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False alarm

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CHALK HILL MEDIA

Eliminating human error and maximising uptime are just two of the reasons why artificial intelligence (AI) and machine learning (ML) are the focus of so much attention within the data centre sector. However, while there's lots of talk surrounding this subject at the moment, whether it's translating into an equal amount of action is moot point.

Back in 2017 Gartner made the bold prediction that by 2020 30 per cent of data centres that fail to apply AI and ML effectively will cease to be operationally and economically viable. Here we are in 2020 and in order to assess whether this prediction was anywhere near the mark, we've asked a panel of experts to offer their views and predict what they think will be the long-term impact of AI and ML in the data centre. You can read their responses by **CLICKING HERE.**

On to buildings of a different kind and the rise of intelligent buildings continues unabated. Their ability to utilise network infrastructures in interesting and innovative ways is often inspirational. This issue has two excellent articles on this subject and in the first Rob Kelly of Sudlows explains why we should aspire to construct even more intelligent buildings, while Kirk Krahn of Leviton Network Solutions looks at the vital role that correct cabling specification and installation plays in creating them. **CLICK HERE** to read Rob's article and for Kirk's **CLICK HERE.**

The importance of testing and test equipment should never be underestimated and you can **CLICK HERE** to read Dan Barrera of Ideal Networks' advice on overcoming everyday power over Ethernet (PoE) challenges. Mark Mullins of Fluke Networks then goes on to look at how the performance of a fibre link can be determined and how you can know if it's 'good'. **CLICK HERE** to read his comments.

I hope you enjoy this issue of Inside_ Networks. 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.

Rob Shepherd
Editor

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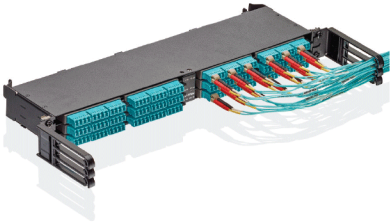

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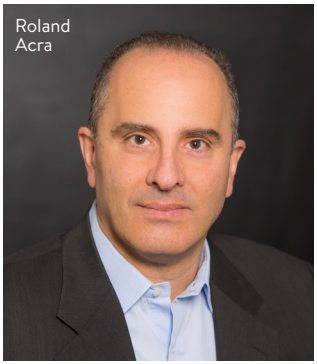
New Cisco Annual Internet Report forecasts 5G will support more than 10 per cent of global mobile connections by 2023

According to the new Cisco Annual Internet Report, 5G will support more than 10 per cent of the world's mobile connections by 2023. The average 5G speed will be 575Mb/s per second, or 13 times faster than the average mobile connection.


Roland Acra

Consumers and business users worldwide continue to create new demands and expectations for mobile networking. In 2023, there will be more 5G connections in the UK than there are people living in Canada, with 41.9 million connections expected in total across Britain – this is three times higher than the entire populations of Wales, Scotland and Ireland combined.

'What we are seeing from our research is a continuous rise in internet users, devices, connections, and more demand on the network than we could have imagined,' said Roland Acra, senior vice president and chief technology officer at Cisco. 'The insights and knowledge gained by our Annual Internet Report are helping global service providers prepare their networks for the ongoing growth in connections, and envision the greatest opportunities to capitalise on their technology innovations and strategic investments.'

IT leaders have no problem with facial recognition technology being used by law enforcement

According to research commissioned by Volta Data Centres, 72 per cent of UK IT decision makers would be happy for facial recognition technology to be used for law enforcement purposes in public spaces. The research, carried out by Sapio Research, quizzed over 200 people to get their views on how our data is used and stored.

The use of facial recognition in public areas is a contentious topic with the European Commission recently considering a ban on the use of facial recognition in public areas. At the heart of the issue is data storage and the use of sensitive data. The research found that just over half of UK IT decision makers (54 per cent) would hand over personal data to expediate and improve government services. This is the only scenario that sees majority willingness to trade personal data.


Jon Arnold

Jon Arnold, managing director at Volta Data Centres, said, 'The findings from this research have shown that IT leaders have genuine concerns when it comes to trust and the secure storage of data. The rapid growth of data and the use of technologies that store personal or sensitive data creates a new set of risks.'

72 per cent of organisations plan to implement zero trust capabilities in 2020

72 per cent of organisations plan to implement zero trust capabilities in 2020 to mitigate growing cyber risk, although 47 per cent of cybersecurity professionals lack confidence applying a zero trust model to their secure access architecture, according to the 2020 Zero Trust Progress Report released by Cybersecurity Insiders and Pulse Secure.

The 2020 Zero Trust Progress report surveyed more than 400 cybersecurity decision makers to share how enterprises are implementing zero trust security in their organisations. The report found that zero trust access is moving beyond concept to implementation in 2020, but there is a striking confidence divide among cybersecurity professionals in applying zero trust principles.


Scott Gordon

'The sheer volume of cyberattacks and enormity of data breaches in 2019 has challenged the veracity of secure access defences, even in well-funded organisations,' said Scott Gordon, chief marketing officer at Pulse Secure. 'Zero trust holds the promise of vastly enhanced usability, data protection and governance. However, there is a healthy degree of confusion among cybersecurity professionals about where and how to implement zero trust controls in hybrid IT environment.'

Digital sector worth more than £400m a day to UK economy

Government figures show the digital sector contributed £149bn to the UK in 2018, accounting for 7.7 per cent of the UK economy. This is up 7.9 per cent on the previous year, meaning growth in the sector is nearly six times larger than growth across the economy as a whole, which increased by 1.4 per cent.

Up until the mid 2010s, the sector had been growing in line with the wider rate of UK economy growth. The official figures show that in 2015 the digital sector's growth started to outstrip the economy as a whole and has continued on an upward trajectory since. The digital sector figures take into account the contributions of digital businesses up and down the country across a range of specialisms.


Matt Warman

Digital minister, Matt Warman, said, 'Technology is a sweet spot of our economy, bringing jobs and wealth across the country. We are working hard to continue this momentum by strengthening regional tech clusters supporting digital businesses and investing in people's digital skills.'

Nearly two-thirds of organisations are complacent about protecting customer data

A new Kaspersky study has found that 65 per cent of IT security decision makers agree that their organisation is complacent about the protection of its customers' data. The study revealed that many organisations are failing to take the necessary steps to prevent data breaches, despite many respondents acknowledging they would impact revenue and customer trust.


David Emm

Despite the inherent risks of being complacent, 57 per cent say they do not currently have a cybersecurity policy in place – rising to more than 71 per cent of medium-sized businesses (250 to 549 employees). Just 41 per cent of businesses surveyed believe their organisations are protected with robust endpoint security.

'A data breach affects business revenues, customer confidence and reputations,' commented David Emm, principal security researcher at Kaspersky. 'The ramifications of a breach could be irreversible. This is why we urge business and organisations of all sizes to adopt robust cybersecurity policies, taking expertise where needed to ensure they have the best preventative measures in place.'

IT leaders blame AI, cloud and mobile initiatives for downtime

LogicMonitor's latest research has found that global IT decision makers hold their own IT transformation initiatives including cloud and artificial intelligence (AI) responsible for outages and brownouts.


Tej Redkar

The survey of 300 IT decision makers found that despite the critical importance of availability in operating a successful business, outages and brownouts are nearly omnipresent. In fact, 96 per cent of global IT leaders surveyed had experienced at least one outage in the past three years, and 95 per cent said the same regarding brownouts.

'The pressure is mounting for IT leaders to prepare their organisations for the future, but the impact and cost of these transformation initiatives are far greater than anyone realised,' said Tej Redkar, chief product officer at LogicMonitor. 'Our research finds that the very initiatives that are supposed to be helping modernise global organisations are in fact contributing to an initial spike in outages and brownouts, costing organisations time and money.'

Call for collaboration between the physical security and IT communities

Morphean has called for greater collaboration between the physical security and IT communities to meet urgent security and intelligence challenges. A study of 1,000 IT decision makers across Europe has revealed that physical security systems are not optimised according to 77 per cent of respondents, and 20 per cent have identified physical security as a priority for improvement in 2020.

The video surveillance as a service (VSaaS) market is expected to reach $5.93bn by 2022, buoyed by its low cost set-up, the flexible scalability on offer and the increasing demand for real-time and remote access to video surveillance data. For the IT security professional already working with cloud systems and services, the growth in connected digital devices through the internet of things is resulting in a growing appetite for physical security, such as network cameras, to enhance existing IT systems and assist business intelligence gathering.

Rodrigue Zbinden, CEO of Morphean, commented, 'While adoption of physical security systems hosted in the cloud is strong, they are not presently optimised to their full depth of intelligence gathering capabilities, which the IT department seeks. Also, while there is a significant market to be served in the coming year, a language barrier between physical security installers and IT resellers may hamper progress.'

NEWS IN BRIEF

The Telecommunications Industry Association (TIA) TR-42.7 Engineering Committee on Telecommunications Copper Cabling Systems (568) has issued a call for interest for document ANSI/TIA-568.6 initially titled Single Pair Multi-Drop (SPMD) Cabling and Component Specifications.

Equinix has announced the opening of its fourth International Business Exchange (IBX) data centre in Melbourne, Australia. Known as ME2, the new facility supports the growing demand for digital transformation globally, as well as Melbourne's smart city development and the interconnection needs of local customers.

Cisco has announced the appointment of David Meads to lead its UK & Ireland business. Meads, who recently led the Partner Organisation for Cisco in Europe, Middle East, Africa and Russia (EMEAR), takes on the role with immediate effect.

Secure IT Environments has achieved the latest ISO 45001:2018 standard for occupational health and safety (OH&S) management systems. This new standard replaces ISO 18001, which becomes obsolete in November 2020.

Epsilon has entered a new strategic partnership with maincubes, which will deploy a white-labelled version of the Infiny by Epsilon SDN platform at its data centres in Frankfurt and Amsterdam.

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A zone cabling network is perfect for an intelligent building that utilises a building management system to monitor and control multiple building services such as access control, fire safety systems, HVAC, lighting, security / CCTV.

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11. Zone Termination Box

NEW Zone Cabling Brochure available for download

City slickers

Hi Rob

Smart cities will increasingly enhance quality of life and unlock economic gains. Innovative services will positively affect everything from traffic and healthcare to sustainability, citizens' participation, social cohesion and quality of living, whilst attracting businesses and boosting economic growth.

Infrastructure supporting smart city services consists of internet of things (IoT) linked sensors connected by optical fibre that extends deep into the network. This plays a crucial role as the backhaul network for wired and wireless networking. Smart city infrastructure requires a well thought out, highly flexible approach to architecture and capacity, as data traffic continues to develop dynamically for decades to come. Bottlenecks between workstations, smartphones, cellular phone antennas, data centres, cloud, WLAN, smart homes or networked vehicles mean applications and services won't be able to deliver on their promises.

Continuously growing data traffic is placing pressure on data centres and network architecture. The IoT is changing the pattern of the workload. Until recently, large packets of information were sent in relatively small sequences.

With IoT, packet sizes are shrinking drastically, but the network flow is exploding. Each packet triggers an action. This means bandwidth is not the only important consideration, but latency is, too. Ample bandwidth and low latency are crucial to ensuring devices can communicate with each other, as well as with end users. According to Deloitte research, carriers will be unable to support projected increases in mobile data traffic without additional fibre deployments that

reach deeper into metropolitan centres.

IoT is stimulating the rise of so-called edge data centres that position the 'edge' of the internet further from traditional hubs. Smart computing capability close to the network edge enables analytics closer to the endpoints, helping balance the aggregated workload smartly and efficiently. Data is filtered and pre-processed in multiple 'mini' data centres and aggregation devices, ensuring only relevant data is passed on for further analysis. Edge data centres allow large volumes of frequently referenced applications and content, such as popular streaming video series, to be cached on servers located closer to less densely networked markets.

