Inside Networks

THE NETWORK INFRASTRUCTURE E-M

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2019 REVIEWED AND A LOOK AHEAD TO 2020

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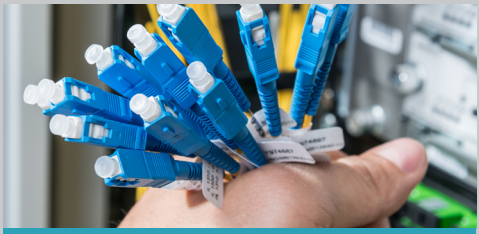

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CHALK HILL MEDIA

The end of a year always offers a great opportunity to reflect and look forward to what's ahead. If you're anything like me, 2019 will have gone in the flash and plans for 2020 will be well underway. Before I go any further, I'd like to say a big thank you to all our contributors from all over the world who continue to make Inside_Networks what it is and to you for choosing it as your monthly resource for all enterprise and data centre network infrastructure news, views, comment and analysis.

So back to business. This year has been a positive one for the industry and with the edge, 5G, the internet of things, artificial intelligence, power over Ethernet and ever more intelligent buildings all dominating the headlines there is certainly a growing sense of optimism and excitement in the air. We've asked a panel of experts from different sectors to pick their highlights and suggest what the future has in store. You can read this month's Question Time by **CLICKING HERE.**

Also in this issue, we focus on connectors and connectivity with two excellent articles on the subject. In the first, Lee Funnell of Siemon examines the different high-speed interconnect solutions available for top of rack designs in data centres, while in the second piece, Todd Harpel of Nexans take a closer look at various new connection technology. **CLICK HERE** to read Lee's article and **CLICK HERE** for Todd's.

Another massive topic again this year was sustainability and there have been some great initiatives launched to help address the amount of plastic used by manufacturers and distributors. Energy use in data centres also continues to be a cause for concern and so we've asked Russell Poole of Equinix to look at whether data centres really be efficient, sustainable and profitable. Find out what he thinks by **CLICKING HERE.**

Don't forget, if you'd like to comment on any of these subjects, or anything else, I'd be delighted to hear from you and all the best for 2020!

Rob Shepherd
Editor

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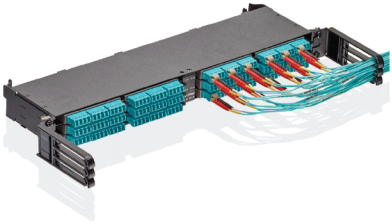

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Study reveals open infrastructure is at the core of data centre transformation

Research from Cumulus Networks shows IT leaders have reached breaking point with proprietary infrastructure and open networking is their new norm. While 68 per cent of technology leaders are interested in adopting more open technology, 59 per cent of companies are already using open networking solutions to modernise their data centres to increase agility and scalability.

Technology limitations within the data centre are often cited as a key roadblock adopting latest technology such as artificial intelligence (AI) and 5G. Network infrastructure, in particular proprietary equipment, is not immune to this as 77 per cent of companies are not getting what they need from their current network.

Decision makers want to take advantage of 5G (33 per cent), AI (35 per cent) and high-bandwidth streaming (26 per cent). And these trends are compelling the world's largest data centres to change their entire philosophy about the architecture, dynamics, and purpose of networks. It's not just the young, born-in-the-cloud companies either. Of companies founded between 2000-2014, 65 per cent have all, or most, of their tech as open. 54 per cent have recently switched over parts of their proprietary infrastructure to open technology.

Once companies see the benefits of open infrastructure and the critical role it plays in data centre modernisation, they tend to adopt more of it. In fact, 61 per cent of organisations like the open technology they have deployed and are planning on adopting more.

Josh Leslie, CEO of Cumulus Networks, commented, 'While there is strong adoption of open infrastructure, there is still an appetite for more. Enterprises are seeing the benefits, including increased flexibility, cost savings and increased collaboration.'

Consumers are not ready for AI and want higher levels of personalisation

UK consumers are not prepared for the introduction of AI, and want brands to focus on delivering a seamless, personal digital experience instead, according to the results of a global survey commissioned by Acquia. Only 44 per cent of respondents are looking forward to brands interacting via AI, with four in 81 per cent stating automated experiences with brands are too impersonal.


Steve Williamson

Steve Williamson, general manager and senior vice president of EMEA at Acquia, said, 'It's clear that consumers want a simple, seamless, personal experience via their digital channels when interacting with their favourite brands. While the marketing industry appears to have a burning desire to introduce AI in customer experience, they actually need to work on getting the basics right – and that starts with personalisation. To build long-lasting loyalty, brands need to put personalisation at the heart of their customer experience strategy.'

IT security budget growth is slowing

Research from Databarracks has found that over half (55 per cent) of UK businesses have seen their IT security budgets either stay the same or decrease in the last 12 months, with just a third (33 per cent) seeing an increase. This is down on last year, when 36 per cent reported a growth in budget, and bucks a trend of continuous growth over the previous four years.

The findings were taken from Databarracks' annual Data Health Check survey. It also found that cyber incidents were the biggest cause of IT downtime for 12 per cent of respondents, 17 per cent of respondents named cyberattacks as a cause of data loss, up from nine per cent in 2016, and the prevalence of ransomware has almost doubled in in the same period, affecting 28 per cent of businesses in 2019.


Peter Groucutt

Peter Groucutt, managing director at Databarracks, said, 'In previous years, we've seen a steady increase in security budget growth. This time it's different. Cyber incidents are becoming more prominent as a cause of both IT downtime and data loss, and attack types like ransomware are causing significant disruption. These developments underline that now is not the time to reduce investment in cyber resilience.'

Research reveals that only one in five IT workers actually knows what fully constitutes a cyberattack

A survey of 1,032 IT workers in full or part-time employment, carried out by Probrand.co.uk, has revealed that more than one in five (21 per cent) don't actually know what a cyberattack constitutes.

Used as an umbrella term, cyberattack is used to cover everything from a simple phishing email, right across to a server attack, however, many IT workers have never seen or understand what the actual detail of an attack actually looks like. 43 per cent of the IT workers surveyed admitted to being unaware of how to defend their company from a cyberattack, with one in three (32 per cent) relying on external agencies for crisis support.


Matt Royle

Matt Royle, marketing director at Probrand, commented, 'The term, cyberattack is firmly set in business vocabulary, and rightly so, as cyberthreats present the greatest risk of crisis to most organisations. However, it is worrying to discover many do not know the details of what a threat looks like, so have little chance of protecting themselves from it.'

Business owners depressed and suicidal due to late payment

90 per cent of business owners across construction suffer a range of mental health issues due to payment and other business pressures, according to a survey run by the Electrical Contractors' Association (ECA) and the Building Engineering Services Association (BESA).

The new survey, conducted in association with 25 other construction trade bodies, found that business owners have an array of significant mental health problems due to the pressures of late or unfair payment, including stress (80 per cent), depression (36 per cent), extreme anger (38 per cent), anxiety and/or panic attacks (40 per cent), insomnia (36 per cent) and suicidal feelings (10 per cent). Furthermore, over four in 10 (41 per cent) of all respondents said that payment issues had strained their relationship with their partner, with five per cent reporting it caused it to breakdown entirely.

ECA director of corporate social responsibility, Paul Reeve, commented, 'It's absolutely clear from these findings that poor payment is a serious cause of mental health issues across the industry and that the problem, far from being isolated to certain individuals, is commonplace among top management.'

EPI awarded world's first TIA-942 Conformity Assessment Body accreditation

EPI has been awarded the TIA-942 Conformity Assessment Body (CAB) accreditation, making it the first certification body to receive it. The Telecommunications Industry Association (TIA) established the qualification for TIA-942 CAB to ensure the auditing and certification of data centres is carried out by qualified organisations.

TIA has appointed Certac to manage the verification of the CABs and to issue the TIA-942 certificate of conformance to data centres. This will ensure the quality of the TIA-942 conformance certificates and protect the interests of data centre providers and end users from non-authorised parties.


Harry Smeenk

Harry Smeenk, senior vice president for technology programs at TIA, said, 'We want to uphold the standard of the TIA-942 conformity certification to ensure its value. To achieve this goal, we require the CABs to prove they have auditors competent on the TIA-942 standard and auditing, and that the organisation is following the stringent processes for conducting audits according to the ISO 17020/17021 standard. Any data centre owner/manager who wants to protect their business and verify their data centre design and build for conformity to TIA-942 can rest assured that they will get top-notch quality with EPI as their auditor.'

Interest in UK tech jobs wanes while Europe prospers

Jobseekers' desire to work in the UK tech sector is falling, as other European countries' tech industries see a surge in interest, according to new data released by Indeed for Atomico's State of European Tech Report 2019.

The company's analysis shows the share of searches for jobs in UK's tech sector fell by three per cent between the first half of 2017 and the first half of 2019. Over the same period, searches for tech jobs in Belgium increased by 76 per cent, with Portugal clocking a 45 per cent rise and Sweden 42 per cent. Of the 11 European countries studied, the UK was the only one to register a fall in searches for tech jobs.


Bill Richards

Bill Richards, UK managing director at Indeed, commented, 'Our data shows European tech hubs have access to a deep pool of high-skilled workers and as funding across the continent grows so do job opportunities in the tech sector. We've also seen how European tech workers are prepared to work elsewhere on the continent compared to their American counterparts, who are showing signs of wanting to stay in North America. Overall searches for UK tech jobs may have dipped but there is still much to shout about the sector. The nation's remains a hotbed for tech innovation, with global investment still pouring in and the country remains a world leader for creating tech unicorns and attracting a high-skilled global workforce.'

NEWS IN BRIEF

ProLabs has completed the Network Equipment Bundling System (NEBS) compliance test through Intertek.

Stellium Datacentres has completed a £30m investment by Tiger Infrastructure Partners and Eram Capital Advisors.

Iceotope has been ranked number 14 in the 2019 Deloitte UK Technology Fast 50 – a ranking of the 50 fastest growing technology companies in the UK.

The Telecommunications Industry Association (TIA) TR-42.12 Engineering Committee on Optical Fibers and Cables has issued a call for interest on two documents – ANSI/TIA-455-191-C and ANSI/TIA-492AAAF.

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OM3	Breakout	ST
OM4	—	FC (UPC)
OS2	—	—

Give me five!

Hi Rob

Operators are simply not prepared for the capacity requirements and complexity of the 5G network, and need to invest in the development of their networks now to ensure they can withstand the upsurge expected in the future.

5G is expected to bring extraordinary transformation, benefitting entire economies and societies. With its combination of higher speeds, lower latency and greater capacity, 5G has the potential to reinvent business with the capability to launch new products and services, enter into new markets and increase productivity – making future proofed network infrastructure critical.

Across the globe, countries have delayed in issuing the 4G and 5G radio spectrums, so providers must act now to safeguard networks for future 5G demands. From a practical perspective, 5G will require extra bandwidth per cell. The increase in speed from 10Gb/s to 25Gb/s will prove critical to support the additional bandwidth required for 5G services.

25Gb/s networking has become the building block of enterprise and data centre network upgrades. The current trend of 100Gb/s upgrades are built on 25Gb/s lanes, delivering cost effective 100Gb/s networks that are capable of meeting future network upgrade standards.

In contrast to 40Gb/s, 25Gb/s is being introduced right to the edge in network interface controllers (NICs) and switches, instead of a line side upgrade. Unfortunately, simply installing a SFP28 transceiver into a small form-factor pluggable (SFP) switch port does not simply upgrade a port to 25Gb/s. Edge devices must also be upgraded to support 25Gb/s.

Advances in transceiver technologies offer operators the ability to maximise their existing assets while simultaneously planning for the future, by allowing enterprises and data centres to upgrade sections of their network to 25Gb/s, while deferring upgrades on other portions into the future. Deploying transceivers in edge devices that can connect at 25Gb/s or 10Gb/s allows data centres and enterprises to align 25Gb/s upgrades of edge devices and NICs with time and budget constraints.

5G's transformational impact means operators need to be prepared for the surge in business demand and revenue opportunities that are set to follow. By installing 25Gb/s solutions enterprises and data centres have access to an upgrade path that is aligned with future network technology, while reducing the cost of cabling upgrades.

