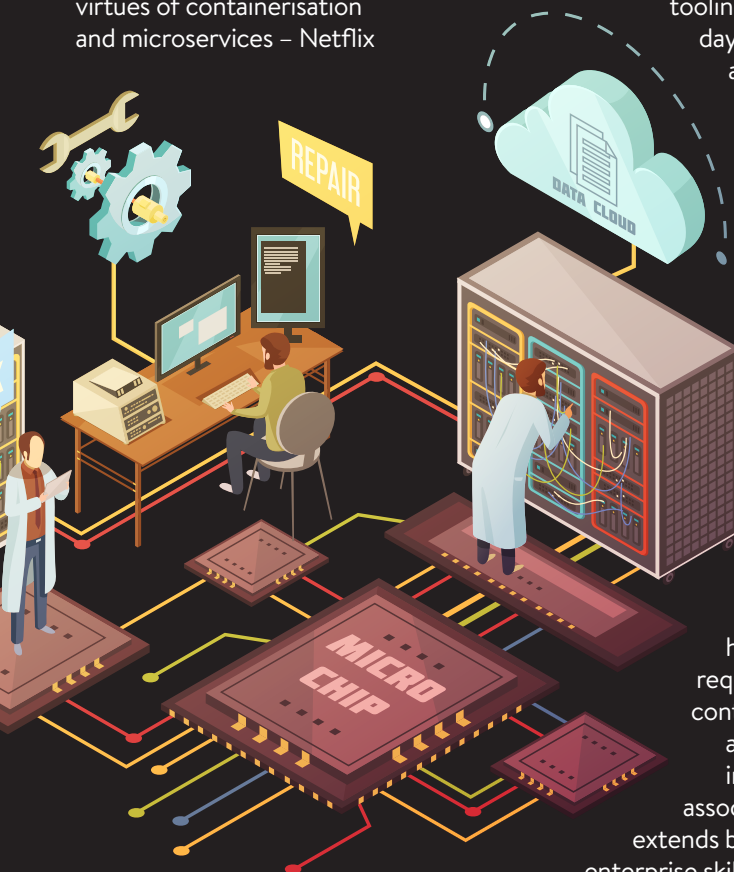
Part of the barrier to DevOps success stems from the greater complexity of deployed solutions, as applications are decomposed into smaller, consumable chunks. It requires the network to support increased volume and frequency of what's come to be known as east-west traffic – server-to-server traffic within an application's clusters. Where previously a monolithic application would call a method within its own memory space to perform an operation, microservices communicate over network boundaries. Cloud computing has always relied on software defined networks and containers, and microservices are forcing further change in the communication patterns to enable scale, routing, and security to work in concert.

'By 2020, Gartner says that 80 per cent of digital business solutions and 80 per cent of new business ecosystems will be event centric.'

wasted compute associated with idle server storage and infrastructure – only paying for how much computing power an application consumes per millisecond.

Instead of having an application on a dedicated or virtualised server, a business can run it directly from the cloud with no