Data hungry technology solutions may expand rapidly, but the backbone will have to support consecutive generations of hardware and bandwidth standards and can't be replaced every few years. This makes high density – over 100 ports per rack unit – essential. Fibres are brought directly from server ports to an ultra-high density platform, which may accommodate up to 50 per cent more fibre connections in a traditional housing.

In short, today's data centres can accommodate the bandwidth required to interact with applications, but the vast data increase from billions of interlinked sensors means soon far more bandwidth will be needed than current infrastructure can provide. By designing data centres with flexibility and reliability in mind, and making the right technology choices today, data centres can keep supporting IoT and smart city requirements now and in the future.

Andreas Rüsseler
R&M

Editor's comment

There's more to creating a smart city than simply filling it full of IoT based devices – it should also complement the inhabitants' ways of life. When this approach is taken, what can be achieved is truly astonishing and data centres will underpin the cities of the future.

Be part of the soluti

Hi Rob

As we enter a new decade and more industries digitise and become automated, it's important to recognise that greater volumes of electrical energy and digital distributed IT systems will inevitably be required to support the growing demand for technology applications.

Gartner predicted that by 2020, 75 per cent of enterprise generated data will be created and processed at the edge. Today, many sectors including manufacturing, retail, healthcare and telco are leveraging edge computing to drive resiliency, increase production and deliver on the promises of ultra-fast digital services. However, there is a catch.

With a growing number of edge systems deployed across more geographical locations, there is a chance that if not built with sustainability in mind, the move to digital transformation may further contribute to the challenges of climate change.

As an industry we must ask, how sustainable is the infrastructure that sustains our digital economy and is there room to make it more efficient? The answer is yes. By improving efficiency and reducing energy consumption we have identified a simple mechanism to lower carbon emissions. However, it is not only the responsibility of the data centre and IT sectors to do this – it requires ongoing commitment and collaboration from all stakeholders in the technology space.

In September 2019, Schneider Electric announced three initiatives that would accelerate the company's commitment towards

on, not the problem

environmental sustainability. They include reaching carbon neutrality across all company sites by 2025; achieving net-zero operational emissions by 2030; and, most importantly, to have net-zero emissions throughout the entire supply chain by 2050.

In the data centre industry, we have seen significant improvements in energy usage over the past decade, where companies have worked tirelessly to leverage renewable sources or increase efficiency of larger facilities, reducing typical Power Usage Effectiveness (PUE) ratings from an average of 1.84 in 2006 to around 1.17 today – an improvement of 80 per cent!

Achieving similar efficiencies at the edge is a challenge but a realisable one. Among the technologies with great potential are liquid cooling, lithium-ion, artificial intelligence (AI) and cloud-based software. However, whilst technology provides the means to drive efficiency, it is the way in which these systems are designed and managed that holds the key to reducing emissions.

Take the example of 5G, where telco energy consumption is set to dwarf that of traditional data centre use. It is imperative that we adopt a standardised, pre-tested and pre-configured approach to deployment – one where sustainability is at the centre of the design.

As a simple example, by improving the PUE of 100,000 edge data centres, each with a 10kW power rating from 1.5 to 1.1, we would cut CO2 emissions from 800k to 600k tons of CO2 annually. That is the equivalent of removing 50,000 cars from the road! Here, a shift towards an open and standards based approach is essential. The edge cannot be deployed, or managed, in a reactive or haphazard way! One may even argue that edge computing needs a metric similar to PUE – one that will clearly articulate the total volume of energy required, the carbon emissions or the cost of energy consumed.

Electrical energy and digital technologies are the key ingredients for a more sustainable future. Furthermore, the convergence of IT and OT with AI are vital components to deliver today's sustainability ambitions. However, it's important to recognise that the application of this technology is somewhat limited without edge and there is more we can do to make it greener or more efficient.

By combining energy efficient infrastructure with a commitment to sustainability we will yield greater success from digital transformation with far lower CO2 emissions, which will ultimately benefit us all.

Marc Garner
Schneider Electric

Editor's comment

2019 was the year that the network infrastructure sector really began to address ways to become more sustainable – something that will hopefully continue. Marc highlights a number of interesting ways that we can all enjoy the benefits of an energy efficient infrastructure without harming the planet and I look forward to reporting on their progress.

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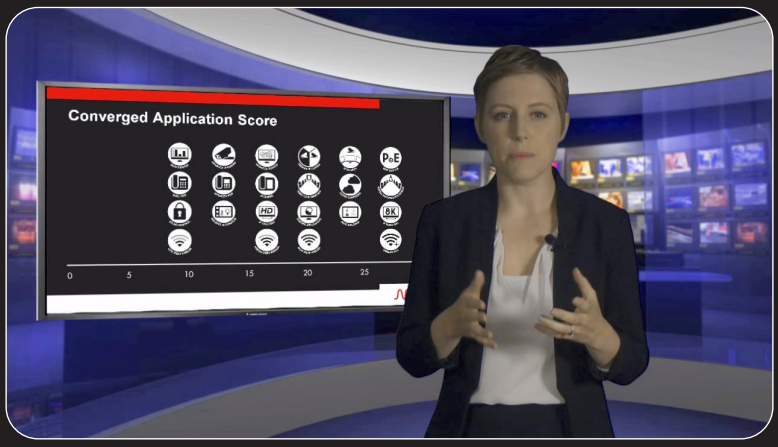

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Keeping it real

With artificial intelligence (AI) and machine learning (ML) set to revolutionise the data centre sector, Inside_Networks has asked a panel of experts to examine what their long-term impact will be and whether predictions about the imminent demise of facilities that have not embraced them are premature

There's little doubt that AI and ML will have a significant impact on the way that data centres are designed, built, managed and operated by improving existing functions and processes, and reducing the potential for operational error.

Given the global focus on reducing carbon emissions, they also have the potential to optimise energy use and cooling technology – helping to create more sustainable facilities. They could also help improve security and uptime by sifting through the increasing levels of data and encryption, helping to prevent cyberattacks by using bots to scour every aspect of a network infrastructure.

Back in 2017 Gartner predicted that by 2020 30 per cent of data centres that fail to apply AI and ML effectively will cease to be operationally and economically viable. Yet others, such as the Uptime Institute's Rhonda Ascierto believe that it 'will be rolled out slowly, with initially conservative and limited use cases now and for the next few years. But its impact will grow'.

So to assess the accuracy of Gartner's forecast and examine what the long-term impact of AI and ML on data centres will be, Inside_Networks has assembled a panel of industry experts to discuss the issue.

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

ZAHL LIMBUWALA

EXECUTIVE DIRECTOR AT CBRE DATA CENTRE SOLUTIONS

Firstly, lets address the all too common confusion and misuse of the terms AI and ML. ML is a subset of the much broader topic of AI – these are both big topic areas in their own right, but the terms really shouldn't really be considered completely interchangeable.

Right, with that out of the way let's look at why that prediction was made in the first place and then consider how on, or off, target it was.

Despite being full of 'high-tech' computers, software and advanced networking, data centres themselves are still designed, built and operated very much in the same way as they have been since the early days of the first mainframe machine rooms. While their design and operation are most likely better today than 30 years ago, they are still largely designed as rather bespoke buildings.

Much has improved and while there is more industrialisation today, they are still highly dependent on human experts to design, build and, most importantly, operate them. Spending anywhere from 10-20 years in operation, the humans running them always had the same primary goal – to achieve as close to 100 per cent uptime as possible. Most humans, when given this goal, revert to the well-known mantra of, 'if it's not broken, don't fix it!' Unfortunately, this leads to suboptimal financial and operational efficiency over the lifetime of a data centre.

Given the ever-increasing market pressure to deliver space, power and cooling at the lowest possible cost, data centre operation by machines rather than humans was, and still is, a prime target for ML systems. So, the prediction made back in 2017 seems sensible.

That said, never underestimate our ability to resist the industrialisation and automation of any industry. Why? Because there are many issues to overcome. Trust – that the machine will not mess things up, and humans quite naturally resisting being replaced or made redundant by a machine, are the two most obvious barriers to adoption.

I do not believe the 30 per cent prediction by 2020 has been realised but, make no mistake, the trajectory and path ahead are set and there's no going back.

Using the most generally accepted definition of AI, which truly is a form of 'artificial intelligence', well that's really not needed for data centres but ML absolutely is the technology that will make the original prediction be realised – although 2025 might have been a better target date!

'ML IS A SUBSET OF THE MUCH BROADER TOPIC OF AI – THESE ARE BOTH BIG TOPIC AREAS IN THEIR OWN RIGHT, BUT THE TERMS REALLY SHOULDN'T REALLY BE CONSIDERED COMPLETELY INTERCHANGEABLE.'

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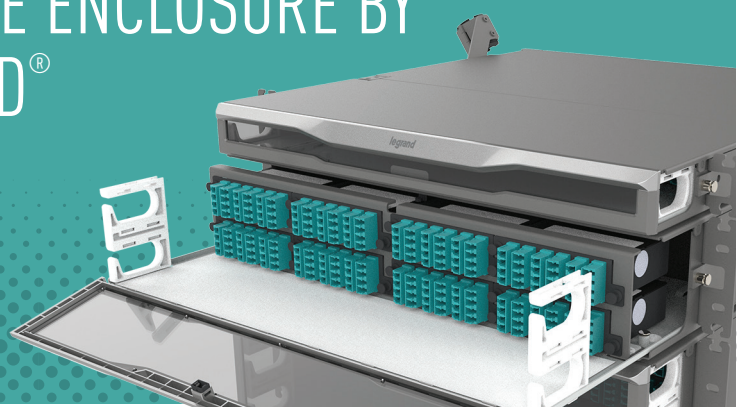

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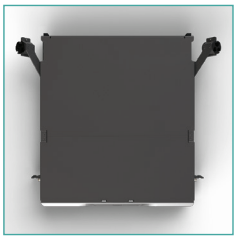

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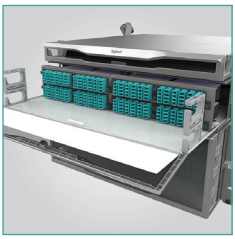

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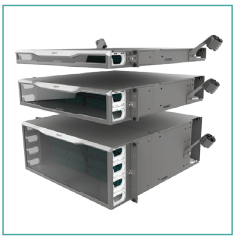

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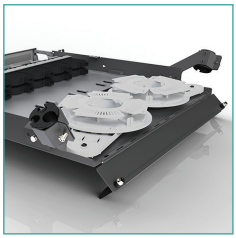
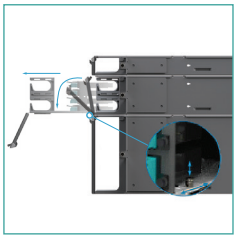


Intuitive Cable Management



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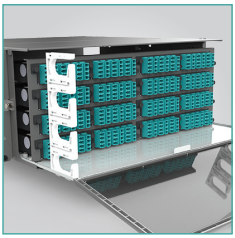

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JOHN LABAN

RESET CATALYST AT THE OCP FOUNDATION & OPENUK BOARD MEMBER

First of all, when it comes to Gartner I would recommend reading the ebook by Shaun Snapp called The Public Cloud Revolution: How Open Source is Displacing the Proprietary Mega Vendors.

Now getting back to the topic of the question – ML in data processing centres? I am only aware of a tiny percentage of the world's data processing centres that are applying ML for performance improvements. That tiny number, which is in the hundreds, includes all of the world's public cloud service providers' hyperscale data processing facilities.

Now I suspect a significant proportion of the readers of Inside_Networks are interested in smaller data processing facilities, so I would like to introduce them to the exciting new research work done at the Boden data processing facility in Sweden where ML has been used to significantly reduce energy use by optimising server hardware at its energy efficiency sweet spot by dynamically shifting the virtualised workloads. I talked about this in my WTF – Machine Learning Data Centres! keynote at the recent Data Science Conference in Belgrade.