Anthony Clarkson
ProLabs

Editor's comment

The impending widespread rollout of 5G is already causing excitement and concern in equal measure.

Excitement because all the data produced will have to go somewhere and concern because the amount of data being stored in data centres will increase dramatically.

It is surprising that operators are seemingly taking it all in their stride though – as there's a lot more work to be done to ensure networks can cope with the massive rise in expected demand.

Point of order

Hi Rob

I don't usually write to challenge another manufacturer's claims – in fact this is the very first time. I have always respected another's technical strengths and developments as positive for the industry and good for competition.

However, I feel the claim by Leviton in Dec 19's Inside_Networks to be 'the first and only' manufacturer to gain independent certification for one of its products in relation to testing for 4PPoE, using the test method outlined in the standard IEC 60512-99-002, does warrant a comment.

Whilst we applaud their success in gaining the certification, which we recognise as a good achievement, we do not believe their claim to be the first and only manufacturer to be correct.

Excel Networking Solutions received its first independent certification to the ratified standard from FORCE Technology/DELTA on the 21st May 2019, over four months before Leviton's announcement. Since then we have had another 14 products certified including the field installable Category 6A RJ-45 plug. The May 2019 certification followed our adoption to test and receive certification to the draft standard as far back as May 2018.

Therefore, whilst I welcome the Leviton announcement for customers, they were not the first and only. I trust this clarifies the claims made.

Paul Cave
Excel Networking Solutions

Editor's comment
We always do our best to ensure the accuracy of information contained within Inside_Networks and I hope this sets the record straight.

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Backwards and forwards

With 2019 coming to a close, it's a good time to review the events of the last 12 months. Inside_Networks has assembled a panel of industry experts to pick their highlights and suggest what we can look forward to in 2020

It's been another fastmoving 12 months in the enterprise and data centre network infrastructure sectors, and with 2019 nearly over most organisations are turning their attention towards what the new decade might bring. But first it's a good opportunity to take stock of what's happened during 2019.

Edge data centres dominated discussion throughout the year. To some extent what's happening now is simply a culmination of the exponential adoption of the cloud, the internet of things (IoT) and our predilection for watching streamed content. Similarly, Industry 4.0, the industrial internet of things (IIoT), machine-to-machine (M2M) communications and the development of autonomous vehicles will continue to drive data centres to the edge.

The impending rollout of 5G will also mean that the amount of data being stored in data centres will increase dramatically. In order to cope, organisations will need the correct digital infrastructure in place. It will need to be robust, secure and scalable, so it can seamlessly transfer the ever-growing volume of internet traffic. 2020 will therefore be the year when companies have to start their preparations in earnest in order to meet these requirements.

Within the enterprise space, one of the big talking points of 2019 was a technology that could not be considered new. Passive optical networks (PON) are gaining popularity in the LAN, for several reasons including increased reach length, deployment speed and simplicity. Expect to hear more about PON in the next 12 months.

The need for a more diverse workforce continues to be recognised and there is a definite sense that things are starting to get serious with regard to inclusion based practices and attracting new talent. 2019 saw a significant landmark with the introduction of the Network Cable Installer (NCI) Apprenticeship – a development that will inspire a generation in England and Wales that might have never previously considered it as a career option, and which the rest of the world can learn from.

To discuss the highlights of 2019 and predict the big talking points of 2020, Inside_Networks has assembled a panel of experts to give us their thoughts and opinions.

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

WHAT HAVE BEEN THE MOST SIGNIFICANT EVENTS WITHIN THE ENTERPRISE AND DATA CENTRE NETWORK INFRASTRUCTURE SECTORS OVER THE LAST 12 MONTHS, AND WHAT DO YOU THINK WILL BE THE KEY TALKING POINTS DURING 2020?

CARRIE GOETZ

PRINCIPAL AND CHIEF TECHNOLOGY OFFICER AT STRATEGITCOM

2019's highlight events include a focus on better energy sources and utilisation within data centres. With the advent of increased compute, the ability to bring in things like software defined power as the last pillar of the software defined data centre shows additional promise in the coming year. Renewables, natural gas, and indirect cooling that doesn't consume massive amounts of water are already proving their monetary worth for owners and for the stewardship of our planet.

A renewed focus on cloud and security will continue to dominate the headlines throughout 2020. McAfee has reported that 97 per cent of misconfigurations go unreported and those 'dabbling' in the cloud are ripe for problems, as users are responsible for data in the cloud and need to have the proper architecture, security and audits. Maintaining skills is a difficult task, as cloud technology changes as fast as one can gain knowledge, so practitioners and strategists will be in increased demand as companies work to plan their technological futures.

Hyperscalers will continue to dominate the news even though they are a tiny portion of data centres – currently .00005119 per cent according to Statista. Having said that, one of them moving into your area can halt production and availability of all things you may need for your data centre, forcing you to have a list of alternate suppliers. Requests for information (RFIs) will therefore make a comeback.

Edge will see a change, as several edge consumers create the need for a multi-tenant data centre. Edge will become more of a communications ideology than a mini-data centre in many markets.

Creating new service and space availability for markets that are underserved by colocation data centres will become a new line of business for 'mini-halls' – smaller cabinet count leases – and other creative means of space leasing. It also provides a mechanism for enterprise/customer owned data centres to lease out spare capacity to others, and consortiums of data centre managers with extra capacity may arise to meet edge needs.

Lastly, we will stop hearing about 5G as the salvation to compute and realise that it is just a stepping stone.

'Edge will see a change, as several edge consumers create the need for a multi-tenant data centre. Edge will become more of a communications ideology than a mini-data centre in many markets.'

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9th March 2020

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3 days
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EDDIE MCGINLEY
DIRECTOR OF PRODUCT MANAGEMENT AT LEVITON

Data centre managers everywhere continue to update their networks to address bandwidth demands. Their priorities, including higher performance, extended reach and loss limit management, can be tough to balance with future migrations, operating expenses, and space consolidation. Therefore, they will continue to look for infrastructure solutions to address these needs.

It wasn't long ago that 400Gb/s networks were just a concept, but as 2020 approaches 400Gb/s is now a reality. It will enable innovation and efficiencies with data centre interconnects, core infrastructure, and research and education networks with enormous data loads. 400Gb/s switch options entered the market in late 2018 and early 2019 and we anticipate many cloud service providers and hyperscale data centres will migrate to 200Gb/s and 400Gb/s this year, with Dell'Oro predicting 400Gb/s to reach 15 million ports by 2023.

Transceiver shipments of 100Gb/s have grown much faster than expected and will continue to see strong adoption in the coming years. However, 100Gb/s ports are expected to peak in 2020 or 2021 and make way for 400Gb/s switches.

In enterprise networks, IT construction planning and design professionals continue to design new, more productive workspaces with building technology intelligence in mind. As a result, more facilities will embrace PoE and the IoT. In addition, many IoT applications will rely on new Wi-Fi 6 (802.11ax) networks, which promise higher data rates and improved device density. All of these developments will increase the need for better cabling pathways, appropriate planning and end to end solutions capable of supporting these intelligent building systems.

Projecting even further into the future, a number of new technologies and trends such as increased automation, machine learning, and multisensory communications like augmented/virtual reality will place even greater demands on enterprise networks. It will pay to look beyond 2020 to anticipate and build an infrastructure that accommodates these new technologies.

'It wasn't long ago that 400Gb/s networks were just a concept, but as 2020 approaches 400Gb/s is now a reality.'

JACKSON LEE

VICE PRESIDENT OF CORPORATE DEVELOPMENT AT COLT DATA CENTRE SERVICES

This year we have seen significant growth and innovation in the data centre sector. Perhaps the most momentous being the continued increase in demand for high capacity and hyperscale data centre services. Driven by rapid developments and adoption of data intensive technologies such artificial intelligence (AI) and the rollout of 5G mobile networks, the data centre industry has been required to adapt and grow at an incredible rate in order to keep up with customer demand.

This year has also seen the continued proliferation of IoT. This trend is not set to slow down, with 20 billion connected devices expected to run on global networks by 2021. As a result, there has been growing expectation that data centre operators not only provide flexible and high capacity services, but also ensure that their services are more reliable because business critical operations are using more data than ever before.

Going into 2020 we are expecting these trends to continue, with the demand on data centre services only set to surge further ahead.

As increased capacity and demand lead to a rise in energy consumption, there will be continued innovation in efficient and sustainable data centre operations in order to curb energy use. These can include initiatives such as heat recycling projects and the adoption of AI as a data centre management tool to ensure data centres run at peak efficiency.

We expect heightened expectations from customers, internal stakeholders, governments and the general public alike for data centre services to be environmentally conscious and sustainable in terms of carbon footprint and overall energy consumption. As a result, sustainability and environmental responsibility will no longer be a nice to have but a critical selling factor for data centre providers.

In 2020 we will see a more connected, innovative and sustainable data centre services sector than ever before.

'As increased capacity and demand lead to a rise in energy consumption, there will be continued innovation in efficient and sustainable data centre operations in order to curb energy use.'

JONATHAN LEWIS

COMMUNICATIONS DIRECTOR AT THE FIBREOPTIC INDUSTRY ASSOCIATION (FIA)

The last 12 months have been relatively stable – we've seen a steady increase in recognition of the value in installing Class EA cabling, particularly in support of remotely powered devices utilising PoE. Copper cabling above Class EA (Class I / Class II / TIA Category 8) is finally shipping, but has made minimal impact on the specification of new data centres. Following the trend of several years now, optical fibre links continue to take a growing percentage of total number of installed links.

Optical fibre now 'owns' the backbone connectivity in most enterprise installations – the arrival of bandwidth hungry 25Gb/s, 40Gb/s and higher active components has driven a significant review of fibre installations, with a focus on ensuring suitable end-face conditions to maximise available transmission bandwidth.

Increasingly, end users are recognising the long-term benefits of singlemode optical fibre links in preference to traditional multimode and copper alternatives. 2020 is likely to see this change further consolidated. We will also see an increased focus on correct installation and operational practice, to ensure maximum availability from every fibre link. Cleaning and inspection are already crucial – continued emphasis from contractors and operators will bear fruit in terms of reliability and performance.

The approval for delivery of the Network Cable Installer (NCI) Apprenticeship was a significant event during 2019. It provides funding via the apprenticeship levy for larger contractors or via a 95 per cent funded model for small to medium sized enterprises, supporting the training and development of new starters within the sector. We expect this to result in a positive impact on the skills shortage throughout 2020 and beyond, although there is still plenty to do in attracting new blood into our industry. The range of digital apprenticeships is extensive and includes many aspects of information technology. The FIA encourages training in order to maintain standards and develop new skills.

Lastly, the government initiative which covers the rollout of broadband and superfast broadband across the UK is probably the most significant development now and into the future. It provides opportunities for businesses, manufacturers, installers and engineers to deliver an ambitious broadband infrastructure.

'Increasingly, end users are recognising the long-term benefits of singlemode optical fibre links in preference to traditional multimode and copper alternatives. 2020 is likely to see this change further consolidated.'

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ANDREW STEVENS
PRESIDENT AND CEO AT CNET TRAINING

The introduction of the Network Cable Installer (NCI) Apprenticeship has been one of the most significant and long-awaited events of the last 12 months.

It's the first government funded apprenticeship dedicated to the network infrastructure industry and is the result of true collaboration between major companies within the UK network cabling sector. It recognises network cable installation as a career role and provides a much needed funded route into the sector.

Combining on and off-the-job training over a period of 12-15 months, it provides organisations with the reassurance that the apprentices will be taught up-to-date and transferable skills, standards and codes of practices resulting in official certification and Level 3 and Level 4 qualifications.

The launch of the NCI Apprenticeship supports standardising technical education across the sector, defining a common set of skills, knowledge and behaviour, supported by certifications and qualifications, which will set a benchmark of correct working practices.

It provides everything employers need – all the planning and organisation has been undertaken and a timetable created to allow the learners to start straight away. This is a big motivator for employers as all the hard work has been done and it helps to provide clarity for the apprentices from the very beginning. Plus, it is available to anyone, whether looking to re-train for a new career, or those already working within the network cable environment looking to upskill. This is in addition to helping to inspire and attract school leavers wishing to embark on a career with mapped progression. So, there is real hope that it will attract new talent and help to address the most talked about skills shortage and ageing workforce issues.