HOT TO TROT
The launch of AWS Lambda in 2014 brought about the concept of serverless/ FaaS. FaaS is a hot topic in the world of software architecture and the business cost significance of FaaS can be huge as it is a commoditised function of cloud computing that takes away
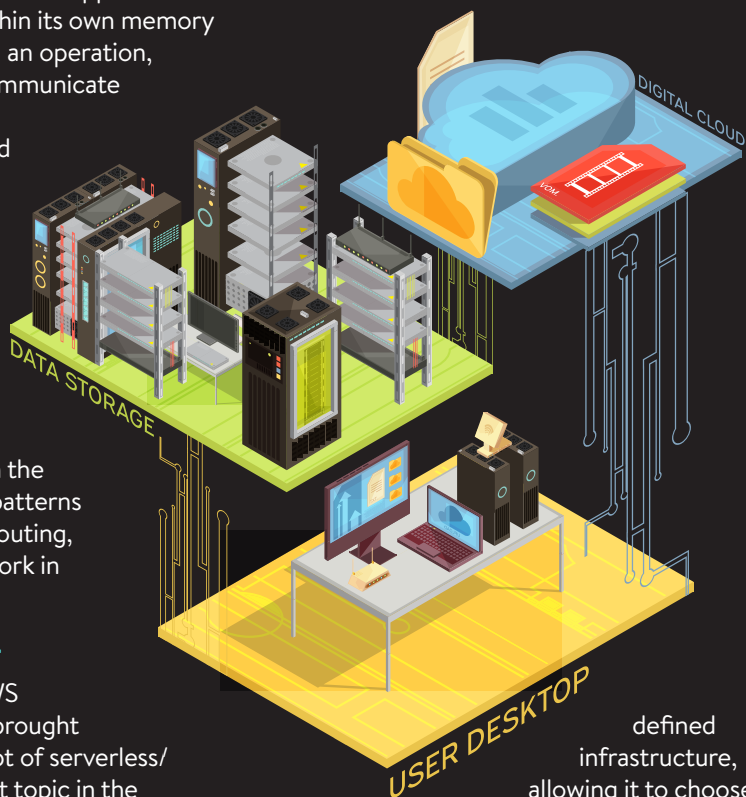
defined infrastructure, allowing it to choose when to use and pay for it per task – thus making it event driven. By 2020, Gartner says that 80 per cent of digital business solutions and

DIGITAL CLOUD

DATA STORAGE

USER DESKTOP

80 per cent of new business ecosystems will be event centric.

Despite a real appetite to reduce the cost of the cloud, not every business is right for FaaS or serverless. At the time of writing, there is no published service level agreement for performance or reliability from any of the major cloud platforms with respect to their FaaS offerings, which will always make the C-suite nervous. The promised cost benefits and further innovation driven by start-ups should increase the adoption of FaaS over the next few years though.

NEW HORIZONS

In response to the growth of FaaS, we may be moving into a world of NoOps, where applications run themselves in the cloud with no defined infrastructure and little human involvement for coding or testing – although they will still be needed to automate the deployment of services. Paired with the advent of artificial intelligence (AI), the Internet of Things (IoT) and other technologies, business events can be detected quickly and analysed in greater detail – so enterprises should embrace 'event thinking' as part of a digital landscape.

This means that the network must – as always – address the need and demand for speed and reliability, as well as be aware of application needs. Network services like firewalls, virtual networks and load balancers need greater intelligence to monitor and understand the various tags, labels, and messages that announce activity and react and respond to the event accordingly by adjusting their own configuration.

So when containers appear or disappear, or services are no longer needed, the network needs to respond by removing them from load balanced pools, routing tables, and security related policies. This must happen at speed and alacrity to avoid inadvertently distributing requests to an already unavailable resource.

ATTENTION SEEKING

For networks to enable the orchestration and automation of containers, microservices and FaaS, attention must be paid to the API and its core capabilities. Without a fast and easy to use API, cloud network services may risk becoming obsolete and replaced by those able to provide a solution to this software based world. Cloud networks must become truly intelligent and application aware to support the application delivery models cloud computing continues to promise. ■

STEVEN JONES
Steven Jones is a principal consultant at Amido. Over his 20 year career he has worked in strategic product and software development roles at blue-chip companies in the finance, logistics, media, automotive, retail and recruitment sectors.

Over and out

RS: You've decided to retire – why now?

AF: I turned the grand age of 70 last year and wish to put my good health and fitness to more practical use. It's been an enormous privilege working on the front line in network technology for almost 40 years, and I know I'll miss it, but I've decided to open another chapter in my life.

RS: As someone who was involved in the creation of Ethernet and structured cabling, what did you hope to achieve in those early days?

AF: The early 1980s was a very creative time for LAN technology, which embraced a plethora of protocols, cable types and topologies. To get some order from the chaos posed by these contrasting approaches, structured cabling emerged as a common platform to map popular LAN technologies via star configured twisted pairs and optical fibre.