Another very exciting ML development is with combined heat and compute (CHC) and in Sweden the energy company, Vattenfall, is using modular containerised data processing centres as large very efficient 'electrical heating elements' integrated into city district heating networks to decarbonise the energy industry.

Finally, if you wish to know where the world is going with ML and how important these technologies will be to the future sustainability of Planet Earth – including data processing centre facilities – then I would recommend the recently published Novacene: The Coming Age of Hyperintelligence by James Lovelock.

'I AM ONLY AWARE OF A TINY PERCENTAGE OF THE WORLD'S DATA PROCESSING CENTRES THAT ARE APPLYING ML FOR PERFORMANCE IMPROVEMENTS. THAT TINY NUMBER, WHICH IS IN THE HUNDREDS, INCLUDES ALL OF THE WORLD'S PUBLIC CLOUD SERVICE PROVIDERS' HYPERSCALE DATA PROCESSING FACILITIES.'

NICLAS SANFRIDSSON
CEO AT COLT DATA CENTRE SERVICES

In the date centre sector, conversations about AI have revolved around two main areas – how providers can support their clients with AI adoption, and how they can employ AI themselves to streamline management and ensure their facilities function at peak efficiency.

When it comes to the latter, it is becoming increasingly clear that AI is not necessarily living up to the hype. While analysts have predicted the far-reaching impact of AI in data centres, it remains to be seen whether the technology is up to scratch in its current state.

One area AI is expected to excel in is in its potential to take over day-to-day operations in facility management and maintenance, possibly even replacing human roles. While AI is great for predicting when a component may require attention, an on-site engineer is still required to inspect and confirm whether this prediction is correct, and making the right judgement calls on whether individual components require service or replacement.

Examples like this highlight the fact that AI cannot replace human roles within a facility. Rather, it is valuable in elevating operations as an assistant to the roles of facility staff, allowing a more even spread of resources with the final benefit being increased facility performance and value for customers.

That is not to say that the implementation AI isn't changing human roles in data centre management. As facilities implement AI, data centre technicians need to be trained in how to effectively incorporate this new technology into their day-to-day work. Trained engineers will also be required to maintain and update AI systems in order to ensure their effectiveness. This helps ensure that facilities remain at the cutting edge of performance.

Looking forward we expect AI to continue playing a key role in supporting facilities in their operations, reducing the workload for engineers and ensuring economic viability in data centres.

'IT IS BECOMING INCREASINGLY CLEAR THAT AI IS NOT NECESSARILY LIVING UP TO THE HYPE. WHILE ANALYSTS HAVE PREDICTED THE FAR-REACHING IMPACT OF AI IN DATA CENTRES, IT REMAINS TO BE SEEN WHETHER THE TECHNOLOGY IS UP TO SCRATCH IN ITS CURRENT STATE.'

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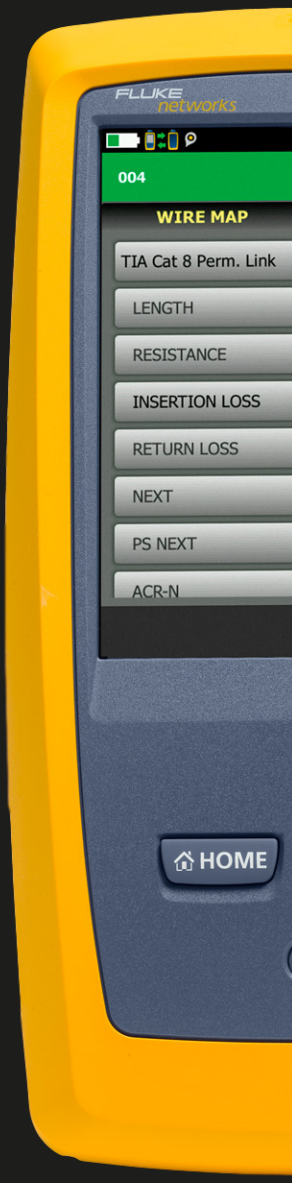

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STU REDSHAW

FOUNDER AND CHIEF TECHNOLOGY OFFICER AT EKKOSENSE

Since Gartner made its 2017 prediction, major cloud hyperscale service providers have built out their footprint in Europe, colocation environments have expanded, and edge computing facilities have spread. So, a lot of change but very little real evidence of data centres ceasing to be operationally and economically viable.

That doesn't mean Gartner was entirely wrong – there's clearly been a lot of AI focus across a range of data centre areas. However, all too often these activities have been more ML than AI focused. That's why we believe it's time for much greater clarity around data centres and AI. Although we're really excited about applying AI to help optimise data centre thermal performance, we're concerned that it is often presented as a universal panacea that can resolve all the multiple complexities and trade-offs associated with data centre optimisation.

So while we're busy enabling data centres to become 'fully-sensed', and capturing the kind of real-time ML data needed for true thermal optimisation, we're unconvinced of the role that AI should play in managing the controls needed for critical cooling duty performance. That's why it's time for greater awareness of the significant differences between AI solutions and more realistic expert systems-based controls that are more predictable, auditable and effective.

Ask how an AI system actually makes a decision, and you'll quickly find out that the technology really isn't that accessible. Key questions need to be asked. Is the AI algorithm auditable? Why did it make a particular decision in a given scenario? Can you predict that it would make a similar decision when new ML data is introduced into the system? Do you actually know what source data is being queried by the AI?

Depending on the depth of your AI dataset, can you be sure you have enough processing bandwidth and energy capacity to manage your data centre in this way? With net zero carbon targets now much higher up the agenda than when Gartner made its prediction, AI applications could increasingly be seen as a part of the problem when it comes to energy consumption in data centres.

> 'WITH NET ZERO CARBON TARGETS NOW MUCH HIGHER UP THE AGENDA THAN WHEN GARTNER MADE ITS PREDICTION, AI APPLICATIONS COULD INCREASINGLY BE SEEN AS A PART OF THE PROBLEM WHEN IT COMES TO ENERGY CONSUMPTION IN DATA CENTRES.'

ANDY HIRST

MANAGING DIRECTOR CRITICAL INFRASTRUCTURES AT SUDLOWS

At Sudlows we design and construct all types of data centres for multiple types of organisations. However, our clients have numerous operating drivers such as resilience, redundancy or efficiencies, meaning that less than five per cent of the clients we currently work with discuss AI development – let alone look at deploying it in their facilities!

I agree that incorporating aspects of AI into a data centre would improve its operation, making it much more efficient and therefore having a major impact on the commercial and financial profitability of the infrastructure. This is proven by some of the hyperscale facilities run by organisations such as Amazon Web Services. For the vast majority of facilities, having such advanced technology deployed, even by 2025, will be a significant challenge.

The immediate benefits for those that do deploy AI are many, such as additional resilience to the system, improving data centre performance, reducing human errors and incorporating cognitive maintenance processes. However, there are still a number of commercial and technical hurdles to overcome before facilities look at fully implementing this type of advanced technology – in particular how risk averse the client is. Whilst everyone talks about deploying the latest technologies and being at the leading edge, in reality there is naturally a concern around rolling out newly released technologies.

The truth is that even though we are in 2020 and the hot topic is around the deployment of AI, on the ground what we still see are multiple data centre facilities that don't even comprehensively use industry proven systems such as data centre infrastructure management (DCIM).

Despite a low percentage of organisations deploying AI, the ones that have done are already reaping the benefits. These are mainly high profile dynamic organisations, and 90 per cent of small, medium and larger facilities, even up to hyperscale, do not have AI on their radars. This is mainly due to cost, lack of knowledge and fear of the new technology and the technical uncertainty of deployment.

That said, this is the era of the fourth industrial revolution, so although 2020 may be too early to call for the rise of AI, it is definitely on the horizon and AI within the data centre industry is certainly on its way!

'THE TRUTH IS THAT EVEN THOUGH WE ARE IN 2020 AND THE HOT TOPIC IS AROUND THE DEPLOYMENT OF AI, ON THE GROUND WHAT WE STILL SEE ARE MULTIPLE DATA CENTRE FACILITIES THAT DON'T EVEN COMPREHENSIVELY USE INDUSTRY PROVEN SYSTEMS SUCH AS DCIM.'

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Mayflex has developed its business to become a leading distributor of converged IP solutions. Our product range includes IP security, cabling infrastructure and Ethernet switching products – everything necessary for a successful security installation.

Joining forces

In February 2020 Mayflex finalised an agreement to distribute the Hikvision range of security products and solutions. Hikvision manufactures a full suite of comprehensive products and solutions for a broad range of vertical markets, the company employs more than 34,000 employees, over 16,000 of which are research and development engineers. All Hikvision products come with a three year warranty. The Hikvision product range includes:

IP products: Network video recorders (NVRs), PTZ dome cameras, panoramic cameras, cameras for special applications and a variety of network transmission equipment and accessories.

Turbo HD products: Turbo HD X is redefining security – from a passive system to an active one by utilising multi-device notifications, dual detection and a unified system.

Transmission and display products: From PoE switches that offer ultra-long distance transmission to reliable power supplies with high-voltage surge protection, and VIP ports that prioritise important data, to monitors and commercial displays.

Access control products: Card readers, fingerprint terminals, algorithm enabled facial recognition terminal, controllers, card readers, turnstiles, and door locks.

Video Intercom products: Hikvision's Video Intercom line offers a comprehensive range of products to enable more efficient and convenient two-way audio and video verification for entry control.

Thermal products: Covering security, thermography and commercial vision, Hikvision thermal cameras guarantee layered situational awareness across a range of scenarios such as perimeter protection, temperature measurement, and fire detection.

Software: HikCentral is Hikvision's video surveillance platform and is available as HikCentral Professional

and HikCentral Enterprise. Centralised, intelligent and collaborative, HikCentral centralises management and enhances efficiency to help customers maximise security data and implementation.

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Mayflex Specialist Support Services include the pre-staging of IP devices, which include Hikvision cameras and NVRs. This service saves time and money prior to and at the point of deployment.

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Technical support is available on the phone from 8am-6pm five days a week alongside dedicated in house pre-sales resources, which are available to assist with product choice and system design.

Training

Mayflex will be holding monthly Hikvision training courses at its offices in Birmingham and London. Hikvision also hold regular free installer training courses at their offices in Stockley Park near Heathrow, Glasgow, Manchester and Doncaster. Training courses can be booked by **CLICKING HERE.**

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For further details about the full range of Hikvision products available from Mayflex **CLICK HERE,** or to speak to our team call 0800 75 75 65.
CLICK HERE to find out more about the full range of Specialist Support Services offered by Mayflex.

CLICK HERE to find out more about Mayflex by reviewing the Corporate Overview Brochure.

*Terms and conditions apply

Good to go?

This is a common question when it comes to fibre links but the response could be 'good for what? Mark Mullins of Fluke Networks looks at how the performance of fibre links can be determined and how you can know if it's 'good'.

When you put a signal into one end of a fibre, the signal that comes out the other end is smaller. The difference between the input and the output signals is called insertion loss. If there is too much loss, the signal coming out the end of the fibre will be too small for the receiver to interpret. Loss is expressed in decibels (dB), where every halving of the signal strength is represented by 3dB. If the output signal is half of the input, that's 3dB of loss, quarter is 6dB of loss etc.

	Multimode OM5
Fiber loss	3.0dB/km
Connector loss	0.75dB
Splice loss	0.3dB

HOW MUCH LOSS IS TOO MUCH?

The TIA and ISO define a loss limit or budget based on the length of the fibre and the number of connectors and splices. There are multiple versions of these parameters for different types of connectors and fibre, so for this example we'll use OM5 multimode fibre, which has the same limits in the TIA and ISO definitions.

To calculate the loss budget of a link, just perform a calculation as shown:

Fibre length in km x 3.0dB + number of mated connectors x 0.75dB + number of splices x 0.3dB

With a 250m length, four connections and two splices, the budget would be:

0.25km x 3.0dB/km + 4 x 0.75 + 2 x 0.3 = 4.35dB

If the measured loss of your link is 4.35dB or less, you've passed!