The introduction of the NCI Apprenticeship will not only help progress the shift towards more standardised certifications into the network cable installation sector, it will also help employers to enhance brand reputation, knowing their teams are officially certified and qualified to deliver the best quality of workmanship. I am also hoping it will help employers see the true value of professional technical education across their businesses.

'The launch of the NCI Apprenticeship supports standardising technical education across the sector, defining a common set of skills, knowledge and behaviour, supported by certifications and qualifications.'

MARK ACTON
CRITICAL SUPPORT DIRECTOR AT FUTURE-TECH

The most significant events of 2019 in the data centre sector relate to market consolidation, with the recent bid for Interxion by Digital Realty highlighting a continuation of this activity into 2020.

The past year was a record year for data centre mergers and acquisitions (M&A), with enterprise data centre sale and leaseback activity also increasing significantly. Consolidation and M&A activity will continue into 2020, changing the landscape and the shape of the leading players in this sector. There will also continue to be corporate and individual investors lining up to invest significant amounts in data centre projects. However, for investors unfamiliar with the data centre market there will also be increasing recognition that this is a complex market and one where it can be difficult to get a return on investment.

Key talking points in 2020 will continue to include 5G, but the reality will be that rollout will be slow in 2020 despite the hype. In other areas IoT, edge, autonomous vehicles, augmented and virtual reality, plus smart cities will continue to be granted significant marketing and PR budgets but significant changes or major incremental milestones being achieved during 2020 are unlikely.

Google's claims of quantum supremacy in late 2019 have been seen by some as being a little fanciful, however, it does seem possible that quantum computing could become truly commercially viable in 2020. This would be an enormous incremental step and inevitably change our sector over time.

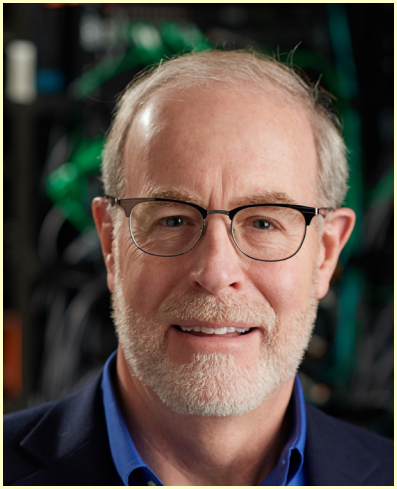
At a more tactical level energy efficiency continues to drive technical development and with the increasing recognition that Power Usage Effectiveness (PUE) is not an energy efficiency metric, the focus is starting to shift to the IT infrastructure and applications rather than building infrastructure. Direct liquid cooling will continue to gain niche appeal during 2020, but will to be far from a mainstream deployment.

The most significant talking points are likely to come from the fields of AI and machine learning. These are areas where some extremely rapid progress is now being made, with 2020 likely to see potentially important announcements. With this in mind it is always worth remembering Roy Amara's Law, which states that for any new technology the initial impact is usually overestimated but the long-term impact is typically underestimated.

'Google's claims of quantum supremacy in late 2019 have been seen by some as being a little fanciful, however, it does seem possible that quantum computing could become truly commercially viable in 2020.'

MARK MULLINS
MARKETING MANAGER AT FLUKE NETWORKS

By combining power and communications over the same twisted pair cabling, PoE provides significant benefits and will continue to be of significant interest during 2020 and beyond.



In most cases, using PoE eliminates the need for an AC outlet, eliminating the cost and labour of duplicative connections. It also can eliminate the separate power supply for the device, which means one less point of failure. And since PoE uses lower, safer voltages, it does not need the strict requirements, such as conduit and electrical boxes required by line powered devices.

But PoE brings its own issues, most commonly around standardisation. The term PoE is not registered, and any vendor can claim PoE capabilities. There are currently three IEEE standards for PoE (802.3af/at/bt). These standards define eight different wattage levels or classes, which can be delivered via four wiring configurations. Further, vendors have a adopted some terms, such as PoE+ and PoE++ as well as Cisco's Universal PoE (UPOE). And while these approaches all fit within the three IEEE standards, there are also non-standard implementations, such as passive (always on) and those negotiated at higher layers. Techs in the field and even designers can become confused about what will work with what.

There are two ways installers can ensure fast and trouble free PoE operation.

First, the Ethernet Alliance will soon label PoE products which pass its certification testing program. Equipment that passes this rigorous process may be labelled with EA approved marks. Not only does this ensure operability across a wide variety of switches and devices, it also simplifies understanding of power requirements. Designers or installers of PoE equipment can simply compare the class of power displayed on the power source equipment (PSE) and powered device (PD) to determine compatibility. If the rating of the PSE is equal to or higher than the requirements of the PD, functionality is assured.

Second, there are a number of things that can affect the operation of a PoE device, including cable not connected or broken, miswired cable, wrong switch speed, zero or insufficient PoE power available. By investing in a tool that verifies the connection and can identify these conditions, installers can save hours of troubleshooting time and should make this a priority in 2020.

'PoE brings its own issues, most commonly around standardisation. The term PoE is not registered, and any vendor can claim PoE capabilities.'

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Whitlock standardises processes and provides quality installations with IDEAL Networks

US-based audiovisual integrator, Whitlock, purchased a selection from IDEAL Networks standardise and trans way it troubleshoots c

Whitlock is focused primarily on conferencing systems, video collaboration training systems, audio signage and other AV systems. The company has a team of around 200 technicians installing cable and devices, usually powered by power over Ethernet (PoE) and installed on customers' VLANs over Category 5e and 6 cable.

Team talk

Without standardised cable testing equipment, ensuring its large team of technicians is installing with a consistent process was a challenge for Whitlock. For instance, there was no set procedure in place for testing and troubleshooting Category 6 cabling. What's more, with a selection of equipment from different manufacturers, the quality of cable terminations in the field could vary.

'When working on large commercial projects, our technicians may need to verify the port and VLAN information in thousands of rooms, testing against multiple customer VLANs and checking numerous switches – this is a time-consuming process,' explains Farrell Wood, national quality assurance and training manager at Whitlock.

He adds, 'On large scale installations, network contractors might also be making changes while our technicians are working on the AV integration, so what is correct one day, might not work the next. This can cause delays while waiting for the customer or their IT department to fix the issue.'

Problem solver

To overcome these challenges, Whitlock conducted extensive research around which test products would best meet its needs, before deciding to purchase a selection of testers from IDEAL Networks.

The company opted for VDV II copper cable testers to ensure that all relevant field technicians have ready access to their own tester for troubleshooting. As the quantity of work on networks is increasing, Whitlock also purchased NaviTEK NT copper and fibre network troubleshooting units, ensuring greater availability across all its US offices. To further support cable installation and customer performance requirements, SignalTEK NT network transmission testers and LanTEK III cable certifiers were added.

Put to the test

As fibre optic cabling and troubleshooting becomes a bigger part of Whitlock's day-to-day responsibilities, Whitlock also incorporated other IDEAL Networks solutions such as the VFF5 fibre optic cable visual fault finder, FiberMASTER light source/power meter and FiberTEK III Tier 1 Multi-Mode fibre certification modules for LanTEK III.

'With VDV II cable verifiers, Whitlock has standardised and totally transformed the way they troubleshoot cable,' explains Tim Widdershoven, marketing director at IDEAL Networks. 'There has been a marked increase in the consistency and quality of terminations,

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so technicians going on-site to commission projects have far fewer termination errors to deal with and having the right equipment from the outset saves a significant amount of troubleshooting time.'

As well as proving useful for standard testing and wire mapping, the VDV II tester utilises TDR technology to accurately measure cable length and provide distance to fault, helping technicians to ensure cabling is as correct as possible before the AV system is installed. This reduces guesswork, saving time and money.

View finder

Meanwhile, with NaviTEK NT Pro CDP/LLDP/EDP Port Information, engineers can view detailed network information to easily verify the port and VLAN information. This makes large scale integrations and installations of voice and video more time efficient, even when multiple VLANs are present. Previously technicians would have to track down the client's IT or network team to find out which port or VLAN a device was connected to.

'With NaviTEK NT Pro, Whitlock can also be much more proactive and efficient in informing customers what needs to be changed on a network in order that the AV system integration can be completed,' says Widdershoven. 'NaviTEK NT Pro also provides extensive reporting capabilities, which will prove useful as an increasing number of AV systems migrate to networks.'

The feedback on IDEAL Networks' products from Whitlock's engineers and technicians has been overwhelmingly positive and Jeff Jones, lead quality assurance specialist at Whitlock, comments, 'The guys love these testers – I wish we had more. Everyone has found the transition to the range of testers to be very straightforward and easy. Very little training has been required to get started with the intuitive testers, a user manual has been enough.'

Service and support

Compared to previous suppliers, Whitlock has also found that service and support from IDEAL Networks ensures that warranty repairs are carried out quickly and are easy to coordinate. 'When purchasing so many testers, cost efficiencies are vital. IDEAL Networks products come at a better price point and with more competitive support,' says Farrell Wood.

Tim Widdershoven concludes, 'Overall, Whitlock's commitment to providing quality, state-of-the-art AV installations for their clients with standardised test practices and efficient troubleshooting has made their choice of IDEAL Networks testers successful at every level.'

www.idealnetworks.net

Top of the pops

Lee Funnell of Siemon takes a closer look at the different high speed interconnect (HSI) solutions available for top of rack (ToR) designs in data centres

Throughout the next decade the number of IP connected devices will grow at an unprecedented rate. Gartner estimates that a staggering 14.2 billion connected things will be in use this year alone. New technologies are advancing and include 5G mobile networks, self-driving cars and smart cities. All these devices and technologies – which are essentially driven by the internet of things (IoT) – produce vast amounts of data that must be transmitted, processed and stored at ever increasing speeds. The pressure on data centre cabling infrastructures mounts.

SWITCHED ON

In data centres that rely on a ToR switching architecture, HIS solutions are gaining in popularity. These point to point cables are utilised for high-speed transmission of large data volumes between switches, servers and storage devices. They are typically found in hyperscale, cloud and colocation locations, as well as large enterprise data centres, which often rely on ToR switching. High-speed interconnects connect the switch located at the top of each rack with active equipment – for example, server or storage devices in the same or in adjacent racks and utilise three cable types. These are direct attach copper cables (DAC), active optical cables (AOC) or transceiver assemblies.

Compared to other cabling designs, a ToR strategy has different cable needs based primarily on length requirements, but there are other considerations such as aesthetics and wire bundle size. Some might be surprised to learn that amongst quality cabling solutions, electrical performance is not usually a consideration. All three cable options are assumed to meet Ethernet standards, meaning that there is no reason to believe that a fibre solution will outperform a copper solution that is the proper American wire gauge (AWG) for its length.

SUPPORT STRUCTURE

So what should network managers consider when selecting high-speed HSIs to ensure optimum support for their networks?

DAC should be the first cabling consideration. They are the most suitable option to make in-rack connections and they are the most cost effective of the three choices. Their drawback, however, is cord length, which is often limited to 5-10m depending on the network speed. But, in most cases, this is all that is required and sufficient to make all connections within the rack.

The second option to consider is AOC. Although they are more expensive than DACs, they utilise OM3 multimode fibre that can support uplinks to 100m. AOCs are therefore ideal to make row to row connections, for example, from the ToR

switch to the aggregate switch that can be located several rows away. Some end users also prefer the smaller diameter of fibre over that of DACs to allow for better airflow, but attention must be paid to heat generation which is greater in AOCs than in DACs. And because AOCs are a closed assembly they are not susceptible to interoperability concerns that need to be addressed with transceiver assemblies.

Transceiver assemblies, comprised of two transceivers and a fibre patch cord, are the most expensive choice but one that offers the most flexibility. Although the industry is trending away from transceiver assemblies and towards AOC, there are still times when the design might not be determined in advance and may require on-site engineering. SR transceivers, for example, can be used to cover lengths from 0.5-100m. A common reason for transceiver use is that they are often bundled in with the network equipment and their cost is lost because cabling is typically about five per cent the cost of rack assembly. In this case the end user may only look at the cost of the fibre jumper.