Ethernet was first born as a coax bus system but was later re-engineered to run over structured cabling. As computer

> '**I was totally convinced from day one that structured cabling would transform communications infrastructure but I expected its adoption to be more rapid than it was.**'

networking was clearly the future, the underlying motivation of all of this was to create a standard communications utility for long-term use.

RS: Did you have any idea that your work would prove so instrumental in people's lives?

AF: I was totally convinced from day one that structured cabling would transform communications infrastructure but I expected its adoption to be more rapid than it was. I was also convinced at an early stage that Ethernet would be successful, but I did not foresee its deployment in other markets such as carrier, industrial, automotive and backplane networks. I think it's fair to say that Ethernet's success has far exceeded the expectations of many.

RS: Has LAN technology developed in the way that you thought it would and what have been the biggest surprises along the way?

AF: I was once curious about the advantages of alternative technologies such as token ring and asynchronous transfer mode (ATM). Despite their more

predictable behaviour, these alternatives failed to materialise as a threat, and high speed switched Ethernet quickly established itself as the most cost effective and commercially backed solution.

The main ingredient of Ethernet's success has been interoperability and backwards compatibility – we never ignored the installed base, thanks to standard interfaces and auto-negotiation. God bless the RJ-45!

When we developed 10BASE-T, engineers were so proud of the robust transfer of an impressive 10Mb/s over telephone grade twisted pair cabling. We had no idea that speeds would increase over one thousand fold, albeit over more sophisticated versions of twisted pair cabling. I also believed that wireless LANs would be a huge success but, once again, I didn't foresee the progression to gigabit rates. For me, extreme speed has been the biggest surprise in LAN technology, thanks to stunning advances in digital signal processing and silicon technology.

RS: Has there been anyone in particular that has made a significant impact on you during your working life?

AF: I have worked with some very impressive folks over the years – motivating leaders, market visionaries, canny engineers, but the person who has made the most significant impact to my working life has been my wife.

Chris gave up her career to be a full-time mum then, when I set up LAN Technologies 25 years ago, she agreed to become my business partner. She understands the network infrastructure industry, knows most of our clients, and has been central to many decisions. She has been my rock and I'm not sure that I could have succeeded without her. We have also travelled the world together and I will be eternally grateful for her constant support.

RS: You're a very forthright and open person – has being so candid ever put you in a difficult position professionally?

AF: Yes, when I realised that screened cabling was the best solution for 10GBASE-T. I was totally convinced about this and continued to argue strongly in favour of screening for higher data rates. My client list changed as a result, but I have to say that life became even more exciting afterwards.

RS: What is your proudest achievement during your career?

AF: The earliest personal achievement

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I recall was attending my first IEEE meeting in 1983 to propose a new way of configuring Ethernet using thin, flexible cable, and leaving as chairman of a new task force formed to develop an industry standard for it.

This ended up being a tough job, with time shared between my UK lab, running computer simulations at Xerox Palo Alto Research Centre, and leading the IEEE group into some very long sessions. It's always exciting to receive industry awards, so I will never forget the London ceremony when I received an IEC 1906 award for my liaison role between the ISO/IEC cabling group and IEEE. I must confess being humbled alongside other recipients whom I felt had contributed much more than me.

RS: You must have witnessed many humorous and/or bizarre things over the years. Could you share one?

AF: I have to choose between the use of fists to resolve a technical disagreement at an international standards meeting, and a Chinese trek. I will be diplomatic and go for the latter.

Having already organised a trek along the Great Wall of China for the ISO/IEC cabling standards group, my wife and I decided to do this again when IEEE next met in Beijing. In search of excitement, we took 30 brave souls to a more remote section of the wall, which was largely unrestored and very steep in places. This was a considerable challenge to us all – we ended up taking some hikers back to base and followed multiple routes to our destination. Not a single person was lost or injured. If this were not the case, I don't think I would have been nominated for an IEC 1906 award! We will all remember that day for the rest of our lives.