You might realise that adding more connectors and making the fibre longer will give you a higher limit and possibly make it easier to pass. What if you patched together five of the links described above? That combined link would have a TIA limit of 21.75dB. So if it measured 20dB of loss, it would pass the limit, but would it be good? Well, that brings us back to the question of good for what?

WILL MY APPLICATION RUN?

If you are responsible for a network, the 'good for what?' question typically means 'good for the application I want to run', for example, 10 or 40 Gigabit Ethernet. Looking at a specification for a common 40GBASE-SR4 transceiver shows that the minimum transmit power is -7.6dBm and the minimum receive power is -9.9dBm. This means that the loss on the link would need to be less than -7.6dBm – -9.9 dBm = 2.3dB. Neither of our 'good' links above would work.

Rather than look at the individual product specs, it makes more sense to use the IEEE limits for applications. These are the limits that the designers of networking gear use to design their products. The IEEE specifies the amount of loss and the length of the fibre for each application. You can find

the limits for most common applications online or in the Fluke Networks Versiv Limit Lines document – just search for your application, for example, 40GBASE-SR4, and you'll find a table like this:

Cable type	850 nm fixed loss dB	Length m
OM3	1.9	100
OM4, OM5	1.5	150

Depending on which type of cable you're running, just measure the loss and length of the fibre and compare it to the appropriate limits for the type of cable you're running. For example, if your OM4 measures 1.1dB of loss at 850nm wavelength and 125m, your cable will support 40GBASE-SR4.

The basics of loss measurement are straightforward and can be performed with relatively inexpensive tools. A reference measurement is made between the light source and power meter and recorded. Then links can be measured, and the reference measurement is subtracted from the observed measurement to determine the loss of the link being tested.

Setting a reference for accurate measurements requires following a few steps correctly, which we won't go into here. If you're interested, just search for '1-jumper reference setting' on the internet to learn the basics.

AND NOW, REFLECTANCE

Over the last few years, a variety of short-reach singlemode applications have become popular. Unlike older singlemode technologies, these technologies are engineered for shorter distances (1km or less) using much less powerful and, therefore, less expensive transceivers. Unlike older singlemode technologies, they also have much more stringent loss requirements, as indicated in the table below. Note that the long-range technologies can tolerate a large amount of loss, while the shorter-range one have much tighter limits.

Application	Channel loss	Maximum length (m)
100GBASE-ER4	15.0dB	40,000
100GBASE-LR4	6.3dB	10,000
100GBASE-CWDM4	5.0dB	2,000
100GBASE-PSM4	3.3dB	500
100GBASE-DR	3.0dB	500

Reflectance is a measurement of the amount of light reflected from the connector back to the transmitter. Singlemode applications are much more sensitive to the reflectance of the connectors and splices in the link. For this reason, the IEEE has specified reflectance requirements for these technologies. Connections should have reflectance of better than -45dB (in other words, a larger

‘The basics of loss measurement are straightforward and can be performed with relatively inexpensive tools. A reference measurement is made between the light source and power meter and recorded.’

negative number). Connections with worse performance (reflectance of -35dB to -45dB) are allowed, however, if present, the loss of the link may need to be better than the 3.0dB number.

100GBASE-DR Maximum channel insertion loss (dB)	Number of connections where the reflectance								
Number of connections where the reflectance is between -35 and -45dB		0	1	2	3	4	5	6	7	8
	0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
	1	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
	2	3.0	3.0	2.9	2.9	2.9	2.9	2.9	2.9	2.9
	3	2.9	2.9	2.9	2.9	2.9	2.8	2.8	2.8	–
	4	2.8	2.8	2.8	2.8	2.7	2.7	2.7	–	–
	5	2.8	2.8	2.7	2.7	2.7	2.6	–	–	–
	6	2.6	2.6	–	–	–	–	–	–	–

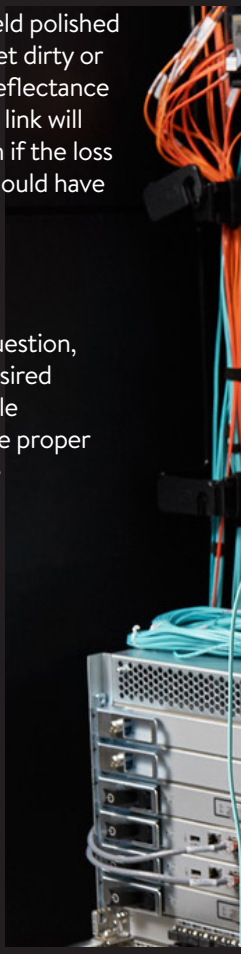
MADE TO MEASURE

Measuring the reflectance of connectors on a link is a little more difficult than measuring the loss, as it requires an optical time domain reflectometer (OTDR), which is typically more expensive than a light source and power meter, which is still needed to measure loss.

One work around for this would be to use top quality connectors and go for the tightest limit shown below. For example, with four interconnects, make the conservative assumption that they’re all worse than -45dB and make sure your link is better than 2.7dB of loss. However, you should be aware that field polished connectors, or those that get dirty or scratched, can easily have reflectance worse than -35dB, and your link will not operate properly – even if the loss is acceptable. Maybe you should have an OTDR handy after all!

GOOD JOB

So in order to answer the question, the link is ‘good’ for your desired application if it has acceptable amounts of insertion loss, the proper length and good reflectance performance. ■



MARK MULLINS

Mark Mullins is one of the founding members of Fluke Networks, starting in 1993. He has been involved in all of the key areas of the business including cable testing, network troubleshooting and analysis. As global communications manager, Mullins currently oversees the company’s efforts to keep customers and prospects up to date on cable testing products and technologies.

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Fluke Networks' fibre optic testers make everyone an expert. That's because Fluke Networks has set new standards for ease of use including EventMap. This allows anyone to quickly spot a fibre failure without looking at a trace, and offers a reference setting wizard that eliminates 'negative loss' errors, as well as the ability to move seamlessly from a view of a complete MPO endface to an individual fibre. Further details about this promotion are on the Mayflex website, where you can find all the information to make the most of the offers.

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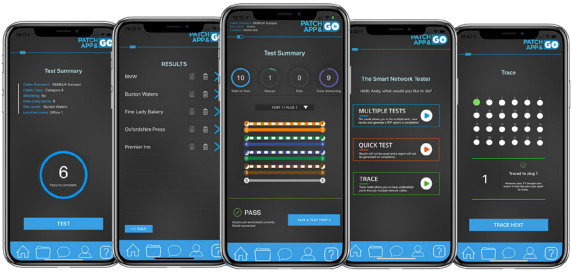
Patch App & Go

It's time to work smarter in the way that you verify your network installations. The Smart Network Tester from Patch App & Go allows the user to troubleshoot and verify a cabling installation directly from a smartphone.



Patch App & Go enables you to carry out a basic continuity test on any four pair, shielded or unshielded network cable, and view wiremap results such as mis-wires, split pairs, shorts and open ends. The app allows you to save results and export a PDF test report for filing, or to issue to the client.

Patch App & Go also has a trace function, allowing the user to trace unidentified cables back to each smart remote plug inserted into the patch panel. When a plug is located, the app will display the identification details of the smart remote plug, allowing the user to label each port correctly.

CLICK HERE to find out more.

www.patchappgo.com

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The LanTEK IV cable certifier from Ideal Networks is designed to change the way installers certify cable, with a wide range of features to help save time, reduce costs and increase efficiency. One such innovation is VisiLINQ permanent link adaptors, which are included as standard with all LanTEK IV certifiers.

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Available from Mayflex, the Ideal Networks SecuriTEST IP CCTV tester is an installation and troubleshooting tester for digital/IP, high definition coax and analogue CCTV camera systems. With a single tester that can power, configure and document, SecuriTEST IP increases productivity from start to finish.

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Comtec offers a wide range of test equipment from manufacturers such as AFL, Anritsu, EXFO, Fluke Networks, Greenlee, Ideal Networks, Patch App & Go, SAGAB and Televes. We have solutions for testing copper and fibre optic cabling, Wi-Fi, network performance, mobile antenna, security cameras, television and satellite signals and much, much more.

Test equipment ranges from a simple wiremap and continuity tester to a high end spectrum analyser, with something for everyone in between. So, whether it's a Category 6A copper cabling certifier, a fibre Tier 1 OLTS or Tier 2 OTDR, a passive interference modulation (PIM) tester or an infrared laser thermometer, Comtec has the product for you.

All test equipment is available for sale using finance options (subject to status).

If you're not looking to purchase, we have an extensive range of testers available to hire on a weekly basis at competitive rates.

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Fluke Networks

The OptiFiber Pro High Dynamic Range (HDR) optical time domain reflectometer (OTDR) from Fluke Networks fulfils demands for a single solution to deal with applications ranging from FTTx, passive optical networking (PON) and data centres to structured cabling. Versiv users report that its efficient and familiar interface cuts costs by 65 per cent when testing, certifying and maintaining copper and fibre network installations.

The OptiFiber Pro HDR OTDR is designed to support the growing need for an OTDR able to test and document HDR applications supporting outside plant (OSP) back-haul and long-haul services, peer-to-peer (P2P), PON, and fibre to the premises installations.

Fluke Networks' modular Versiv Platform is the basis of the OptiFiber Pro OTDR solution. All Versiv models work with LinkWare PC reporting software and the LinkWare Live cloud-connected certification service.

To find out more **CLICK HERE.**

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Problem solving

Dan Barrera of Ideal Networks provides practical advice to efficiently overcome everyday power over Ethernet (PoE) challenges

When it comes to PoE, linking information with the practical requirements of the site you're working on can be a challenge. PoE technology is still emerging, so new standards are being added all the time, which can leave installers and network technicians baffled when it comes to troubleshooting and result in time wasted trying to Google the solution!

TIME AFTER TIME

The same issues with troubleshooting PoE are encountered time and again. Not only might you need to use a different and unfamiliar type of tester when

troubleshooting PoE, but it can also be unclear what constitutes a pass or fail.

For instance, one of the most common devices using PoE is a voice over IP (VoIP) phone. These phones will sometimes have a sticker stating the wattage and voltage required, and occasionally the standard needed for it to work correctly. The practice of taking the measurements is simple and doesn't pose too much of a challenge, as long as you have the right equipment. But if the phone, or other device, doesn't specify what standard is required, it's hard to know whether the measured power passes or fails.

That's when you should take the following steps – no matter the issue, the fundamentals of troubleshooting PoE remain the same:

- Ensure you're using PoE specific equipment
- Check the device works
- Check the device has enough power
- Check the switch or injector has enough power
- Check the cable quality

Let's put that into the context of a few of the most common scenarios that you may encounter when installing or fixing PoE devices.

SCENARIO 1

In this situation a VoIP phone isn't working. Whether conducting an installation or being called in by a customer for troubleshooting, if a VoIP phone goes down there is a standard process to follow to diagnose the problem.

First, check if there is an issue with the phone itself. Unplug it and plug in another phone that is working. If that works, then it's an issue with the device and not the network. If it doesn't work, the next step is to take a measurement with a suitable PoE tester to see if enough power is being provided to the phone. A good PoE verifier will be able to both take measurements and provide a pass/fail result.

If not enough power is getting to the device, then the installer will need to check the power source – either the switch or the injector. If the power comes from a switch, then simply head to the comms cabinet to continue the investigation. If it's an injector, unfortunately this could be located anywhere and can be hard to find.

Once at the power source, perform a measurement to see if the power being delivered is enough for the device. If the power at source appears sufficient, then the reason the phone isn't working will be due to cable length or attenuation, and this will need to be addressed.