COME INTO LINE

There are several other aspects that network managers should also look out

'Compared to other cabling designs, a ToR strategy has different cable needs based primarily on length requirements, but there are other considerations such as aesthetics and wire bundle size.'

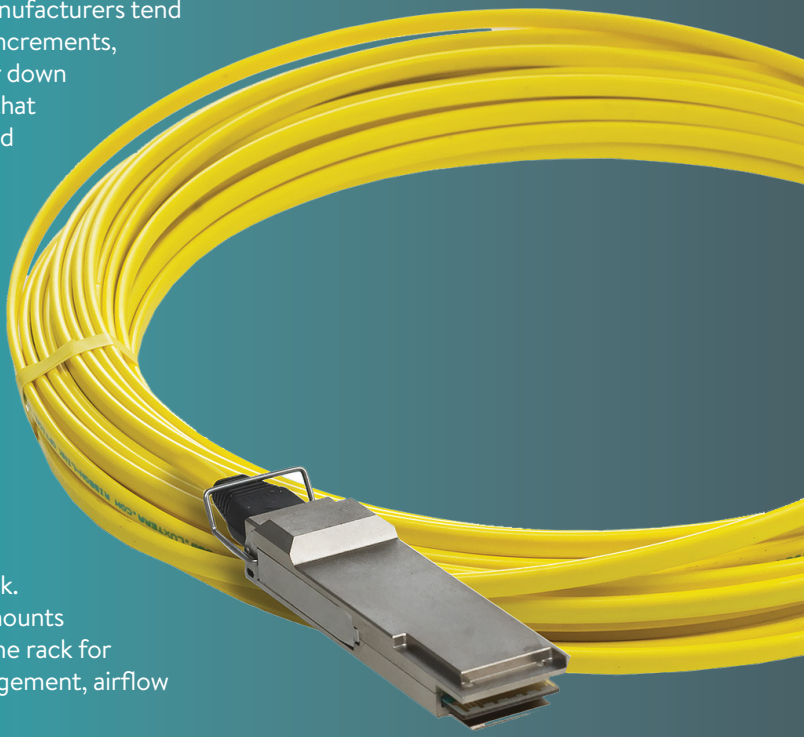
for when selecting HSI solutions. A broad range of cord options available from manufacturers is one. This particularly refers to the choice of different cord lengths and colour options, as well as different transmission performances. Cord options that support transmission speeds from 10Gb/s to 100Gb/s will ensure that data centre facilities are sufficiently supported when upgrading network equipment from 10Gb/s to 25Gb/s and 100Gb/s.

In terms of cord lengths, HSIs typically only need to cover very short distances, especially when in-row connections are being made. Most manufacturers tend to offer cables in 1m increments, depending on how far down the rack a server sits that needs to be connected to the switch in a ToR configuration. If network managers consider cord options in 0.5m increments they can move gradually from 0.5m to 1m to 1.5m to 2m to reach the servers at the bottom of the rack. This will avoid high amounts of cable slack inside the rack for improved cable management, airflow and a neater dressing of the cable bundles within the rack.

If cords are offered in different colours, cable management can be simplified further. Not only can colour coding help determine which pieces of active equipment are connected to each other, colour coding can also help identify different services. Network managers often use different colours to identify the primary and the secondary network.

LAST BUT NOT LEAST

Lastly, a major concern for network managers



surrounds the 'compatibility' of point to point cables with active equipment and the fact that a warning message is triggered if a third party cord is used with the equipment. This is because large active equipment manufacturers often incorporate 'vendor locking' into their equipment. This warning message simply means that a cord from a different manufacturer is in use. Cords from third party providers do not affect performance and will not invalidate active equipment manufacturers' warranties. Network managers should therefore look out for cable manufacturers that offer cords that are fully compatible with the active equipment. Cords that are labelled '100 per cent Cisco compatible', for example, will fully function with Cisco components without triggering a warning message during installation. ■

LEE FUNNELL

Lee Funnell has worked in the telecommunications industry for over 25 years and has previously held a place on the British Standards Institute (BSI) Cabling Experts Panel and been a director of the Fibreoptic Industry Association (FIA). As technical manager for Siemon he manages a large technical team supporting Siemon customers across EMEA and is now heavily involved in the world of intelligent buildings as a council member of the CIBSE Intelligent Building Council.

HellermannTyton

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

From the moment the fibre optic cable enters the building, HellermannTyton 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 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 demands of almost any networking scenario.

For more product information **CLICK HERE.**

www.htdata.co.uk

EDP Europe

EDP Europe is the UK stock holding distributor for Huber+Suhner's data centre fibre connectivity solutions. Huber+Suhner produces industry leading connectivity solutions, quality pre-terminated cable assemblies and patch leads.

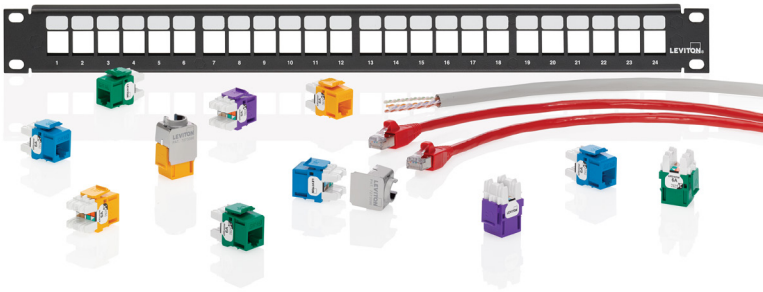
These high-performance assemblies and patch leads are available with the groundbreaking LC-XD connector that is available in both simplex and duplex (Uniboot) versions. The LC-XD connector is equipped uniquely with a rigid, extended lever that employs an innovative push/pull mechanism, allowing greater packing density and more efficient handling, particularly useful in high-density fibre installations.

For both initial installation and ongoing patching requirements, vertical space and finger access at the connector is needed. The LC-XD connector – due to its rigid lever – allows mating and unmating from a distance. The LC-XD has the added benefit that the polarity can be easily flipped without the need for any additional tools. LC-XD connectors are compatible with industry standard or mini LC adaptors, and transceivers.

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

www.edpeurope.com

Leviton



The Leviton eXtreme Category 5e, 6 and 6A systems of jacks, patch cords, patch panels and cable pair high-quality and guaranteed performance with a user friendly design to support fast, easy installations. With enhanced performance and unmatched system longevity, eXtreme copper systems can support an extensive range of enterprise and commercial networks, and are capable of delivering power over Ethernet (PoE) up to 100W.

The benefits of eXtreme systems include third party and internal testing to ensure performance is above industry standards. The jacks contain innovative cutting ledge and pair separation towers, which simplifies punchdown, reduces rework and supports faster terminations. eXtreme connectivity also has Patented Retention Force Technology, which protects against tine damage and increases system longevity.

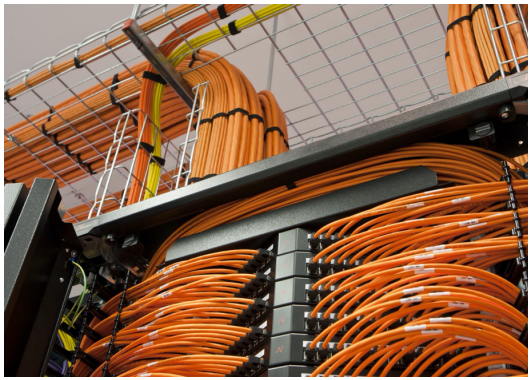
CLICK HERE to learn more.

www.leviton.com

Nexans

Why use LANsense intelligent presentation panels from Nexans?

In large network infrastructures the use of presentation patch panels mirroring switch ports can be very beneficial – this practice helps protect your valuable active equipment and improves cable management. A presentation patch panel sits between the network switch and the horizontal distribution panel in a three connector channel. Its main purpose is to replicate or mirror the physical switch ports on to a patch panel.



Presentation panels are mostly used in data centres or enterprise environments consisting of large complex IT network infrastructures. They fit perfectly in places with multi-layer switches or where expensive switches are sitting in a secured cabinet. This way, any moves, adds and changes involving plugging and unplugging of patch cords can be performed on the presentation panel – without the risk of damaging the switch.

CLICK HERE to watch our webinar and find out more about the benefits of using LANsense presentation panels.

www.nexans.co.uk/LANsystems

Corning Optical Communications

Corning Optical Communications has long been a provider of the highest quality fibre and copper connectivity, delivering solutions that are easy to implement and maintain. However, as demands on the network and connectivity have evolved, so has Corning.

With the addition of the former 3M Communications market division portfolio, the spectrum of connectors has expanded further, providing a more versatile offering serving FTTH, MSO, LAN and data centre markets. Connectors range from Cat.5e to Cat.7 on the combined copper connector portfolio, including popular three-way entry copper jacks, from NPC to UniCam, and from anaerobic to splice-on fibre optic connectors.

Corning's easily installable Plug & Play, EDGE and EDGE8 modules are supporting a faster speed to revenue and 400Gb/s ready networks data centre network, along with class Cca CPR-rated pre-terminated multifibre assemblies and trunks.

For more information about Corning's support and distribution **CLICK HERE.**

www.corning.com

Siemon

Siemon's end-to-end TERA Category 8.2 copper cabling system delivers transmission performance up to 2GHz to support emerging high speed 25Gb/s and 40Gb/s (25/40GBASE-T) applications in data centre switch to server applications.

Siemon's TERA Category 8.2 system includes cable, patch cords, connectors and pre-terminated cable assemblies. The system is founded on Siemon's TERA connector, which was originally chosen as the ISO/IEC 11801 interface for Category 7A/Class FA and also meets Category 8.2 compliance.

Combining the TERA connector with Category 8.2 S/FTP 2000MHz cable and patch cords delivers a complete end-to-end system that exceeds ISO/IEC Category 8.2/Class II specifications for two connector, 30m Class II channels in the data centre.

For more information **CLICK HERE.**
www.siemon.com

New and improved

Several types of connectors are appearing that accommodate new approaches to network design and functionality. Todd Harpel of Nexans takes a look at what sets them apart from existing types, how can they be used, and what might they bring to real life applications

To meet the data centre and enterprise structured cabling requirements of today and the near future, cabling needs to support increased bandwidth, without taking up more space. Higher density is one way of tackling this, but this shouldn't impact cabling handling or make moves, adds and changes, as well as network extensions, difficult. In structured cabling, specifiers and installers need to find solutions to accommodate the rise of internet of things (IoT) and wireless devices, and growing demand for data cabling that can also power equipment.

SINGLE LIFE

New connectors targeted for use with the recently ratified IEEE 802.3cg Single Pair Ethernet (SPE) standard, which was mainly developed for automotive and industrial environments, have great potential for IoT related usage in building automation or operational technology (OT) networks.

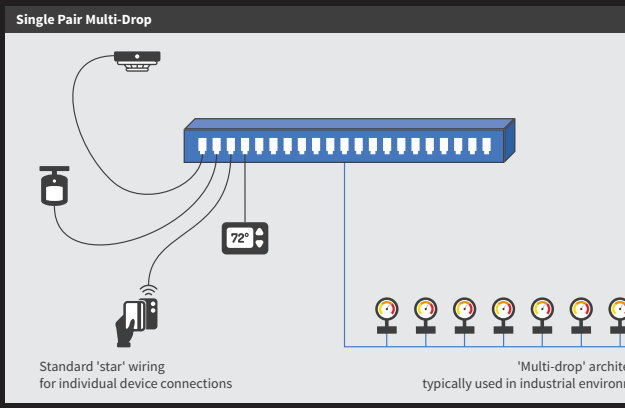
New 400Gb/s transceivers are another driver for the development of new connector types. We expect that these transceivers will primarily be used in the hyperscale environment for the next 3-5 years, and that the higher density benefits will find their way to a wider range of applications after that. As these solutions become more affordable, they may eventually find their way to the enterprise market.

STANDARD BEARER

IEEE 802.3cg supports point to point links up to 1000m and single pair multi-drop (SPMD) links for up to eight nodes over 25m, all over a single pair. The standard lists two optional connector types, whilst also stating that application specific connectors may be used. It also defines new power over data line (PoDL) power classes delivering up to 52W of power to a powered device (PD).