RS: What do you consider to be your legacy?

'The earliest personal achievemen[t] first IEEE meeting in 1983 to prop[ose] Ethernet using thin, flexible cable[...] new task force formed to develop[...]'

AF: Firstly, steering developments in structured cabling and LAN technology to maximise the mutual fit. Secondly, preparing for the deployment of future structured cabling and Ethernet solutions.

Working as liaison officer between the ISO/IEC cabling group and IEEE has helped me accomplish the first part. The second part has been done via my professional consultancy services to both suppliers and end users, plus seminars, conferences and the technical press. I've especially enjoyed taking part in contentious industry debates such as 'to screen or not to screen' and 'copper versus fibre'.

If I had the choice, I would do it all again!

RS: It's that crystal ball moment – how do you see the world of structured cabling developing over the next few years and what would you like to see happen?

AF: The next few years will be exciting for the structured cabling industry. While an increasing number of devices are being attached by wireless rather than cable, the data rate requirement for wireless access points is fast approaching 10Gb/s. As the preferred approach to power wireless access points is by power over Ethernet (PoE), twisted pair cabling will continue to be used here, and structured cabling standards now require a minimum of Class EA (Category 6A) cabling for wireless access point networks for obvious reasons.

Market analysts also predict that data rates for future enterprise applications could soon exceed 1Gb/s, which is why

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structured cabling standards have recently elevated the minimum performance of horizontal cabling from Class D (Category 5e) to Class E (Category 6), with a recommendation to install a minimum of Class EA (Category 6A) if data rates greater than 1Gb/s are anticipated.

A recent analysis conducted by BSRIA estimated that the global installed base of structured cabling contained only 10 per cent of Category 6A. I suspect that most of this will be in data centres, rather than enterprise networks, so I have to ask how many enterprise networks are seriously prepared for the future? How many IT managers are able to put their hands on their hearts and say that there will be no need to support applications that require data rates greater than 1Gb/s within the lifetime of their structured cabling? Some brave decision making is what I would like to see happen here.

IEEE is currently very busy developing new versions of Ethernet to operate over a single twisted pair. The most interesting project is being designed to operate at 10Mb/s with a reach of up to 1km. There is a long list of use cases for this new system, including industrial networks, building automation and Internet of Things (IoT) devices. The impact could be huge and we may soon be looking at an entirely new range of products based on single pair cables and two pin connectors.

Future structured cabling implementations could then be a mixture of four pair systems to support data rates up to at least 10Gb/s, and one pair systems to support at least 10Mb/s. PoE support will also be an integral part of future one pair cabling systems.

RS: How are you hoping to spend your retirement – do you have any ambitions left to fulfil?

AF: I look forward to spending more time with my family, including our three grandkids, play more tennis and continue to travel. Having travelled to the US over 200 times, mainly to attend IEEE meetings, I now look forward to seeing other parts of the planet, with Africa being high on our list and Europe another major focus. I'm sure that moving on will be exciting, especially knowing that structured cabling and Ethernet, the two things I helped bring into the world, will continue to flourish. ∎

EDITOR'S NOTE:
On behalf of the global network infrastructure industry, I would like to wish Alan a very happy retirement.

To reach the age of 70 and still be giving the time and effort that he has done for so many years is something that exemplifies his dedication and commitment. I, like so many others, will certainly miss his presence but, at the same time, continue to appreciate what he has contributed to making the industry what it is today.

On a personal note, I would also like to express my sincere thanks. Especially during the early days of my career in this industry – which this year reaches 20 years – Alan's help, advice and contributions were invaluable and he always had a knack of making complex issues easy to understand. I soon discovered that this is a rare quality!

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The University of Winchester uses Eaton's UPS solutions

The University of Winchester came close to an uninterruptable power supply (UPS) environmental issue when its existing UPS systems failed without warning, the first sign being noticeable fumes coming off the batteries in the UPSs that were housed in student villages across the campus and protected the edge IT infrastructure, which is there to ensure availability of IT services to students around-the-clock.