If you're at the injector and find that it is not providing enough power, replacing this so the right amount of power is delivered may solve the problem. However, if the power source is a switch, troubleshooting is slightly different. If there is not enough power this is often an indication that the port is incorrectly configured and has been set with too low a capacity. To troubleshoot this, the switch will need to be reconfigured with the right power budget for the device. This may fall on the installer to do, by plugging in a laptop, but is more likely to require a phone call to a network manager who can make the change and get the phone up and running.

SCENARIO 2

Here, a VoIP phone needs replacing with a higher power device.

An installation may already have a network of PoE devices installed but the client wants to make some changes without removing the existing cabling infrastructure. On these types of jobs, you

'The same issues with troubleshooting PoE are encountered time and again. Not only might you need to use a different and unfamiliar type of tester when troubleshooting PoE, but it can also be unclear what constitutes a pass or fail.'

may be tasked with unplugging one type of device with one power requirement, such as a VoIP phone, and replacing it with a completely different device, such as a piece of AV equipment, a CCTV camera or an access control panel. The complexity here is that the new device may require more power to function.

One way of seeing if the new device will work is trial and error – simply install it and hope for the best! However, this can waste a lot of time and is far from an informed approach. Instead, you should use a suitable testing tool – such as PoE verifier – to check the maximum power draw possible at the point, ascertaining if the system is up to the job before the new device is installed. In a similar way to a traditional voltmeter, the PoE tester in this scenario tells you whether a more substantial cable might need to be pulled to power the replacement device.

As with any type of installation, the quality of the cable has a big effect on performance. The right PoE tester can help isolate where infrastructure can be reused to power different devices, but also where cable upgrades might be needed. This allows you to recommend to customers to only replace problematic areas with high attenuation, for instance, allowing you to quote cost competitively for jobs.

SCENARIO 3

An IP CCTV camera is stuck in boot cycle.

When IP CCTV cameras boot up, they ordinarily run through a test of all their extended functions, such as pan-tilt-zoom, heaters and wipers. During this

process, the camera is likely to draw a lot more power than required for its normal operation. If this extra power is not available, CCTV cameras can become stuck in a continual boot cycle, switching off and starting again. So even though with an initial PoE measurement it may appear that the cable meets the standard and provides enough power, it may be the case that there is not enough to manage these peaks.

To troubleshoot this, you should measure how much power the CCTV camera requires during start-up. Then, use a PoE verifier to test the maximum power draw possible at its location on the network. If there is not enough power available, then the power source, such as the switch, will need to be reconfigured to ensure it has a suitable capacity for start-up, as well as normal usage requirements.

UP TO SPEED

From office buildings to hospitals and schools to prisons, organisations are increasingly adopting devices that utilise PoE. Working with PoE will undoubtedly continue to present some challenges, so now is the time to make sure you are up to speed with common PoE troubleshooting practices and master the use of the relevant test equipment to ensure you are poised and ready to take advantage of the potential business opportunities that PoE offers. ■

DAN BARRERA

Dan Barrera is global product manager – data cable testers at Ideal Networks, where he manages product development of the group's data cable and network installation and maintenance test equipment. Barrera first began work in the LAN cabling industry with Wavetek in 1997, where he held several positions in the engineering, marketing and sales groups managing Wavetek's line of LAN and fibre optic test and certification products.

Barrera enjoys public speaking and facilitation of technical presentations and hand-on training seminars for industry organisations such as BICSI, IBEW/NJATC and CEDIA. Today he represents Ideal Networks in the TIA TR-42 and ISO SC25/WG3 and WG9 committees, developing the latest standards for copper and fibre optic cabling systems.

Ideal Networks invests in new team members

Ideal Networks has made a significant investment in recruitment, appointing 18 key international roles within the company in just eight months.

Between March and November 2019, the company appointed employees to roles based in the UK, US, France and Eastern Europe. The new team members cover business activities from human resources, sales and finance, to warehousing, customer services and IT.


Tim Widdershoven

'Though our business is technology, it's our people who really enable us to support installers and technicians all over the world with the solutions and service that they need,' said Tim Widdershoven, marketing director for Ideal Networks, which has been under new ownership since December 2018. 'The last year has been all about positive change and we have not only made a dedicated investment in bringing the right people into our business, but have also opened a brand new facility in the US and launched several products.'

Networks Centre employees go on the run for JIA-at-NRAS

On 19th April 2020, two Networks Centre employees will be taking on the Brighton Marathon. Jordan Collins and Liam Sharkey, both members of the sales team, will aim to complete the 26.2 mile course to raise funds for JIA-at-NRAS.

JIA-at-NRAS is the UK's only charity devoted specifically to supporting those affected by rheumatoid arthritis. The aim and purpose of JIA is to support families, children, young people and adults affected by juvenile idiopathic arthritis (JIA) by showing them how to live their lives to the full.


L-R Jordan Collins and Liam Sharkey

Duncan Lindsay, Networks Centre's managing director, said, 'We're proud to not only be supporting the boys in their latest challenge but also supporting JIA-at-NRAS, which works tirelessly to improve the lives of those affected by JIA. Everyone at Networks Centre is wishing Jordan and Liam the very best of luck for race day.'

CLICK HERE to sponsor Jordan and if you'd like to sponsor Liam **CLICK HERE.**

Draka UC Connect warranty now includes SiroccoXS blown fibre solutions

Prysmian's Draka UC Connect structured cabling system's warranty has been extended to cover the company's SiroccoXS blown fibre solutions. SiroccoXS is now offered as part of the Draka UC Connect family of products.

SiroccoXS substantially lowers network build costs, and provides more flexible design and better damage recovery performance than conventional systems, avoiding high initial capital expenditure or extensive network planning.

Martin Ashton, Draka's UK sales manager, commented, Recognising the development of passive optical networking (PON) within internal cabling architecture, we have an ongoing initiative to incorporate Prysmian solutions into the Draka UC Connect structured wiring system.'

Mayflex is now distributing Hikvision security solutions

Mayflex is now actively distributing the Hikvision product portfolio, following the initial announcement of the new partnership in December 2019. The team of security specialists at Mayflex will place a particular focus on the IP solutions available.

Hikvision is a world leading provider of security products and solutions. Featuring an extensive and highly skilled research and development workforce, Hikvision manufactures a full suite of comprehensive products and solutions for a broad range of vertical markets. Its UK and Ireland operation is based out of Stockley Park near Heathrow with regional sales offices and training academies also based in Glasgow, Manchester and Doncaster.

Ross McLetchie, Mayflex sales director commented, 'The business has been extensively preparing for this launch. Staff have received the necessary training to enable the teams to continue to provide the sales and technical support on product choice and system design that our customers have become accustomed to.'

Gary Harmer, Hikvision's sales director UK & Ireland, added, 'Mayflex provides Hikvision with access to many markets and new customers. We can support installers venturing into the security market, with our training academy which offers free courses that provide the necessary skills to successfully install and commission Hikvision security solutions.'

Ping Identity announces key European distributor as part of channel expansion strategy

Ping Identity has announced a partnership with e92cloud. The partnership is a key distribution agreement for Ping Identity in Europe and allows for broader reach in the lower enterprise market following the Ping Intelligent Identity platform's expansion of cloud based identity security solutions.


Mark Hambley

According to a recent Grand View Research report, the global identity and access management (IAM) market size is expected to reach $24.12bn by 2025, at a compound annual growth rate of 13.1 per cent over the forecast period. The proliferation of cloud services and bring your own devices (BYOD) within organisations has raised concerns and created a growing need for IAM solutions.

'Until now, we have predominantly maintained a single tier channel model,' explained Mark Hambley, EMEA alliances director at Ping Identity. 'IAM is a rapidly growing market, and we have ambitious growth plans plus a deeper cloud based product portfolio that is ideal for the low enterprise market. This combination makes now the perfect time to partner with a progressive distributor like e92cloud to expand our channel community and capitalise on accelerating demand.'

CHANNEL UPDATE IN BRIEF

Stulz is continuing its international growth by expanding its Australian and New Zealand subsidiary. The new Stulz geographic region will be collectively known as Stulz Oceania and will include Papua New Guinea, Solomon Islands, Fiji, Vanuatu, Tonga and Samoa.

Cameo has announced its Project-One initiative, building a strong collaborative working culture to foster idea sharing and nurture people, teams, customers and relationships across the business.

Veeam Software has appointed Gil Vega as chief information security officer (CISO). Vega will be responsible for establishing and maintaining Veeam's vision and strategy to ensure its information assets and solutions are adequately protected, and will be pivotal in driving strategies to help customers protect their critical data across multiple environments to ensure regulatory compliance.

Epsilon has announced the appointment of former Claranet managing director, Michel Robert, as its new group chief executive officer. Robert's previous experience working in hybrid cloud, networking and cybersecurity, alongside tripling the size of Claranet's UK operation, gives Epsilon the confidence in his ability to take the company's growth to the next level.

Netscale Solutions

Delivering the highest fibre density

R&M's Netscale solutions combine unmatched fibre cable management with automated connectivity tracking and an innovative tray design to deliver the world's highest port density for 10/40/100G Ethernet.

For more information and further details about the highest 10/40/100GbE density of any fiber solution out there, visit **www.rdm.com**

Reichle & De-Massari UK Ltd
+44 (0) 203 693 7595

R&M

Leave the light on

During the course of his career Mike Gilmore gained an enviable reputation as one of the world's foremost experts on fibre optics. All good things must come to an end though and before his recent retirement Rob Shepherd spoke to him about his career, his achievements and the legacy he leaves behind

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

MG: Most of my colleagues in the standards community work for organisations and contribute to standards only as part of their job. Many of them view standardisation as ideal consultancy work once they retire. In comparison, I have been dedicated to standardisation work for more than 30 years – so I'm retiring from my 'proper' job.

'After 30 years in standardisation I have just achieved my British Airways Gold Card. However, after 30-plus years of international travel, I'll be quite happy not to travel very much at all!'

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

MG: With the Code of Conduct for the Installation of Fibre Optic Cabling in 1988, which eventually became a British Standard, we felt it would prove instrumental because many installs at that time, some for mission critical systems, were so very bad that they were really just accidents waiting to happen.

Ever since, I have focused on ensuring that people get what they think they've paid for. Users need the ability to order what they want, while installers need to know how it should be implemented and how to prove that is has been delivered.

Have we succeeded? I think the truthful answer is partially because, in many cases, people don't read the relevant standards until something has gone wrong. Consultants

also cause problems by producing tenders which refer to standards they have never read, which are then provided to customers that have no knowledge of them – and what they receive as an installation is anybody's guess. Mostly it doesn't matter so much, because optical fibre is a tolerant technology and usually works. If it doesn't work, or there is a contractual issue, at least the standards are there to assist them.

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

MG: Development of optical fibre technology is the responsibility of manufacturers and they will typically develop bigger/better/faster products for the market on a cyclical basis. I am more interested in whether, as a user, do you know if it was installed correctly and if it will have the expected lifetime.

Technology hasn't developed quite as I thought it would. Singlemode optical fibre (SMF) – the staple of long haul telecoms – has had to fight a long battle with its multimode counterpart (MMF). I never expected MMF to last as long as it has but is finally being restricted to 100m reach for the highest-speed IEEE applications, with SMF now being made available in short/mid-reach 500m 'low cost' version. It has taken a very long time to get to this point.

Parallels can also be drawn with balanced cabling, which lives on – now delivering power as well as data. I don't see it going away any time soon.

RS: If you could change one thing about the industry that you've worked in, what would it be and why?

MG: There are a lot of really good guys in this industry – and I wouldn't want to change any of them!

My teams have spent years creating a virtuous circle of standards to support the industry. They are carefully balanced to weigh the needs of the customer and installer alike, and I would like more people to read them. Not reading standards or understanding them can have a direct effect on profitability. Re-work and re-testing probably can

represent all of the profit in a contract.

The most successful installers – not necessarily the largest but certainly the most professional and profitable ones – do read and adopt them. I would like to force the adoption of standards to make everyone's life easier.