TIA, IEC and the Ethernet Alliance are promoting SPE as a technology that enables intelligent buildings, and we expect to see device manufacturers incorporating the required single pair ports soon. However, that doesn't mean structured cabling specifiers and installers should stop integrating four pair cabling infrastructure into buildings, for example, to ceiling connection points.

The single pair solution should be seen as



an addition to four pair cabling and useful for specific applications, particularly for relatively low speed, low power devices, such as sensors, that gather intelligence and send it to a central controller. Although the speed IEEE 802.3cg SPE offers is not especially high, great distances can be bridged. With a large gauge conductor, the maximum specified 1000m can be supported, although distances of up to 400m can be realised with familiar conductor sizes commonly used in four pair cables. It should be noted that power delivery is highly dependent on the wire gauge and the DC voltage drop related to distance.

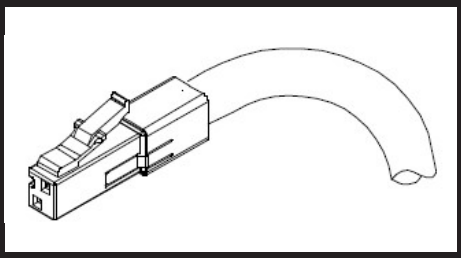
SIZE MATTERS

The new SPE connectors allow a smaller form factor for devices and components, which is practical for many IoT related devices. Thanks to their reduced dimensions, the connectors help to (almost) double the connection density of an RJ-45, making them highly suitable for their intended usage at the network edge. SPE is expected to simplify and accelerate the adoption of Ethernet in OT networks in industrial environments and building automation. However, SPE is not likely to replace four pair cabling for devices such as lighting fixtures, WAPs, or cameras, which require power levels of 60W or more, or speeds beyond 10Mb/s.

The SPE connectors that are called out in the 802.3 cg standard are as follows:

• IEC 63171-1 (aka copper LC)

This connector type brings a familiar LC style form factor to SPE applications. Dimensions of the connector, expected to be available in shielded and unshielded versions, are slightly different, however. Internal keying prevents accidental interconnection with an optical network.



• IEC 63171-6

The second SPE connector type referenced in the IEEE document is the IEC 63171-6, which was specifically designed for harsher industrial (MICE 3) environments. This connector design is shielded for maximum signal protection and can be incorporated into additional form factors such as M8 and M12 for

Photo courtesy of Harting

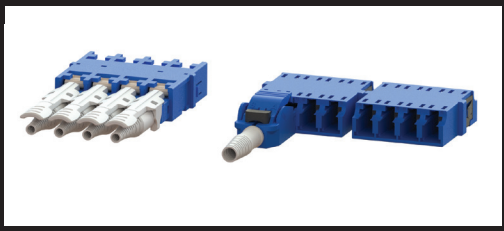
additional protection offering up to an IP65/67 rating.

Standards bodies will soon start looking at a specification for sheath sharing – operating four individual single pair Ethernet connections over a four pair cable and breaking these out – which is not part of the current standard supporting SPE. Future additions may include stretching 10BASE-T1 SPMD to 75m with 32 drops and introducing adaptors for dual port (I/O) devices and transitioning from one pair to four pair cables and vice versa, as well as 10BASE-T1 SPMD power delivery.

REDUCING THE FOOTPRINT

For many years LC connectors have been the dominant duplex connector. A new connector, proposed by Senko, essentially offers a smaller version of the LC. Branded as the CS connector, it offers a 40 per cent density increase compared to a high density LC solution. The connectors aim to reduce the footprint of high density data centres by shrinking fibre connectors while increasing vertical and horizontal patching density. The CS connector features built-in tabs intended to make patching easier.

The question therefore is 'is the smaller size enough of an improvement to warrant changing away from the popular LC connector?'



SMALLER STILL

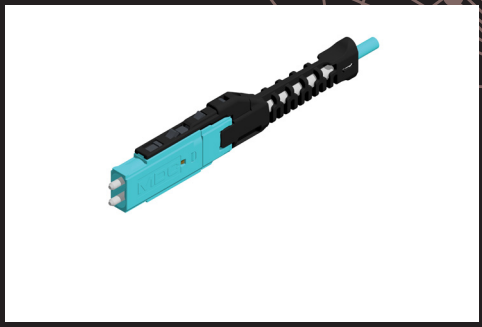
Two competing very small form factor (VSFF) connector designs have been proposed to the market – the MDC from US Conec and the SN from Senko.

The new QSFP-DD and OSFP transceiver interfaces double switch faceplate density. These are designed to accommodate the existing MPO connectors containing eight fibres in a single ferrule. But the new VSFF connectors retain the ability to make the connections as a duplex pair, so that the signal can be 'broken out' into four 100Gb/s connections.

Both connectors have a pitch of 3.1mm and can connect eight fibres in a single transceiver. In the increasingly widespread leaf and spine model, channels must be broken out to interconnect spine switches to any of the leaf switches. Transceivers with four connectors at the interface can be broken out directly to support the leaf and spine model.

While the SN and MDC connectors are both designed to support the same transceivers, they are not intermateable. Each have specific features that are designed to improve the handling and maintenance of the product.

'For many years LC connectors have been the dominant duplex connector. A new connector, proposed by Senko, essentially offers a smaller version of the LC. Branded as the CS connector, it offers a 40 per cent density increase compared to a high density LC solution.'



FURTHER CONSIDERATIONS

The smaller connectors and application possibilities mean that installers may no longer need to use sliding trays, or use these to a lesser extent, although small form factor connectors can be tricky to manipulate due to their smaller size.

Depending on the type of installation, the trade-off between easier maintenance versus the need for higher density should be considered. In an 'install and forget' type installation, the smaller connectors may not present an issue, but where frequent moves, adds and changes (MACs) are required, it could be. These connectors feature small tabs providing visual cues and a way of handling the cables more easily – although opinions on practical workability vary.

TIME WILL TELL

Data networking is dominated by the ubiquitous RJ-45 copper, and LC and MPO fibre connectivity, and these are expected to continue their reign for quite a while. However, changing requirements in both the enterprise and data centre markets are driving new developments for smaller formats and only time will tell if – and how quickly - they become accepted and start to find their way into the market. ■

TODD HARPEL

Todd Harpel has extensive experience in communications infrastructure design and specification, and has worked with a variety of clients nationwide. During his career he managed marketing, product management, technical support and training departments for several structured cabling industry manufacturers. Harpel is the current chairman for the CCCA Communications Committee and is the director of standardisation for Nexans Tek-Center based at BerkTek, a Nexans Company, USA.

More representative agencies appointed to support Ideal Networks' customers in the US

Ideal Networks has appointed four new manufacturer representative agencies in the US to provide local support to data cable and network testing equipment users.

Axion Technologies has been appointed to cover Washington, Oregon, Idaho, Montana and Alaska; Big East Technologies will serve Maine, Massachusetts, Rhode Island, Vermont, New Hampshire and Connecticut; Convergent Sales will cover Wyoming, Colorado, Arizona, New Mexico, Utah and Nevada; and East Coast Enterprise will look after Virginia, Maryland and Washington DC. This brings the number of agencies providing coverage to Ideal Networks' customers across the US to 11, helping to best meet the needs of channel partners, installers and technicians across North America.


Jim Hunter

'We are pleased to have strong representation from all of our representative agency partners and are dedicated to continuing to bring our industry expertise to end users through extensive local coverage,' said Jim Hunter, vice president of sales for North America at Ideal Networks. 'We have a well established portfolio of products, a strong innovation pipeline and a dedicated US facility – all of which ensures that those who choose Ideal Networks benefit from unrivalled service, support and solutions.'

Ignition Technology forms distribution partnership with Chronicle to drive European channel development

Ignition Technology has formed a distribution partnership with Chronicle, now part of Google Cloud, to establish and support Chronicle's channel partner community in the UK, Ireland and Nordics.

'Ignition Technology has demonstrated a successful track record of introducing and supporting new vendors with disruptive technologies across the European market,' said Magali Bohn, head of partnerships for Chronicle. 'As our first distributor, we are impressed by Ignition's technical expertise and channel engagement. We look forward to working closely with Ignition Technology to grow our new channel community in the UK, Ireland and Nordics.'


Sean Remnant

Sean Remnant, chief strategy officer at Ignition Technology, added, 'Everybody is looking for solutions that truly disrupt traditional approaches to an existing challenge, both commercially and technologically. To be able to hunt for threats you need all potentially relevant data, and we see customers producing hundreds of terabytes per day along with a need to access potentially petabytes of historical information instantly.'

R&M launches support service for colocation data centres

R&M has launched a service for colocation data centres that will free operators from time-consuming planning and cabling work, wherever in the world they are. The program offers individual support on-site from R&M branches and specialists and, due to the numerous sites and plants on all continents, R&M can cover all market regions.


Emmanuel Beydon

The service package includes consulting, evaluation and help in the planning of fibre optic network infrastructures. Furthermore, R&M takes care of logistics, cabling work, measuring and controlling. R&M branches assemble network distributors and racks, and bring them into the building as turnkey solutions.

Emmanuel Beydon, R&M key account manager, said, 'To ensure operators can manage everything at the same time and concentrate on their business strategies, we take care of the engineering for connectivity. We effectively act as an extended workbench for planners, network managers and technicians.'

Smartsheet names QBS Distribution as European channel partner

Smartsheet has announced a partnership with QBS Distribution to deliver Smartsheet's full product portfolio in addition to technical and sales support. The partnership builds on the launch of its channel program, Smartsheet Aligned, announced at the company's global customer conference in October.

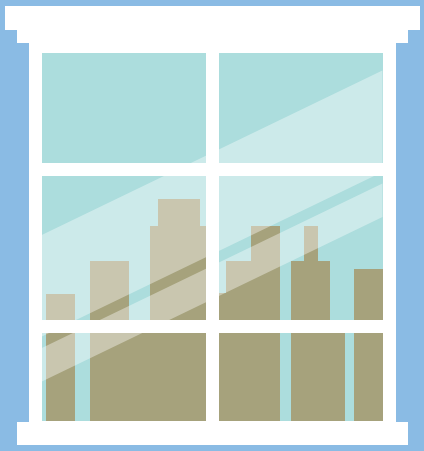

Dave Stevinson

For over 30 years, QBS Distribution has a proven track record of delivering software to thousands of enterprises. 'Partnering with Smartsheet to distribute a powerful platform that solves thousands of use cases delivers on our commitment to become an important part of our partners', customers' and suppliers' businesses,' said Dave Stevinson, managing director at QBS Distribution. 'Smartsheet empowers organisations everywhere to achieve more, and we could not be more excited to now offer their platform to our channel community.'

Mike Arntz, chief revenue officer and executive vice president of worldwide field operations at Smartsheet, added, 'There's a massive opportunity for Smartsheet and our partners in this region, with significant demand coming from both partners interested in joining our program and customers looking for high-value services delivered by local providers.'

Quick clicks

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



A Sustainable Future: The Drive Towards Conscious Capitalism is a white paper from **Axis Communications** that looks at the measures that must be put in place to ensure the development of products and services which have minimal impact on the environment.
CLICK HERE to obtain a copy.

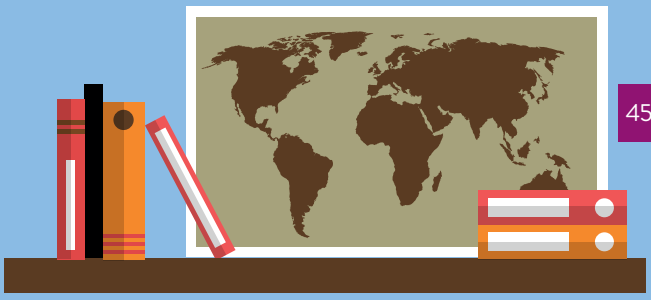
The Future of Fibre – The Emergence of PON is a white paper from **Excel Networking Solutions.**
CLICK HERE to read it.

Schneider Electric has released two new guides.
CLICK HERE to download How to Capitalize on the Edge Computing Opportunity and
CLICK HERE to download the Buyer's Guide to Edge Infrastructure Management.