The University of Winchester needed its new UPSs to enable it to monitor the condition of the batteries and provide proactive diagnostics. Alongside this, it wanted to take the opportunity to bring in power management software that could be integrated with its existing virtualised environment, run on VMware, so that it could manage the entire estate through a single pane of glass.

Eaton installed 50 5PX single phase 3kVA units across the campus, each providing a critical runtime of up to 20 minutes in the event of a power failure – long enough for back-up systems to come online to prevent any data loss or corruption or to ride out short power outages with no loss of functionality.

Fujitsu helps UK government embrace the cloud and hybrid IT through Crown Hosting Data Centres

Fujitsu has designed a roadmap of services to support public sector organisations with their cloud and hybrid IT strategies, specifically to overcome the unique challenges they may have including migrating infrastructure to Crown Hosting Data Centres, the joint venture set up in 2014 between HMG Cabinet Office and Ark Data Centres.
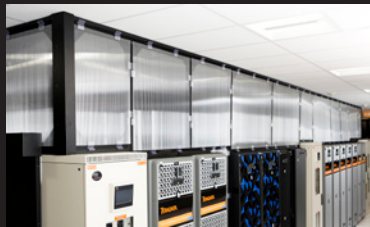
The modular services are designed to be customised to the unique needs of central or local government to create the right hybrid environment. The model supports departments, agencies or authorities aligning with a 'cloud first' strategy, allowing them to gain the flexibility and scalability of the cloud while accounting for existing infrastructure that is not suitable for migration.

Fujitsu has worked alongside Crown Hosting Data Centres to develop a consultative model that enables government IT departments to define their ideal roadmap to the cloud. Available to purchase through Crown Commercial Service agreements such as G-Cloud and Technology Services 2, Fujitsu will work to understand an organisation's existing infrastructure, including what applications can or cannot be moved to the cloud and what infrastructure would be suitable for migration. What is then delivered is an actionable roadmap to the perfect environment, aligned to future operating models, ambitions and aspirations.

Chatsworth Products helps Anthem transform its legacy data centre into a model of efficiency

As the second largest managed health care company in the United States, Anthem's primary and largest data centre was experiencing growing pains typical of many legacy facilities – ensuring newer, higher density equipment would have enough space, power and cooling – while keeping costs down. The company turned to Chatsworth Products (CPI) for a total service and product solution.

The 1,000-cabinet data centre was configured in traditional open air, hot/cold aisles and generated more than 82 per cent of the electricity costs. The challenge was to make dramatic improvements in such a large, established data centre.

Anthem evaluated products from several manufacturers but CPI was able to provide a complete containment strategy at both the cabinet and aisle level, composed of CPI products that are now a standard specification for all Anthem data centres.

For airflow containment at the aisle level, the flexibility and onsite customisation features of CPI's hot aisle containment provided an ideal solution for hot exhaust air generated by existing, multi-vendor cabinets. For new cabinet installations, Anthem's data centres now include CPI's GF-Series GlobalFrame Gen 2 Cabinet with Vertical Exhaust Duct for cabinet level containment, Monitored eConnect power distribution units for remote power management and several cable management accessories such as floor grommets.

PROJECTS & CONTRACTS IN BRIEF

e-shelter is developing its first data centre in the Netherlands. The Amsterdam 1 Data Center will be built out in four phases of 4,000m² space and phase one, with an initial 6MW load, is scheduled for completion and will to be ready for service to customers in early 2019. Once fully completed, the data centre will be capable of delivering up to 39.6MW of load, and will offer e-shelter's customers and partners a wide range of flexible and scalable data centre services.

Cisco and Colt Technology Services have successfully achieved a key milestone in upgrading Colt's pan-European, US and Asian IQ Network. This lays the foundation for the Colt IQ Network to deliver further differentiated, high-bandwidth connectivity solutions.