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

MG: The two persons with the greatest historical influence on me are Alan Flatman, now retired, and the late Walter von Pattay. They taught me the mechanisms, management and processes of standardisation. The list has also got to include Thomas Wegmann – my current secretary in Europe – without whom, for 25 years, I could not have functioned at all within the European and international standardisation arena.

That said, everybody who works in my committees deserves a mention – they are mostly personal friends and I will no doubt miss them once I retire. Without them we would not be in the strong position we are today.

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

MG: Forthright means direct and outspoken. I would prefer to be considered independent, as I am not answerable to anyone. Has that independence held back my business as a consultant? Probably. Many cabling system manufacturers weren't comfortable with too much independence, particularly one not so easily wowed by their latest set of products.

RS: What is your proudest achievement?

MG: To put together a complete package of standards that can, if used correctly, protect all parties.

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

MG: The most memorable humorous moments have been watching my colleagues from different countries watching British comedy with tears rolling down their cheeks. We should honour our greatest export – the English language.

Unfortunately, the bizarre has to be the never-ending series of ways that people conspire to ruin the telecommunications infrastructure of this country – we never learn from history. Bizarre but not humorous.

RS: What do you consider to be your legacy?

MG: I tend to be the 'go-to' man to manage projects coordinating work from Europe, the US and the Far East because I have worked with all sides and now enjoy

> 'I see further development of very high bit rate applications, with 500m channels seeing SMF taking over from MMF, but nothing revolutionary. There are new optical technologies under development, but they are not likely to be seen in the market for at least the next five years.'

their trust. It's all about getting people to talk openly, sometimes with a laugh and a joke, to properly explain their objectives.

In 2019 I received the IEC 1906 Award which stated that I have been 'a major influence ... to find consensus in critical technical questions and discussions', taking care of 'conformance to European standards and in doing so drives the acceptance of IEC and ISO/IEC papers worldwide'. I think that sums it up and I hope that others will continue it.

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?

MG: In fibre optics I see further development of very high bit rate applications, with 500m channels seeing SMF taking over from MMF, but nothing revolutionary. There are new optical technologies under development, but they are not likely to be seen in the market for at least the next five years.

In copper, I believe that generic cabling ended with the standardisation of Category 7A and the move away from the 100m model. Category 8 supports only 30m and is really for application in data centres. Ahead of us, we see the development of 1-pair cabling but I suspect it will not be wholly successful. I expect a multiplicity of 1-pair options to be developed and standardised with the majority to fall by the wayside, and for the existing generic cabling designs to be extended with some element of single pair cabling.

The only element of significance is that the 1-pair channels are to be specified in a bus topology, with multiple endpoints. However, it seems unlikely that this will be able to deliver the necessary power to its endpoints to satisfy most applications, ignoring for a moment the issue of resiliency where all those devices share the same physical cable.

> 'The two persons with the greatest historical influence on me are Alan Flatman, now retired, and the late Walter von Pattay. They taught me the mechanisms, management and processes of standardisation.'

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

MG: Ironically, after 30 years in standardisation I have just achieved my British Airways Gold Card. However, after 30-plus years of international travel, I'll be quite happy not to travel very much at all!

One thing that is attractive is business mentoring – there's a significant need among small business start-ups who have good ideas but lack the experience of how to operate and develop their businesses. To help them, whatever market it may be, does tend to excite me. ■

EDITOR'S NOTE:

On behalf of the global network infrastructure industry, I would like to wish Mike a very happy retirement. His tireless work over many decades is much appreciated and his willingness to 'tell it like it is' will definitely be missed by all industry colleagues that have worked with him!

Quick clicks

Your one click guide to the very best industry events, webinars, electronic literature, white papers, blogs and videos

OGL Computer has revealed the top technology concerns and priorities for UK small to medium sized enterprises in its new report – The State of Technology at UK SMEs.
To download the report **CLICK HERE.**

Can Your IT Network Support Your Sustainability Goals? is the question posed in a blog by Alexandra Nacken of **Nexans.**
CLICK HERE to find out the answer.

Zone Cabling in the Colocation Data Center is a white paper from **Siemon.** **CLICK HERE** to download a copy.

Here's What You Need to Know About Carbon Emissions in the ICT Sector is a white paper from **Ericsson.** **CLICK HERE** to read it.

What's Lurking in the Shadows 2020 is a report from **Infoblox** that exposes how some IoT devices have the potential to create chaos across a network. To download a copy **CLICK HERE.**

4 Reasons to Use Shielded Cable is a blog from **Panduit** that looks at cable specification in industrial environments. **CLICK HERE** to read it.

In her latest podcast Carrie Goetz of **StrategITcom** interviews Nancy Novak of Compass Data Centers about diversity and inclusion in construction and tech. **CLICK HERE** to hear it and access other podcasts from Goetz.

Strategic direction

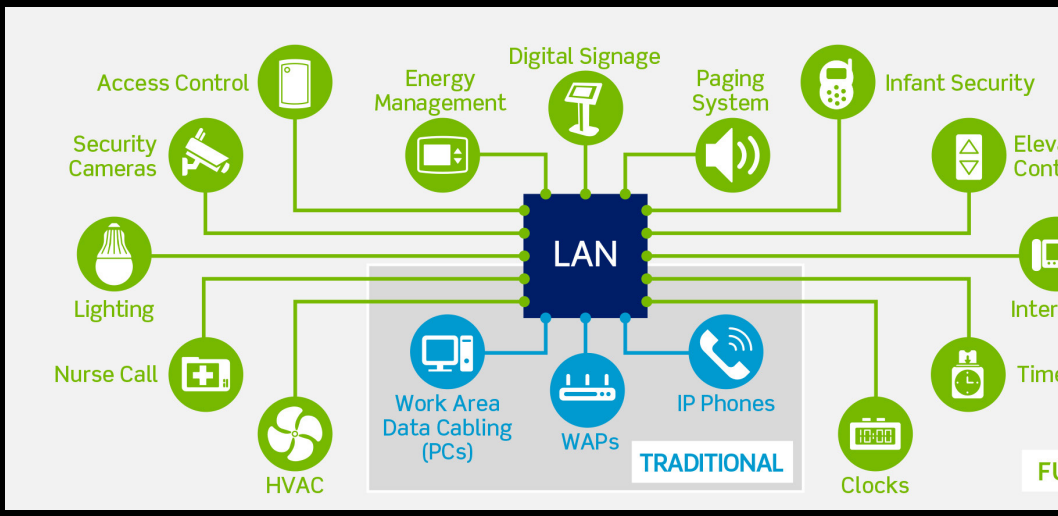
Kirk Krahn of Leviton Network Solutions explains the vital role correct cabling specification and installation plays in creating intelligent buildings

For years, conversations about network convergence mainly involved the combination of voice and data work area applications on to one network. The local area network (LAN) consisted of work area cabling to support PCs on the desk, and IP phones were eventually added. More recently, wireless access points (WAPs) were added to support mobile devices such as laptops, cell phones, and tablets.

UP TO DATE

Now, building systems such as heating, ventilation and air conditioning (HVAC), as well as lighting, security and energy management systems are being incorporated into the LAN. The global intelligent building market is expected to show a compound annual growth rate of more than 34 per cent between 2017 and 2024, according to the 2018 Global Smart Building Market from Zion Market Research.

Planning for the creation of a smart building involves more than just connecting the various facilities systems and building functions. It must include a clear definition of the goals and desired outcomes of making the building intelligent. The benefits of a smart building extend to many stakeholders including the building owner or management, tenant organisations and the individual building occupants. The impacts on all of these stakeholders should be addressed when designing a smart building and determining what specific functions or systems need to



Standards for Smart Buildings

TIA	Bicsi	CENELEC	ISO
ANSI/TIA-862-B-2016	BICSI 007-2017	EN 50173-6:2018	ISO/IEC 11801-6
Standard for Structured Cabling Infrastructure for Intelligent Building Systems	ICT Design and Implementation Practices for Digital Buildings and Premises	Information Technology — Generic Cabling Systems — Part 6: Distributed Building Services	Information Technology — Generic Cabling Systems — Part 6: Distributed

be interconnected.

It is also important to identify who will 'own' each specific system and function, so that the operation of the new systems can be properly managed and responsibilities assigned appropriately prior to initial implementation. This will avoid any disagreements in regards to who is responsible for supporting and managing these solutions.

GRAND DESIGNS

There are several key organisations offering definitions for what makes a building intelligent. The Intelligent Building Institute, ISO and BICSI all offer definitions for buildings, each with a unique take on their make-up. However, they all have some key similarities, which include integrated or interoperable systems, improving building management, and creating cost efficiencies.

When designing infrastructure for an intelligent building, it is important to look beyond just day one systems and applications and attempt to plan for what the future may hold. While building technology, servers and endpoints are upgraded every 3-5 years on average, cabling plant is typically only updated every 10 or more years. Therefore, it is quite possible that the cabling you select today will need to support three generations of technology.

A smart building uses sensors, actuators and microchips in order to collect, manage and take action on data collected according to a business' functions and services. This infrastructure helps owners, operators and facilities managers improve asset reliability and performance, reduce energy use, optimise how space is used and minimise the environmental impact of buildings.

CHOICES AND CHALLENGES

One result of creating a smart building is that an IP network must support a much larger footprint of applications and become integral to the performance and management of business operations. This undertaking can bring challenges and complex choices that aren't always apparent at the outset. These challenges include:

- With additional devices added to the LAN, there's a wider range of bandwidth and data rate needs. In addition, devices have different power requirements. Lighting or wireless access points might require 60W or more, while simple badge readers or access control devices may only need 15-30W.

'It's wise to anticipate what the second and third generation of technology will be needed for your building or facility. Perhaps the applications you use today only require low bandwidth and low power, but will that continue to be the case?'

- Devices are no longer all located at a desktop. They can be located throughout a building or campus, so a lot more preplanning and analysis must be completed as part of the design.

- Technology is evolving so quickly that many of today's designs might not support the new solutions of tomorrow, and new technologies may expand the need for structured cabling into additional areas of the building well beyond what is envisioned today.

COST EFFECTIVE

One of the main reasons why companies are apprehensive of smart initiatives has to do with cost, as building owners will see a 2–6 per cent increase in upfront costs, according to Aurecon. This is not a trivial amount, as six per cent premium can become a significant amount on a project.

However, while there are upfront costs to a smart building initiative, many boast a return on investment within 6-24 months, according to Aurecon. The company's research uncovered the following benefits:

- 10-50 per cent reduction in HVAC and lighting costs
- 8-12 per cent decrease in maintenance related costs
- 10 per cent increase in employee productivity
- Five per cent premium when renting or leasing the property associated with preference for these enhanced capabilities

HIGHS AND LOWS

Power over Ethernet (PoE) is a core technology for implementing a smart building. Common endpoints that rely on PoE include WAPs, security cameras, lighting fixtures, and digital signage. Applications can be grouped into three areas with distinct requirements, each addressing bandwidth and PoE:

- High bandwidth/high power

Typical applications requiring high bandwidth and high power include WAPs and video conferencing systems. These applications will require upwards of 10Gb/s of data and PoE at 60W or higher. This makes Category 6A cabling a must, with its ability to support 10GBASE-T. Also,

Category6A cable and patch cords have larger conductors, which heat up less and perform better under power than small conductors.

- Low bandwidth/high power

Devices requiring less bandwidth

(1Gb/s, 250MHz or less) but high power (up to 100W) include PoE lighting and security cameras with advanced features. A Category 6 system using cable with 23AWG conductors will handle higher power while supporting 1Gb/s. In addition, it has the bandwidth headroom to handle higher data rate applications in the future.

• Low bandwidth/low power

Typical applications for this include building automation and security access controls. With low bandwidth and lower power requirements, a Category 6 or Category 5e system with 23AWG or 24AWG conductors is ideal.