How Businesses Can Use IoT to Improve Operational Security is a blog by Kayleigh Alexandra of **Lavelle Networks.** **CLICK HERE** to read it.

Women, Trades and Vets: Careers in the Data Center is a podcast by Carrie Goetz of **StrategITcom** that discusses jobs within the data centre sector, with a focus on trades and opportunities that may not require a degree. **CLICK HERE** to hear it and to access other podcasts from Goetz.

Fiber Cable: Now That's Testing! is a blog from **Fluke Networks.** **CLICK HERE** to read it.



The Heat is On is a blog from **Paige DataCom Solutions** that looks at the challenges for system designers and contractors when selecting and installing cables for high data and high power. **CLICK HERE** to read it.

Get your house in order

Nick Turley of Comtec explains the importance of organisation when it comes to dealing with the proliferation of cables in today's high density networks

Cable management is more than mere aesthetics – it's how cables are connected, terminated, routed, supported, contained and maintained. Just as importantly, it has a direct and substantial impact on a network's reliability, performance and effectiveness.

DELIVERING THE GOODS

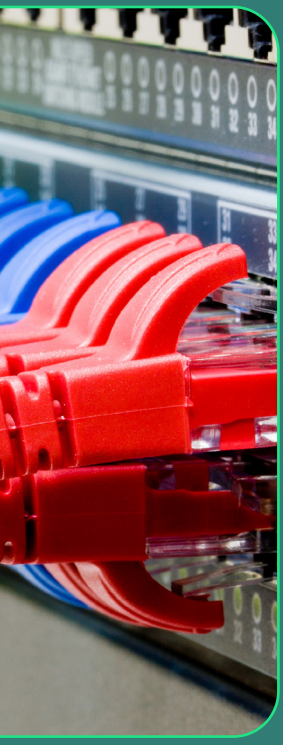
An integral part of the network, good cable management will deliver:

- Enhanced performance and better protection by fulfilling high density cable requirements, while maintaining proper bend radius for maximum network performance. It will also reduce crosstalk and interference by segmenting power and data cables and physically protect cables from sharp edges or heat.
- Reduced maintenance costs and downtime. Simplifying troubleshooting and dramatically improving the user experience for better traceability and easier access to cables and equipment. No guesswork or accidentally unplugging a device!
- Increased cooling efficiency and safety by organising and positioning cables to allow for airflow – reducing risk of devices overheating and increased fan energy costs being incurred.
- Improved scalability. Easily performing moves, adds and changes (MACs) to

maintain, reconfigure and grow your network capabilities.

STRATEGIES AND STANDARDS

There are a number of cable management strategies that can, and should, be adopted within the rack to ensure best practice and promote sufficient airflow.



Label every cable, panel and device – while it may seem an onerous task, it will save you valuable time further down the line. Also, follow the Telecommunications Industry Association's (TIA) labelling standard TIA-606-C. This is a set of voluntary guidelines for labelling and recording infrastructure components and uses universally accepted naming conventions. A good label printer with preformatted label templates will also help make the process much easier, but give consideration to the type of labels or markers used and ensure they are suitable to the application intended.

Sleeves or markers are ideal for a new install where you're terminating cables. These can be pre-printed and slipped over the end of the cable. Handheld printers that print directly on to heat shrink tubing are also available. Meanwhile, cable tags are perfect for thicker gauge cables and are normally attached using cable ties. Due to their size they are perfect for warnings or printing lots of information on.

Cable flags tend to be used when identifying fibre patch leads. Due to the smaller cable diameter of fibre the flag stands off the cable and allows information to be shown on both sides. Wrap around labels are the most commonly used for pre-installed cables, due to the wide range of sizes available. Self-laminating, they can be printed on site using a handheld printer or pre-printed on A4 sheets using a standard laser printer.

STANDARD BEARER

Why is it important to follow TIA-606-C?

- Ensures all components are clearly labelled with the appropriate identifiers
- States that both ends of the cable are labelled
- Removes guesswork from label creation and brings consistency in terms of format
- Specifies that labels must be durable in terms of print stock and legibility
- Everyone benefits from a well-documented infrastructure
- Troubleshooting, maintenance and MACS become much simpler
- Ensures warranty compliance
- It looks good!

The standard also provides guidelines for colour coding labels and defines termination types, colours and pantone numbers as below:

- Demarcation point: Orange, 150C
- Network connection: Green, 353C
- Common equipment: Purple, 264C
- Key system: Red, 184C
- First level backbone: White
- Second level backbone: Grey, 422C
- Campus backbone: Brown, 4 65C
- Horizontal: Blue, 291C
- Miscellaneous: Yellow, 101C

You can also colour code your cables by

'Label every cable, panel and device – while it may seem an onerous task, it will save you valuable time further down the line.'

type, purpose or destination for a strong visual reference.

FORWARD PLAN

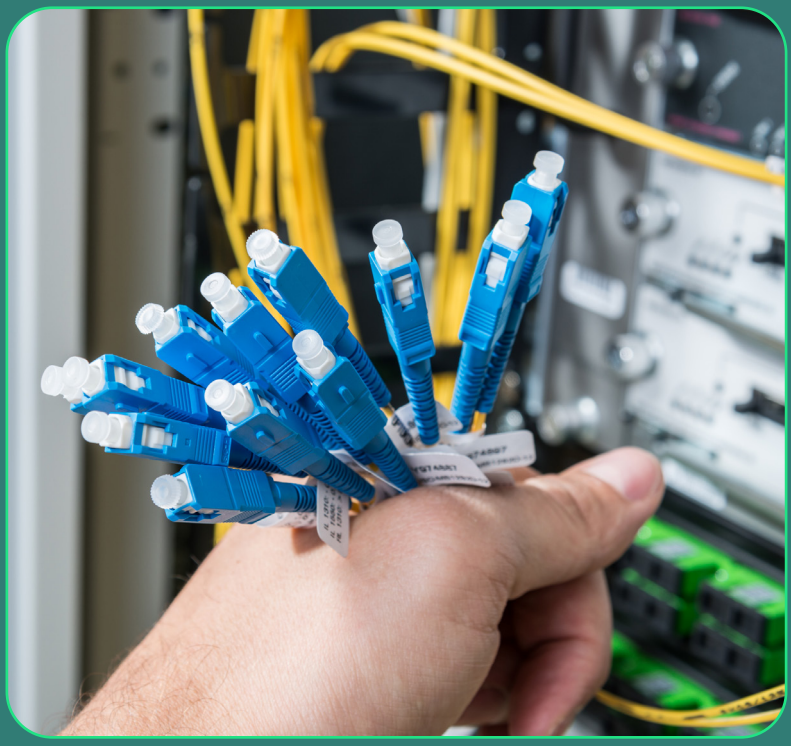
Patch panels, horizontal and vertical cable managers, trays, baskets, ladder racks, empty conduit, raceways and runways provide support to cables, promoting airflow and creating pathways, whilst creating structure and organisation.

In the cabinet, fibre and copper patch panels are great for organisation and connecting a large number of devices. Horizontal and vertical cable managers keep cables tidy and protected within the cabinet and include features such as high-density cabling fingers, brush entry and covers to help manage airflow. If you are running cable between cabinets or different parts of the building, cable trays and baskets can be run under the floor or through suspended ceilings and may be used to hold large bundles of cables.

For added assurance look for the BSI Cable Management Kitemark, demonstrating a manufacturer's commitment to best practice. It covers all common cable management products included rigid and flexible conduit, cable tray, ladder systems, cable trunking, ducting and metal channel cable supports.

SPACE RACE

For high density fibre environments,



and where space is at a premium, optical distribution frames (ODFs) can provide significant cost savings. They require reduced floor space, lowering install and maintenance time with easy cable and

connector access, while ensuring network performance and reliability with bend radius protection.

For an overhead solution, an optical raceway system will protect and route fibre via the most direct path whilst maintaining the proper fibre bend radius. Design features include tool-less assembly for reduced installation time and increased flexibility with wide ranging modular components. Solutions exist to suit different applications and environments from smaller installations and height restricted environments to installs requiring a maximum capacity solution. Features include a myriad of fittings, support structures, drop options, bends and straight sections, expandable sections for retrofit applications and hinged cover options for ease of access and maintenance.

TIME FOR ACTION

Take time to consider your future needs as well as your current requirements, and ensure your chosen system allows for ease of maintenance and growth.

Some standards are cable manufacturer specific, such as cable bend radii ,so utilise manufacturer resource tools such as power segregation calculators, cable tray fill calculators, stacking height calculators, building information modelling (BIM) objects, Visio stencils, configurator and bill of materials (BOM) generators to design a long-term solution. To summarise, plan, understand the infrastructure requirements, keep future growth in mind, determine routes, identify and secure cables, document and maintain records! ■

NICK TURLEY
Nick Turley is Comtec's product manager for cabinets and cable management. He has a wealth of experience gained over 30 years within the IT and data communications industry, specialising in solution selling and data centre infrastructure.

NBM Technology Solutions

NBM Technology Solutions now offers the Fiber Raceway solution from AFL Hyperscale. Ideal for both data centre distribution areas and central offices, it is designed to protect and route fibre optic cable, assemblies and patch cords to and from network cabinets, optical distribution frames (ODFs) and other terminal devices.

Saving both time and money – from design and planning to installation and maintenance – its modular design and tool-less installation make it the optimal fibre routing solution for data centres, providing the flexibility required to grow to meet future demand.

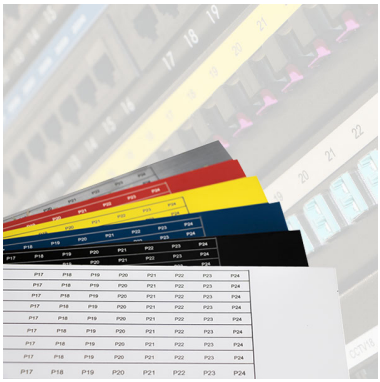
Fiber Raceway maintains a minimum bend radius of 41mm, protecting critical connections from bend losses and providing physical protection from external elements, with a load capacity of up to 55kg and an impact resistance of 1kg/1m. All components meet industry standards and are ROHS compliant with a UL94-V0 level of flammability.

For more information **CLICK HERE.** To contact NBM Technology Solutions call +44 (0) 1442 838500 or **CLICK HERE** to send an email.

nbm.technology

Excel Networking Solutions

Excel Networking Solutions offers a comprehensive bespoke laser engraved labelling service, which provides labels suitable for patch panels, racks, GOPs, outlets and more. They can be supplied as pre-printed labelling sheets or pre-affixed to products prior to delivery.



By eliminating the need to think about labelling during installation on-site, the labelling solution from Excel is proven to save a considerable amount of project time, reducing overall cost.

To ensure the highest quality, long-term durability and top performance, Excel's engraved labelling solution uses the best quality materials on the market. The acrylic sheets are fadeproof and the laser technology eliminates the risk of diminishing ink visibility.

The made to measure nature means that Excel can print anything to meet the requirements of the end user including specific destination locations, equipment, company logos – the options are endless.

For further details and prices on Excel's bespoke laser engraved labelling service **CLICK HERE,** call 0121 326 7557 or **CLICK HERE** to send an email.

www.excel-networking.com

EDP Europe

EDP Europe stocks and distributes the latest high capacity fibre optic management system from Huber+Suhner – IANOS.

IANOS is a class leading and future proofed fibre optic management system that facilitates BASE-2, 8, 12 and 24 pre-terminated cable systems for best in class density, speed of installation, handling and scalability – all major factors in future proofing cabling infrastructure.

IANOS is a unique fibre management system that is designed to accommodate a quick, simple and inevitable upgrade path from 10 Gigabit Ethernet serial to 40 and 100 Gigabit Ethernet parallel optics.