3W Infra has added the Asteroid Internet Exchange Point (IXP) to its ecosystem of network infrastructure providers. Under the signed cooperation agreement, 3W Infra will interconnect its high-volume 160Gb/s global network with Asteroid's IXP in Amsterdam. This will significantly expand 3W Infra's networking capabilities and interconnectivity options in the Amsterdam metropolitan area, while reducing networking cost for its clients.

Leviton

The Leviton e2XHD cassette based patching system provides a high density solution for data centre and enterprise applications, where fast deployment and simple maintenance are priorities.

The new flat and angled e2XHD Universal High-Density Panels allow versatile mix-and-match capabilities for Leviton fibre and copper UTP and shielded snap-in cassettes.

Leviton e2XHD Universal High-Density Panels offer room for up to 48 ports with eight copper cassettes, or 96 fibres with eight single height fibre cassettes, per U. The cassettes are designed for quick insertion and removal to support easier installation,

To learn more **CLICK HERE.**
leviton.com/e2XHD

CNet Training

CNet Training is hosting a Tech Leaders Keynote Address this June at Anglia Ruskin University in Cambridge, UK.

The address, which is in support of the world's only Master's Degree in Data Centre Leadership and Management, is on 6th June and will feature Alfonso Aranda Arias – head of global data center operations at IBM and Paul Saville-King, president data center solutions at CBRE.

CNet Training invites you to join the thought leaders as they explore the key themes and issues associated with the data centres being the powerhouse of the growing global economy and the impact on us all.

When and where:
Date: Wednesday 6th June
Time: 10:15am - 12:00pm
Where: Lord Ashcroft International Business School, Anglia Ruskin University, East Road, Cambridge CB1 1PT, UK
Cost: Free of charge

To register for the event **CLICK HERE.**
www.cnet-training.com

Keynote Address: **Wednesday 6 June** 10:15 - 12:00

Data Centres
The Powerhouse of the Growing Global Economy and the Impact on Us All

With technical leaders...

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CNet Training

Anglia Ruskin University Associate College

CNet is an Associate College of Anglia Ruskin University

HellermannTyton

The need for high speed, high capacity networking at the desk continues to grow with increasing use of cloud applications and software in everyday working. As well as high performance, there is also the requirement for quick and flexible installations for both direct to the desk or grid mapping designs.

The HellermannTyton Pod – available in Category 6A, Category 6 and Category 5e for both UTP and FTP – is an important step in being able to install and deliver reliable and resilient network connections in work area applications. Supplied with two different entry sizes and clear labelling for each port and Pod, HellermannTyton has developed the Pod to support growing requirements.

The Pod is also compatible with RapidNet, the world's leading pre-terminated solution from HellermannTyton, offering a wide range of flexibility and choice to the installer and end user.

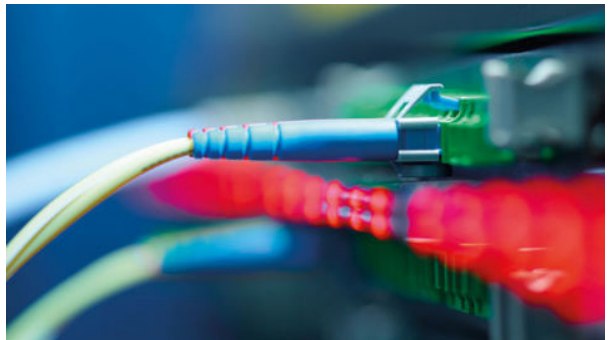For more information on the Pod **CLICK HERE.**
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R&M

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Predictive text

Russell Crampin of Axians examines whether business technology predictions are an art or a science

In the IT industry predictions pieces appear as frequently as a blinking light in a data centre. But how do future gazing companies arrive at these predictions, which can range from the conservative to the utterly farfetched? More to the point, is the whole concept of annual predictions outdated given the breakneck speed at which technology is evolving?