PLAN AHEAD

It's wise to anticipate what the second and third generation of technology will be needed for your building or facility. Perhaps the applications you use today only require low bandwidth and low power, but will that continue to be the case? It is more likely that the cabling you select today will need to support three generations of technology, which could quite possibly change the power and bandwidth requirements for the cabling infrastructure. ■

KIRK KRAHN

Kirk Krahn is senior product manager, copper at Leviton Network Solutions. He has 20 years of experience in product management including 13 years in the telecommunications industry. He manages UTP and shielded copper cable assemblies and bulk copper cable and also works closely with customers to develop custom configurable solutions.

Nexans

Intelligent or smart buildings are a popular topic of conversation today and what makes a building intelligent is a matter of significant debate. Several industry organisations have identified the broad benefits that are expected to be gained from an intelligent building.

We invite you to watch our webinar, where Todd Harpel discusses the various elements that create an intelligent building network and the benefits that are being realised by the implementation of some of the newest technologies available. He also identifies how the integration of many different systems within a building will optimise the health, security and productivity of its occupants, and reduce the environmental impact of the building itself.

To watch Todd Harpel's presentation on intelligent buildings **CLICK HERE.**
www.nexans.co.uk/LANsystems

Leviton

Power over Ethernet (PoE) is a fundamental part of any smart building initiative. It allows for remote management of both data and power to smart devices throughout a facility including access points, smart lighting and security cameras.

Leviton connectivity is designed to support next generation devices requiring both bandwidth and power. Our patented Retention Force Technology (RFT), found in Atlas-X1 and eXtreme Jacks and select patch panels, features a polymer spring that maintains constant contact force at the jack and plug interface, preventing inadvertent intermittent disconnects and protecting the contact point from electrical arcing damage that can occur with PoE.

CLICK HERE to learn how to get long-term network reliability and avoid costly repairs with RFT.
www.levitonemea.com

Draka/Prysmian

Draka, a brand of Prysmian Group, has recognised NG Bailey IT Services as a Technology Partner. This partnership will strengthen the collaboration between the two companies on future product application and development.

NG Bailey has been a Draka UC Connect Installation Partner for eight years. As an Installation Partner, it is authorised to sell and install the Draka UC Connect structured wiring solution. With NG Bailey IT Services having significant field experience, including working in close collaboration with a major telecom provider on initial trials in rolling out fibre into multi-dwelling units (MDUs), Draka has provided the company with access to its engineering teams as an authorised Technology Partner. This will allow for greater collaboration between the two companies at a technical level.

L-R Llyr Roberts and Kelly Tedesco

The announcement was made as part of a visit by NG Bailey IT Services' managing director, Kelly Tedesco, to Prysmian's Bishopstoke manufacturing facility. Llyr Roberts, global vice president of Draka Multi Media Solutions, provided a tour of the extensive site, focusing on Prysmian Group's range of fibre cables including SiroccoXS blown fibre and high fibre count cables, and Prysmian's rapidly growing optical connectivity capability.

To find out more **CLICK HERE.**

uk.prysmiangroup.com

Mayflex

Mayflex is a leading distributor of converged IP solutions including infrastructure, networking and electronic security. With a move towards convergence and the internet of things (IoT), far more devices are being connected to the network, thereby improving efficiencies, safety, health, use of time and energy, while also reducing costs.

Mayflex offers expertise and a portfolio of products from leading vendors. At the heart of the network is structured cabling to allow power over Ethernet (PoE) driven devices such as wireless access points, door access control and IP CCTV cameras to be installed across a single IP network. Intelligent power distribution units (PDUs) and monitoring devices help manage and control the network.

Converged systems provide rich and deep data that IT and facilities managers can obtain, in both real time and historic formats.

To find out about the full portfolio of products from Mayflex **CLICK HERE** or call sales on 0800 757565.

www.mayflex.com

HellermannTyton

HellermannTyton has a connectivity solution for every phase of your network infrastructure – from cable entry into the building and distribution across the building, to the data outlet at the desk.

From the moment fibre optic cable enters the building, HellermannTyton's products come into their own. The S5 MDU enclosure will distribute any incoming fibre to the comms room or to multiple zones in the building. From the comms room, HellermannTyton has a number of copper and fibre solutions that can then be used to connect offices, active equipment and hardware to the outside world.

HellermannTyton manufactures a wide range of innovative solutions that are designed to provide connectivity to different zones within a building. Whether it's the new Zone Termination Box, an under the floor cable distribution box, a work area pod or a pre-terminated 'to the desk' solution, HellermannTyton has a product that can meet the network infrastructure demands of any intelligent building.

For more information **CLICK HERE.**
www.htdata.co.uk

Smart thinking

Rob Kelly of Sudlows explains why we should aspire to construct intelligent buildings

The Chartered Institution of Building Services Engineers (CIBSE) states that 'intelligent buildings help building owners, property managers and occupants realise their goals in the areas of costs, lifetime energy management, wellbeing, convenience, safety, long-term flexibility and marketability to achieve buildings which have high social, environmental and economic values'. Based on feedback from our customers this certainly makes sense. So, what are the key takeaways from this statement? Let's consider three main areas – cost, the environment and people.

DRIVE TIME

One of the most important drivers for an intelligent building is to reduce its impact on the environment. While most readers will be familiar with the term 'carbon footprint', what we are actually discussing here is the 'cradle to grave embodied energy' of the building.

This is effectively the energy and resources that go into constructing, refurbishing, operating and eventually demolishing a building. Intelligent buildings seek to reduce their environmental impact by reducing this embodied energy. A range of solutions help achieve this including the use of sustainable materials, the deployment of energy saving systems and advanced energy and building management systems, all of which drive real efficiencies in a building's energy consumption.

With protecting the environment being the primary concern, intelligent buildings can help by, for example, collecting and contributing to their own water supplies and proactively reduce lighting and heating based on live occupancy data. This results in lower operational costs over the lifetime of the building. Couple this with the fact that intelligent buildings tend to be designed against standards that lend themselves to easier internal reconfiguration and redeployment, such as a grid-wired structured cabling system to support building management system (BMS) and internet of things (IoT) devices, it means lower costs as the building is remodelled and repurposed over its lifetime.

WHATEVER YOU WANT

Alternatively, an intelligent building can also leverage its systems for additional revenue generation, for example, building and management information to drive digital signage, heatmapping of people and client devices to monetise the placement of products in a retail store. The ability of modern building systems and communication systems to gather and analyse data from users and devices is a real game changer in how we drive additional return on investment (ROI) from a building. This brings us to 'people'. The way in which we choose to interact with each other and the general built environment around us has changed substantially in the last 10 to 15 years.

We expect whatever we want, whenever we want it, and we expect the transactional process

to be quick, simple and seamless. We also expect to be able to get online anytime and anywhere for business or for pleasure. We are a truly connected society – one that embraces mobility and has thrown off the shackles of the routine working practices of yesteryear. We expect to live and work in buildings that are designed to meet these demands with round the clock access to our data via wired, wireless and mobile cellular communications. These buildings need to fit in with our lifestyles in a way that is safe and secure, not just on a physical level but more than ever, at an electronic level.

THE BIG QUESTION

While environmental and cost factors address the practicalities of the intelligent building, it is the perception of the people whom reside within it and interact with it that will often form the basis of its success. So how then do we provide the quick, easy and seamless experience desired without compromising the robust security required for such integrated systems?

The communications infrastructure of an intelligent building plays one of the most important parts of enabling the user experience. There are many different systems deployed in an intelligent building and in order to drive the best possible user experience from these systems they must be closely integrated. The first stage is to remove the 'space' between them and place them on a single converged network – a single information technology (IT) and

'While environmental and cost factors address the practicalities of the intelligent building, it is the perception of the people whom reside within it and interact with it that will often form the basis of its success.'

operational technology (OT) platform. In other words a common communications infrastructure.

NO STRINGS ATTACHED

The communications infrastructure should be a standards-based, multimedium solution using, for example, fixed wired connectivity, Wi-Fi, 4G/5G and even Li-Fi. The communications infrastructure should be designed with long-term future proofing in mind and, with particular consideration to the latest iteration of power over Ethernet (PoE), a Category 6A shielded solution should be deployed as a minimum. This is an important consideration where many of the systems that exist in intelligent buildings such as CCTV, access control, digital signage, wireless access points and a range of IoT devices are typically using PoE for power delivery to the end point.

With the general shift to a more mobile workforce, the need for a well-designed and deployed wireless network has never been higher. But it's not just user data to consider – other solutions such as video calling, occupancy monitoring and wireless casting, for example, are also seeking to share the wireless network, so wireless must now be deployed for a range of applications to support the intelligent building.

In the intelligent building the wireless network provides the opportunity to mine data from client devices and provides a medium via Bluetooth Low Energy for us to

start to interact with the user, allowing the building and its services to make real time decisions for comfort and convenience.

SAFE AND SECURE

When providing this converged communications platform, security must be top of mind. With many IT and OT technologies operating on the same converged platform, the possible attack surface of the network increases dramatically. Security should be designed into the solution from the start and is the responsibility of all stakeholders in the project.

The deployment of a security solution becomes more complex as more systems are integrated on to the same platform. It is essential to deploy modern cybersecurity tools that deploy a threat-centric approach, leveraging artificial intelligence (AI) and machine learning (ML) to constantly learn and adapt, and to proactively secure the network. In an environment such as an intelligent building where many different types of device reside on the network and communicate in different ways, AI plays a major factor in understanding the intent of a device on the network and how to respond to it accordingly.

NUMBER CRUNCHING

The numbers and complexity of intelligent buildings are only ever going to increase as we seek ways to reduce the environmental impact of our built environment, improve ROI and construct spaces where people want to work, live and play. At the core of this is a key enabler for intelligent buildings, a converged communications platform connecting people, applications and end points, unseen by the end user, yet the most important building block in the intelligent building. ■

ROB KELLY

Rob Kelly has been in the communications and networking industry for over 20 years, since entering as an apprentice cabling engineer. He now holds the position of head of technology at Sudlows. During his career Kelly has successfully delivered projects across numerous technology disciplines and in a range of different environments. He heads Sudlows' Smart Technology Division, which deploys a range of intelligent building technologies.

The Wellcome Sanger Institute works with Schneider Electric to drive energy efficiency and ensure genomic research funding

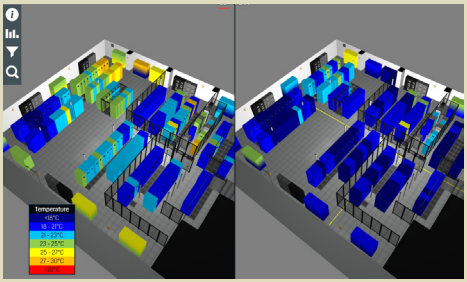
The Wellcome Sanger Institute is one of the world's leading research facilities focused on genomic discovery. The DNA sequencing machines at the core of its efforts generate vast quantities of data each day, the analysis of which drives research into improving outcomes from human disease including cancer, malaria and cholera.

To support the computational effort essential for this analysis, it recently made operational a fourth data hall, bringing the total capacity to 400 racks, which makes it the largest genomic research data centre in Europe. The Wellcome Sanger Institute also needed a monitoring and management solution that would allow it to manage the entire data centre infrastructure and its distributed IT environment in an efficient and cost effective manner.

Working with Schneider Electric and its UK Elite Partner, EfficiencyIT, The Wellcome Sanger Institute deployed EcoStruxure IT Expert, a next generation data centre infrastructure management (DCIM) software solution, which enables it to manage all of its key infrastructure assets and improve the overall efficiency of the data centre.

Daisy unlocks data centre cooling energy savings with EkkoSense

EkkoSense is helping Daisy Corporate Services to unlock data centre cooling energy savings of over £163,000 a year through the deployment of its EkkoSoft Critical SaaS software and specialist optimisation skills. EkkoSoft Critical is now being used to help manage the cooling performance of seven Daisy data centre sites across the UK.