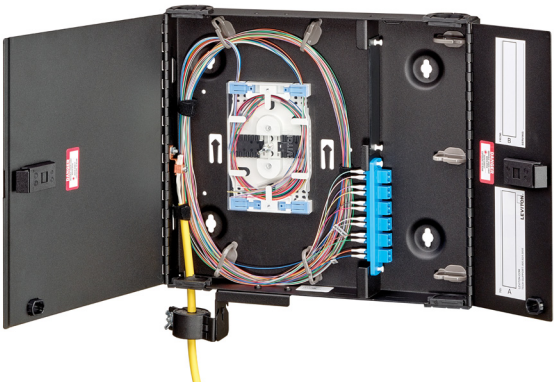
IANOS offers individual modules that easily slide out, reducing cord disruption and easing access, with each 1U chassis providing a maximum of 144 LC connections. Single or twin modules help improve flexibility, with twin modules offering improved routing space and splice handling. IANOS chassis are available in 1U or 4U rackmounts.

For more information call 01376 510337, **CLICK HERE** to send an email or to visit the website **CLICK HERE.**

www.edpeurope.com

Leviton

Leviton Opt-XT Wall-Mount SDX Enclosures offer simple installation and maintenance. They are a smart choice to deploy in entrance facilities, telecommunications rooms and remote network hubs that require patching, cross-connect or splicing, while using minimal space. This flexible line of fibre optic enclosures simplifies the selection, installation and maintenance process for contractors and IT managers.



The enclosures are available in four sizes to accommodate from 24 LC to 288 LC fibres. They have locking doors and dual-door access to separate user and service sides, and their cable and patch cord protection makes it easier for contractors to dress out and protect cable and jackets from damage and pinching. Field splicing options include both splice trays and self-contained splice modules. An optional adaptor allows it to accommodate both Leviton SDX and high-density HDX patching platforms.

CLICK HERE to learn more.

www.leviton.com

Well worth the effort

Kathryn Aves of Bluepoint Technologies offers an installer's perspective on what constitutes good cable management and labelling practice

As an installation company, we are not out to sell or promote any one particular product but we do highlight to our clients the importance good cable management. However, being sure this is accepted and taken on board by the client, as well as putting it into practice while allowing for an ease of use installation that meets current standards and has the potential for future growth, is another matter! Either way, going in prepared will avoid ending up elbow deep in a spaghetti bowl of networking cables and having to resolve issues that could have been prevented with just a bit of care and planning up front.

PRACTICE MAKES PERFECT

Correct cable management will ultimately result in a neat and tidy cabling solution, avoiding that spaghetti style. Furthermore, the correct use of cable management will avoid possible heat retention, hardware failure and maintenance issues. All too often designs are implemented with standard cable management included, but the actual density of the cables being installed and their destination requirements are not considered, which can result in problems.

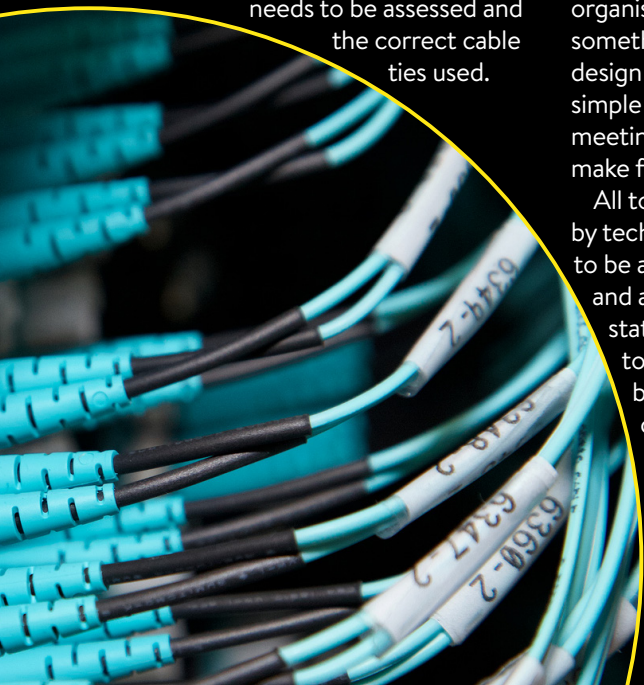
In order to complete an installation with cable management appropriately designed and put into practice, it's essential other cabling techniques and skills are mastered and followed. This includes considering the ingress and egress of the cable to the cable management, as this also then feeds back to labelling requirements and finding the optimum placement for the labelling. Using coloured cables and colour coding the labelling are all aspects to consider when in the design stage. Also, think about what needs to be achieved and understand where the detail is coming from, and who will be using that detail moving forward.

MADE TO MEASURE

Don't forget to measure the cable lengths required, as incorrect cable lengths can result in a mess. In an ideal world, custom cable lengths are the best solution. Time does not always allow for this, but to endeavour to meet that required length is highly beneficial, as loose cables can easily be caught up on things, tangled up and cause all sorts of issues.

Cable ties, be it nylon or Velcro, are accepted across the industry. Velcro cable ties are quick and easy to add,

remove, adjust and cut to size. Nylon ties can be very cost effective across a large installation but if used incorrectly can put undue stress on cable bundles, causing pressure points on the cable jacket. Each individual installation needs to be assessed and the correct cable ties used.



Likewise, the use of cable trays can work well to assist with cable management, especially where long cables have been left in the network. However, cable trays should not be overloaded, as this can lead to the bottom cables being crushed and signal degradation.

MANAGEMENT DECISION

The correct choice of cable manager allows for an efficient solution to organise high density structured cabling, whilst being cost effective. It also means that the maximum amount of cables to be organised in a minimum amount of space – something that should be discussed in the design and planning stages. Whether it be simple or complex, vertical or horizontal, meeting the correct requirements will make for an overall network improvement.

All too often cable labelling is dismissed by technicians at installation. This needs to be addressed prior to any installation and all requirements need to be clearly stated on the scope of works issued to technicians on-site. This avoids backtracking and allows for any confusion or misinterpretations to be addressed at the early stages. Labelling needs to cover every cable type including, but not limited to, the network cables, power cables and patch cords. Ensuring labelling is in place as

'Labelling needs to cover every cable type including, but not limited to, the network cables, power cables and patch cords. Ensuring labelling is in place as the install commences means that the identification of cables can be achieved at any time.'

the install commences means that the identification of cables can be achieved at any time.

READ THE LABELS

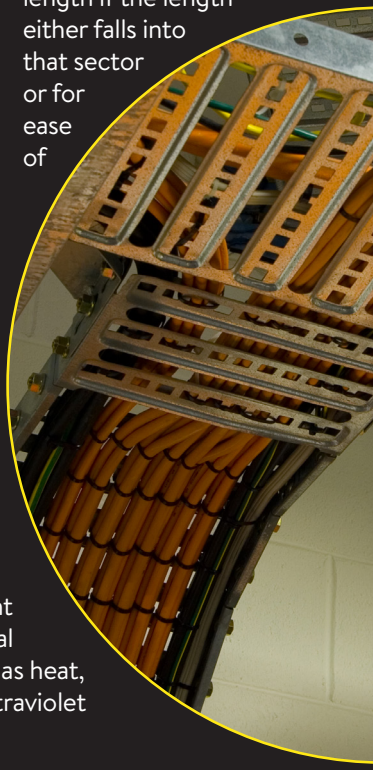
The type of label required is dependent on the criticality of the cable and can cover all cables within the installation, including those for network components. We must not assume that only the data infrastructure cables need labelling and should always address network component labelling with the end user. Every cable should have a label at both ends, even short runs and patch cables.

Colour coding of labels can assist with identification but must not lead to confusion. Options for colour coding could be:

- Cable type – having one colour for copper and one for fibre
- Cable purpose – using specific colours for internal wiring, wiring to go to user equipment and wiring that goes outside of the building can be an effective strategy
- Cable destination – for some buildings it makes sense to have labels colour coded based on which floor or office area they are going to.

There is no single correct way to do the colour coding, other than making sure there is a set strategy that is always being followed.

Labelling must allow for a direct link to the identifier, labelling both ends of the cable and at intervals of the cable length if the length either falls into that sector or for ease of identification for future identification. The label must be readable, appropriately affixed and durable for the duration of the installation, therefore labelling solutions used must be resistant to environmental conditions such as heat, moisture and ultraviolet light.

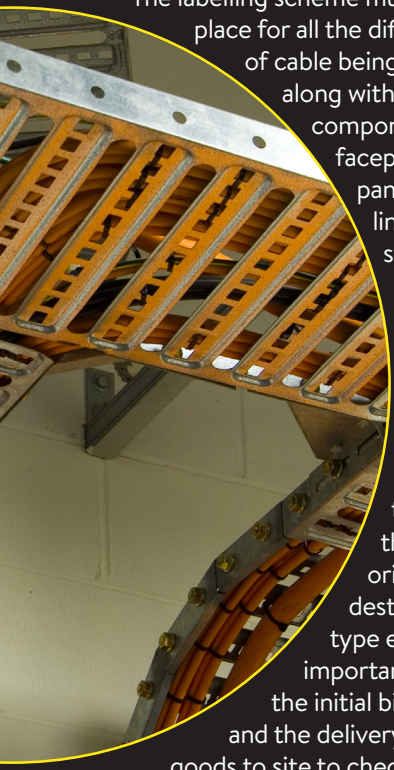


BREAK IT DOWN

Being able to break down the requirements, identify the complexity level of the labelling requirements and, ultimately, create an installer and end user friendly system can be one of the hardest parts of the design.

Records and drawings must all correlate to the labelling and the labelling to BS EN 50174. Identifiers to be addressed for the labelling scheme are bonds, cabinets/frames, cables, closures, pathways, spaces and termination points, including joints. The labelling must be in accordance

with the installation specification and implemented to ensure that it is accessible, legible and has the ability to be modified where necessary for the anticipated lifetime of the cabling.



The labelling scheme must be in place for all the different types of cable being installed, along with associated components, outlets, faceplates, patch panels, backbone links, fire stopping, busbars, patch leads and within the racks, allowing all moving forwards to identify the cable, origination/destination/type etc. It is then important to revert to the initial bill of materials and the delivery of the goods to site to check labels on cable reels, boxes of cable, patch panels, cable management and patch leads. Physical checking is a must, otherwise all the time spent on a labelling and cable management scheme could be wasted if the goods delivered are incorrect.

PLAN OF ACTION

Cable management and good labelling is not easy but improper planning can lead to lots of problems during installation and later on down the line. Therefore, good design and planning work should negate any issues arising. ■

KATHRYN AVES

Kathryn Aves is managing director at Bluepoint Technologies. Having worked initially in the mechanical and electrical sector before moving into data cabling 18 years ago, she has a wealth of knowledge and experience within the industry, with the ability to understand a client's needs and expectations. Aves has been with Bluepoint Technologies since its infancy and has been able to support the business through its growth over the years, along with a trusted team around her.

Shaping the future

With his background in mechanical and electrical engineering, Martin Murphy brings a unique perspective to his role with one of the world's largest data centre service providers. Rob Shepherd recently caught up with him to find out more about his life and career, and what he thinks are the big issues affecting the data centre sector

RS: Tell us a bit about yourself – who are you and what do you do?

MM: I'm chief operating officer at CBRE Data Centre Solutions (DCS). I currently live in London but design and drive our business operations to ensure superior outcomes for clients around the world. Our goal as a service partner is to provide 100 per cent uptime and reliability and to satisfy our clients beyond expectations. I'm also heavily focused on empowering our people and creating a work culture where they can perform at their best each day.

RS: How and why did you decide to embark on a career in the data centre industry?

MM: This might sound cliché but I didn't choose the data centre industry – it chose me. When I was in school, data centres weren't the powerhouses that they are today – I don't even know if you could call it an industry back then!

I have a background in mechanical and electrical engineering and developed a passion for talent management and technology, but I had no idea that data centres would be the place for me. The industry takes a certain personality and appetite for change. And the industry, in a broader sense, involves so much more than data centres and IT – it's the people, the professional connections, and the feeling that you're at the forefront of innovation and change. A career in data centres was a natural fit.

RS: What excites you about the sector at present?

MM: What excites me most is the unknown – 5G, automation, artificial intelligence (AI), blockchain, the internet of things (IoT) and countless other technologies are exploding. We are generating truly fascinating amounts of data on a daily basis and our use of data centres will grow even more. Technology is changing the rules of business and our industry.

'We are generating truly fascinating amounts of data on a daily basis and our use of data centres will grow even more. Technology is changing the rules of business and our industry.'