CRYSTAL BALL FORMULA

A formula in science is concise – it's about expressing information clearly. The art of prediction in itself is a vital ingredient for business continuity and excellence. It's an element of what every business is or should be striving for – to be able to predict and anticipate what current and future customers will need, before they even know it themselves. But how much of this process is actually led by the customer is subject to debate.

E+R/I = QUANTIFIED PREDICTIONS

- E(vidence) – 'Those who cannot remember the past are condemned to repeat it,' said Spanish philosopher, George Santayana. Learning the lessons and patterns of history and applying them to the future is a key ingredient in identifying trends and making predictions. So too is the evidence from within your business.
- R(eal life) – 99 per cent of the time, the needs and problems of your customers are integral in shaping your vision for the future. It is so important to listen to and understand their real worldviews and demands 'at the coal face'. Equally, it's worth asking how analysts and experts see your industry shaping up.
- I(nstinct) – The most unquantifiable element. Before Henry Ford designed and created the first truly affordable

'Predicting the future 100 per cent correctly is an impossible task, particularly in the technology world, so successful businesses will react to market trends and customer insights and know when to pull the plug on a project that just isn't working.'

motor car, he said, 'If I had asked people what they wanted, they would have said faster horses.' In cases like this, a singleminded visionary shapes the face of industry for years to come and their competitors are forced to play catch-up. So many great innovations have been driven by emotion, gut feel and instinct, but this is also accompanied by considerable risk.

TICKING CLOCK

There is no sure way of making the right prediction, which is part of the reason that three out of four start-ups fail. It's also about being in the right place at the right time – your technology might be groundbreaking but there needs to be a customer need and appetite for widespread adoption. Bill Gates once said, 'We always overestimate the change that will occur in the next two years and underestimate the change that will occur in the next 10.'

As such, I feel it is equally important to react when one of your predictions hasn't borne out the way you thought it would – particularly if you've invested time and money into that technology.

Much is made of the successful modern business being 'agile' and it's absolutely crucial in this context. Predicting the future 100 per cent correctly is an impossible task, particularly in the technology world, so successful businesses will react to market trends and customer

insights and know when to pull the plug on a project that just isn't working.

As an extreme example of this, Astro Teller, who oversees X – Google's 'moonshot' development labs – rewards colleagues when their ambitious projects fail. Teller says this helps people take risks so they can achieve their 'moonshot' goals, like a balloon powered internet.

It is clear that having a decentralised structure with a wide variety of specialist expertise across different business units can enable an agile business.

ONE STEP AHEAD

Increasingly, predictions themselves are informed by technology. Data and artificial intelligence (AI) driven insights allow us to monitor all manner of things in real time and help us to predict the trends that will shape our tomorrow.

The concept of smart cities has been

the subject of a technology prediction piece or two in its time, but real-world examples, such as Singapore, demonstrate that the idea is closer to reality than some might think. What's more, by 2050 it is predicted that up to 70 per cent of the world's population will be city dwellers, so the strain on smart city networks will only increase.