Following the success of an initial project at two data centres where EkkoSense helped deliver some £115,000 of cooling energy savings in the first few months of a deployment, Daisy extended its engagement to cover further primary data centres in Wapping, Aston and Romford.

Again, the deployment of EkkoSoft Critical and EkkoSense's data centre optimisation service unlocked additional cooling energy efficiencies, adding a further £77,000 annual cost saving. Daisy has also now engaged EkkoSense to deploy its software-led thermal optimisation approach at its Reading and Birstall sites, as well as additional halls in the original Farnborough and Aston facilities.

Siemon supports Rich Products Corporation in future proofing its new food production facility and UK headquarters

Siemon's structured cabling technology has been installed at Rich Products' new 15-acre UK production facility in Andover, Hampshire. In order to support the company's ambitious growth plans, Siemon's copper and fibre cabling solutions are future proofing Rich Products' bakery, while enabling a fully automated production process and intelligent building services.

Rich Products Corporation is one of the leading manufacturers of sweet bakery products and non-dairy toppings and fillings for the foodservice, in-store bakery and retail markets. Fully automated manufacturing and cutting edge production technologies require state-of-the-art IT infrastructure and the majority of the company's production equipment, which includes conveyors, scales, mixers, dosing systems, as well as the sorting, boxing and palletisation, is now managed through the network.

Rich Products specified a 10 Gigabit Ethernet infrastructure and after careful consideration and advice from its cabling partner, easyNetworks, found the right solution offering in Siemon. The company's innovative products best matched the high standards of this world-class manufacturing centre, while Siemon's 20-year product warranty and extensive infrastructure planning and design expertise affirmed Rich Products' decision.

PROJECTS & CONTRACTS IN BRIEF

School pupils across Edinburgh will be challenged to come up with creative ways of using new technologies to tackle local issues and help transform their hometown into a smart city, as part of a unique partnership with local businesses and organisations. CityFibre, the City of Edinburgh Council, and the University of Edinburgh's Data Education in Schools programme will deliver the smart city focused internet of things (IoT) pilot to primary and secondary school year groups across Edinburgh.

A record 26.42TB of data was transferred within the stadium during Super Bowl LIV in Miami – an increase of 9.9 per cent from last year's NFL championship game. Extreme Networks, the Official Wi-Fi Solutions Provider of the NFL and of Super Bowl LIV, provided all of the Wi-Fi infrastructure for the event and analysed the record-breaking increase in fan engagement, as well as trends in user behaviour, throughout the game.

Pulse Secure has announced a successful project with Interdata, as the first Pulse Secure Elite partner to launch a pay as you grow, managed secure access service within France. The Interdata EasyConnect service is aimed at enterprise customers and utilises Pulse Connect Secure to enable enterprises to secure access to individual applications using an 'authenticate first, then connect' zero trust approach.

Rittal

For most companies, reducing energy consumption across their business is an ongoing imperative. Nowhere is this truer than in the data centre sector.

Research suggests that energy efficiency ranks alongside a stable supply of electricity as the most important issue for data centre operators. In recent years IT capacities have risen sharply and this has driven energy requirements upwards. The industry has responded by reinventing IT cooling with the development of in-line cooling and aisle containment systems that reduce energy consumption.

At Data Centre World (DCW) in London, experts from Rittal will be on-hand to advise show visitors how to select the right power distribution unit (PDU) and maximise the efficiency and reliability of their systems. Rittal's team can provide guidance on efficiency ratings, reliability, ease of integration and life expectancy.

To find out more come to Rittal's Stand D610.

www.rittal.co.uk

CNet Training

CNet Training has announced an agreement with British Standards Online (BSOL) to offer learners access to the latest British and European industry standards, and guidelines for reliable reference during their program. This will ensure that individuals learn best industry practices and processes.

BSOL is a service provided by the British Standards Institution (BSI) that offers access to over 100,000 internationally recognised standards. In an unregulated industry, it is important for people at all levels to understand the role that standards play in ensuring that infrastructure and data centre projects are delivered to the highest technical and quality requirements.

CNet Training has worked alongside BSI to put together a collection of 25 relevant standards for CNet Training's technical education programs across The Digital Infrastructure Education Framework, spanning the data centre and network infrastructure sectors. Learners will have full access to the library for the period that they are attending their chosen program.

To find out more **CLICK HERE.**

www.cnet-training.com

R&M

R&M's new QuickRelease (QR) push-pull mechanism for fibre optic patch cords helps increase port density by 50 per cent, without having to make any compromises in terms of operability.

The strain relief sleeve serves to limit radius and guide the plug. Space between the coupling windows, which used to be required for the handle, is now no longer necessary. The LC-QR duplex also enables a packing density of 120 ports or 240 fibres per height unit. This means up to 10,080 fibres can be connected in a network cabinet with 42 height units.

QR variants are available for patch cords with MPO, LC simplex, LC duplex, and LC Uniboot connectors. R&M has specified the connectors for all typical use scenarios. The MPO-QR is also compatible with other manufacturers' MPO/MTP connectors and supports OS2, OM3, OM4, and OM5 singlemode and multimode fibre. The MPO-QR is assembled with 2mm patch cords and the LC-QR duplex with 1.4mm cables.

To find out more **CLICK HERE.**
rdm.com

Fluke Networks

Fluke Networks' FI-3000 FibreInspector Ultra allows users to find contamination – the most common cause of optical fibre failure – on nearly any connection. Users can get a live view of the fibre endface instantly on their phone or Versiv Cabling Certification System, and then use a gesture based interface to zoom in on individual fibres or perform a pass/fail test.

The FI-3000 FibreInspector Ultra offers an extensive feature set that makes testing single fibres or MPO trunks easy and efficient. It features unique ergonomics that support the easy inspection of panels or cables, with controls on the back that make it simple to operate with one hand.

It works with iOS or Android smart devices through the FI-IN App. The app allows users to store results, or even share them with others as an image or a PDF report. The FI-3000 also works with the Versiv Cabling Certification System, allowing users to generate inspection reports using LinkWare PC or LinkWare Live and integrate them into a single, complete project report.

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

All you need to know

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Game plan

Martin Hodgson of Paessler AG offers 10 top tips for managing a growing internet of things (IoT) environment

The adoption of IoT technology has grown exponentially in recent years. Looking to the future, this trend shows little sign of slowing and according to Strategy Analytics we can expect 38 billion connected devices on the network by 2025 and as many as 50 billion by 2030.

FIVE ALIVE

We are becoming more used to using IoT devices. From smart tech such as wearables all the way to connected cars, the IoT is a part of everyday life for most modern consumers. For businesses, the implementation of IoT technology promises many benefits, from hands free management to increased customer satisfaction. However, the challenge lies in ensuring IoT networks are correctly managed in order to ensure a return on investment and meet the ever-growing needs of customers.

According to Gartner, there are five levels of IoT maturity to assess how far businesses have come in their journey – and how far they are yet to go. CIOs can use this model to understand, track and maximise the business impact of IoT investments across their organisations. The five stages are initiating, exploratory, defined, integrated and optimising.

At the moment, most businesses sit anywhere between stage one and stage three. Many companies have only just started connecting everything to one central system. This means processes are no longer operating in siloed conditions, but businesses are focused on learning about how to create a connected enterprise so that they can progress to eventually working in a more data driven environment.

THEORY OF EVOLUTION

As things start to evolve, companies naturally navigate their way into stage four, as integration is a crucial step to achieving IoT maturity. Companies across the globe are realising that they need to completely integrate their IoT projects into the organisation's overarching strategies and

'Anything with an IP address can be hacked, and the IoT widens the threat vector. Before you connect the refrigerator to central IT, be sure to have a security plan in place.'

long-term goals. This is crucial in ensuring IoT infrastructure creates truly seamless, connected experiences at every level of the business.

As IoT networks grow and become more complex, they risk becoming unstable if they aren't continually monitored for infrastructure or virtual machine issues. A robust monitoring system empowers network managers to anticipate, diagnose and solve issues, often before the problem even has an impact on the end user. As IoT networks are commonplace in businesses and homes alike, network failure can have a disastrous effect on productivity and can significantly damage the overall customer experience.

An IoT network is only as strong and secure as its weakest endpoint. Each connected device is a potential gateway into the network, so it is integral that network managers can monitor every device to detect rogue devices that may pose a risk. Security is a key concern of IT teams because of the importance of the data at stake and the technical complexity existing in the communication network and cloud infrastructure. There are three main targets for hackers to access the functionalities and data of a connected device – devices and hardware, cloud infrastructure that includes conceptually IoT supervisors via servers, and the network of communications.

DEEP IMPACT

We don't yet know if IoT will live up to the hype, but we are convinced that it will definitely have an impact on the way we experience IT – and the way companies need to monitor their IT infrastructure. So here are 10 tips for IoT planning and implementation:

- What will the IoT do for you?
  The IoT will change some businesses more than others. A professional services firm might be concerned about integrating a smart thermostat, whereas a manufacturer will face the challenges of unifying a number of disparate systems, machinery and devices. Network administrators will be at the forefront of the integration process and play a large role in making connected devices functional and useful.

- Connections
  While some connected devices will be productised and designed to fit neatly into networks, others will be homegrown and rely heavily on customisation. Therefore, integration becomes a challenge. It is critical that all connected devices be brought under one roof so they can be accurately monitored.

- Understand connectivity
  There are three main protocols that are used to connect the IoT – simple network management protocol (SNMP), REST APIs and XML. By gaining a stronger understanding of how devices interact, you'll be able to design more sophisticated network architectures, which make monitoring that much easier.

- Not every 'thing' is new
  Not every connected device is the latest and greatest hardware from industry leading companies. Many devices are outdated, especially in industrial settings, or are connected by small computers like Raspberry Pi. You need to understand the many different hardware requirements and identify how to connect necessary devices, even if they're from the last century.

- Be adaptable
  The IoT is likely going to be the biggest challenge network administrators have faced since cloud services and bring your own device (BYOD). There will certainly be pressure from leadership to tackle the 'next big thing' in IT. You will have to be both patient and flexible to handle the complex challenges of monitoring a network of connected devices and deal with the pressure to get it done.

- Plan ahead
  When it comes to network monitoring, planning is your friend. The advent of

BYOD had major effects on networks and bandwidth, and so will the IoT. To maintain uptime and availability, be sure to plan for bandwidth usage from connected devices.

- If it is connected, it is hackable

Today's hackers are both fearless and creative – a dangerous combination for IT departments. Anything with an IP address can be hacked, and the IoT widens the threat vector. Before you connect the refrigerator to central IT, be sure to have a security plan in place.

- Customise

One of the most exciting aspects of the IoT is that there is seemingly no limit to what can be connected. In terms of monitoring, that creates challenges that can be solved by creating new sensors and custom reports. This is especially exciting in industrial settings, where data extracted from devices can be used to make business processes smarter and more efficient. You can take advantage of this opportunity to show off your creative side and build custom solutions for these monitoring problems.

- Know your things

Modern IT systems are often chaotic. It has become incredibly easy to spin up a virtual machine, download and run cloud software or connect a device. Mapping and tracking every 'thing' that is added to the network as it happens will save you plenty of headaches in the long run.

- Think of the end goal

Connected device projects likely start small in most businesses, and many will not be of great consequence. But eventually the connected world will deliver new data and information about how businesses operate that will become drivers of key decisions. You will be responsible for collecting and analysing that data and turning it into insights. Having a plan in place for what's next is crucial, even if there's less happening at the present. ■

MARTIN HODGSON

Martin Hodgson has worked in the IT industry for over 25 years in a variety of technical and commercial roles. He is currently head of Paessler AG in the UK and Ireland. Along with his extensive experience in many areas of technology, he has an ability to break down and communicate sometimes complex technologies in simple terms.

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