Companies like HAL24K aim to provide the real time predictive insight that will make a complex smart city function. Its data analytics and machine learning technology
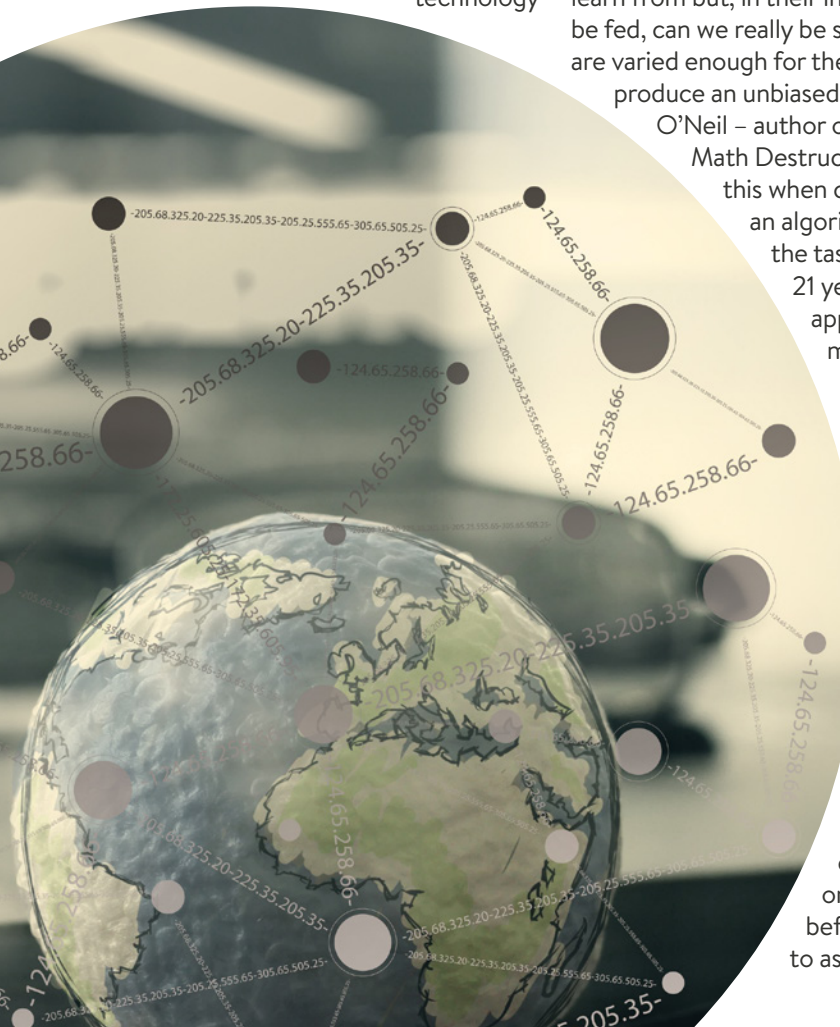
mean that city planners can predict the future more intelligently than ever and tackle the challenges that will shape our world in years to come, like pollution and resource management.

Despite this, I still find myself coming back to the 'instinct' element of our business predictions formula. AI and machine learning provide us with, quite frankly, frightening insight into empirical data, but there is always a place for human creativity and decision making.

Machine learning requires data sets to learn from but, in their insatiable desire to be fed, can we really be sure the data sets are varied enough for the algorithm to produce an unbiased 'decision'? Cathy O'Neil – author of Weapons of Math Destruction – pondered this when considering if an algorithm was up to the task of reviewing 21 years of job applications to a major corporation, and tracking those applicants against those that succeeded in their career there.

The issue she found was that so-called 'objective' algorithms may, in fact, reinforce human bias in favour of certain genders or ethnicities. So, before we're ready to ask a machine to

needed to keep up with the pace of demands for the latest in technology innovation.

In the book The Hitchhikers Guide to the Galaxy by Douglas Adams, the ultimate answer to life, the universe and everything was generated by a super computer – Deep Thought. That computer would have had a network sustaining the calculation of its answer over seven and half million years. I'm guessing most businesses aren't looking that far ahead, but whether it's SD-WAN, the Internet of Things (IoT), robotics or simply getting data from A to B instantaneously, it's the network that is the guiding principle to the next discovery in technology, helping to develop not only plans for year one and two, but to guide you to the next 10 years of business success. ∎

predict our next application, should a human with instinct and knowledge of the data be consulted?

GUIDING PRINCIPLE

I have noted one universal truth – no matter what new directions technology takes us in – the network is at the heart of everything. The network and the expertise driving the technology is becoming more commercially valuable and, in turn, can provide data evidence, real life insight and instinct into what is

RUSSELL CRAMPIN
Russell Crampin has almost two decades' experience in the IT industry and is now UK managing director of Axians, offering a portfolio of telecommunications infrastructure, software solutions, data systems and cloud-based services.

08:25

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