RS: What differentiates a good data centre from a not so good one?

MM: A good data centre ought to be resilient and agile with a strong emphasis on process. There is no 'one size fits' all data centre, as design and requirements need to be specifically customised to support organisations or businesses. Generally speaking, the data centres being built today are better than the ones

constructed 5-10 years ago because they are typically more energy efficient, more automated and deliver better uptime.

RS: Do you consider the Open Compute Project (OCP) to be a threat or an opportunity?

MM: We see initiatives like OCP gaining a lot of traction within hyperscale environments. The goal of sharing best practices via open source architecture in design is often a winning scenario for those operating at scale. Hopefully, in time, there will be a knock-on benefit to the smaller scale technology operators too.

> 'It takes more than talent to succeed. It takes perseverance, practice and to always have a goal. Talent might get you noticed but it won't keep you there.'

RS: Is the training and skills development of personnel taken seriously enough by companies designing, building and operating data centres?

MM: The perspective from CBRE is that training and skills development is a top priority. We invest heavily in talent, development and education at all levels to support and nurture our people.

In the last five years, CBRE DCS has doubled our overall annual spend on training and technology in order to better equip our teams to be more effective and efficient for our clients. From our Human Factors training and proprietary Critical Environment Risk Management (CERM) programme to our strategic partnerships with Uptime Institute and CNet Training, we aim to lead in

‘There simply aren’t enough available, qualified people in the current talent pool to build and operate systems and keep up with the growth and technological innovation in the industry.’

this area and not settle for the status quo.

RS: Is the battle for the energy efficient data centre being won?

MM: We are certainly making huge strides in the right direction. Data centres being built today have energy efficiency as a major aspect of the design criteria and often energy efficiency targets are a contractual obligation on the designer.

Metrics such as Power Usage Effectiveness (PUE) and broader design sustainability standards such as LEED and BREAM have also had a significant impact on the way our industry thinks about energy and sustainability. There is a lot of technology advancement too – renewable energy sources like wind and solar farms are becoming more commonplace in data centres. Innovations in cooling technology also continue to improve energy efficiency and reduce costs.

RS: What will be the next big ‘game changer’ to affect the data centre sector?

MM: Edge computing. I think this is on everyone’s ‘game changer’ list whether you’re in the data centre sector or technology, telecom, finance, or even healthcare.

Customers in all industries are demanding it. IDC reports that 45 per cent of data created by IoT will be stored, processed, analysed by edge computing. And by 2020, more than five billion devices will be connected to the edge network. Because of this, many businesses will become even more efficient and change the way they operate.

Another ‘game changer’ will be advanced distributed resiliency as more workloads migrate to the cloud and edge data centres. This means the potential for less physical redundancy and less physical infrastructure within the data centre, but of course higher costs associated with redundant IT, software and engineering staff.

RS: If you could change one thing about the industry that you work in, what would it be?

MM: The greatest threat we’re facing as an industry is the competition for talent – the growth of the industry is far outpacing the talent coming in!

There simply aren’t enough available, qualified people in the current talent pool to build and operate systems and keep up with the growth and technological innovation in the industry. We are working across several areas to address this challenge and coordinating with a number of partners across the industry to raise awareness of the vast and exciting career options in data centres, including working with colleges and science, technology, engineering and mathematics (STEM) schools, and have developed behavioural assessments and training

programs to widen the pool of talent.

Perhaps one of the biggest opportunities for change is diversity and inclusion. At CBRE we are passionate about recognising the individual and are focused on delivering real and sustainable change in this space, so partnering with bodies such as the Infrastructure Masons and WomeninTech to collectively focus our efforts on attracting, developing and retaining under-represented groups in the industry was an obvious step.

RS: What's the most useful piece of advice you've been given and how has it helped you during your career?

MM: The advice that has resonated with me most is that it takes more than talent to succeed. It takes perseverance, practice and to always have a goal. Talent might get you noticed but it won't keep you there. Similarly, I'm also keen on the advice 'what got you here won't get you there'. You can't manage today's business looking in the rear-view mirror. ■

Sparkasse turns to Saft lithium-ion back-up technology for its data centre

Saft has delivered and installed Flex'ion lithium-ion (Li-ion) battery systems to provide back-up power at a data centre for Sparkasse, Germany's largest public banking group.

In their second collaboration this year, Saft and Piller Group worked together to combine Saft's Flex'ion Li-ion battery system with Piller Group's uninterruptible power supply (UPS). The solution will provide high performance back-up for the data centre. Saft's scope included design, manufacture, supply, installation and commissioning.

Two Flex'ion systems have been ordered for the data centre, each of which is able to deliver 373kW for 15 minutes at the end of its design life of 15 years. Saft's Flex'ion Li-ion battery technology offers superior performance, reliability, high availability and low total cost of ownership over a long life. Another advantage of Flex'ion battery system is that its Li-ion technology operates effectively at elevated temperatures. This reduces cooling requirements and improves Power Usage Effectiveness (PUE).

Landmark battery development centre selects CDW as technology partner

CDW has been awarded a £6m contract to provide end-to-end technology services at the UK Battery Industrialisation Centre (UKBIC), which is currently under construction.

CDW was selected as the project's IT services and solutions partner following a competitive tender process overseen by Coventry City Council. The project has been awarded £129m of public funding as part of the government's Faraday Battery Challenge. UKBIC aims to help industrial partners design, test and commercialise next generation battery technologies when it officially opens in 2020. It will initially focus on partnerships in the automotive sector but expects to expand into other industry sectors as it grows.

As part of a five year agreement, CDW is working with UKBIC to deliver a complete portfolio of integrated technology solutions that will enable an expected workforce of up to 200 IT users to carry out vital work at the 20,000m² centre.

Glide helps more than 1,100 businesses benefit from full fibre connectivity

In 2018, UK government's Department of Culture, Media and Sport (DCMS) launched the Gigabit Broadband Voucher Scheme to help deliver gigabit-capable connectivity to businesses. The scheme is backed by a budget of £67m for eligible businesses to claim up to £2,500 off the cost of installation of full fibre connectivity to their premises.

Since the launch of the initiative Glide has analysed its successful applications to reveal the business hotspots which have benefited from the scheme. Glide has currently issued over 1,100 vouchers – saving local businesses an estimated £2,750,000 and increasing their broadband access speeds.

Of those applications, 18 per cent of the vouchers were issued to businesses in Coventry alone – meaning 225 businesses in the area are now supported with full fibre connectivity that might otherwise have struggled to make this commercially viable.

PROJECTS & CONTRACTS IN BRIEF

maincubes has planned a new data centre in the Frankfurt Rhine-Main area – maincubes FRA02 – which will focus on sustainability. Approximately 8,500m² of colocation white space will be built on five floors, with carbon neutral operations and specific offerings providing customers with a highly secured and climate friendly home for their ICT infrastructures.

Teledata has chosen Powerstar Virtue and Powerstar HV Max to help it improve energy efficiencies, reduce carbon emissions, enhance site resilience capabilities and protect against future energy price rises at its Tier III data centre in Manchester.

Secure IT Environments has completed a design and build project for a UK government department with the handing over of a new 140m² data hall.

Over 1,000 properties in four rural Forest of Dean district villages have gone from being the worst connected in the UK in terms of their internet speeds to being among the fastest in the world. Those in Highnam, Maisemore, Tibberton and Upleadon now have access to broadband speeds of up to 1Gb/s.

GBI and Microsoft have signed a memorandum of understanding (MOU) to accelerate cloud adoption and support digital transformation in the Middle East.

Nextgenaccess has agreed an exclusive concession for 20 years from HS1. This is for the deployment of full fibre infrastructure along High Speed 1, the 67 mile high-speed railway link which connects St Pancras International in London to the Channel Tunnel in Kent.

R&M

Data centre infrastructure managers need to know whether their networks and applications are delivering the required performance. R&M's new TAP solution, fully integrated in structured cabling and running network operations, provides an answer and helps maximise port density.

In a fully bi-directional network, a passive traffic access point (TAP) copies optical signals from the fibre without introducing latency or packet loss. R&M's solution makes it possible to add and remove ports without interrupting operation. The range also includes a variant for Cisco BiDi operation.

Network managers can use Netscale 120 TAP modules to prove they are adhering to the agreed service quality and that company critical applications can run smoothly – what's more, data centres can use racks to full capacity. When fully assembled, Netscale 120 TAP modules can monitor up to 240 LC ports on 3U.

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

CNet Training

CNet Training now offers a unique remote attendance capability, delivered using collaboration enabled facilities within specially designed smart rooms.

Remote attendees benefit from the same instructor-led classroom environment in real time, with the same levels of interaction, collaboration and instructor contact as those who are physically present in the room. Remote attendees effectively sit in the same classroom alongside other learners and can, therefore, see, hear and enjoy the same learning experience.

The CNet Training smart rooms are fitted with the latest high-definition, bi-directional audio/visual communication and collaboration tools that effectively transport remote attendees into the classroom alongside all other learners. The instructor, and all the learners, can see and interact with each other in the usual way. The technology also allows remote attendees to participate in one-to-one or group activities and conversations via live virtual breakout rooms.

This new way of learning has many benefits for both the learner and employer, as remote attendance programs remove the need for travel and accommodation. The programs are available in time zones across the world, allowing learners to choose to take part in the program from wherever suits them the best – this may be at home, a meeting room or facility in their current workplace.

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Ticking all the boxes

Russell Poole of Equinix asks whether data centres can really be efficient, sustainable and profitable?

The volume of global data traffic has increased exponentially over the past decade, largely thanks to a rising number of connected devices and an increased effort from businesses to utilise automated ways of working. As we head further into the fourth industrial revolution, and its associated digitisation, this trend looks set to continue. In fact, Cisco predicts that by 2022 global IP traffic will have increased threefold, when compared to 2017.

ON THE UP

With the widespread adoption of new technologies like 5G and cloud computing, the levels of data being consumed are set to further increase. What is clear is that in order to cope with such a vast amount of data traffic continuously moving around the world, enterprises and governments alike must have the correct digital infrastructure in place. Namely, one which is robust, secure and scalable, so it

‘Data centre service providers around the world are striving to develop, adopt and improve a variety of technologies designed to enhance optimisation initiatives and, by association, cut costs, reduce waste and further sustainability efforts.’

can seamlessly transfer the ever-growing volume of web traffic.

An integral part of this digital infrastructure is the data centre sector – a sector witnessing a profound operational shift in response to changing business and consumer demands, requiring real time online access from dispersed locations around the world.

LOOKING AHEAD

In its recent report The Future of Enterprise Data Centres, which looks at the consequential evolution of the data centre, Gartner highlights the fact that new and developing technologies, such as artificial intelligence (AI) and big data, are being paired with advancements in power, cooling and operations, to embrace the disruption and maximise gains.

Growing energy costs and environmental responsibility have placed the data centre sector under increased pressure to improve its operational efficiency. Data centre service providers around the world are striving to develop, adopt and improve a variety of technologies designed to enhance optimisation initiatives and, by association, cut costs, reduce waste and further sustainability efforts.

Indeed, Gartner states that improving data centre efficiency has ‘long been the mantra of I&O leaders focused on infrastructure modernisation’. However, changing customer workloads and an ever-increasing number of connected devices makes developing a robust optimisation strategy a difficult task. It involves weighing up a variety of factors, like how many servers are needed and what levels of power and cooling are required to support a specific site. Without these calculations feeding into capacity planning, sudden surges in demand can rapidly drive up costs.

STROKE OF LUCK

Luckily, these differentiating factors lend themselves perfectly to machine learning and utilise identified patterns as a base from which to make future decisions. Modern data centres are already highly technical, meaning they contain a wealth of connected sensors that can capture large volumes of data, both real time and historical, ready to be harnessed.

This is particularly beneficial as data centre providers constantly have to monitor and adjust mission critical equipment to ensure it enables a site to perform optimally. The network’s

new knowledge can then be leveraged across an entire platform, helping to keep equipment working around the clock at optimal levels of efficiency and sustainability.

In order to counter the biggest issue associated with machine learning – how to manage the huge amounts of data that needs to be analysed and processed to gather usable optimisation insights – tools have been developed to monitor electrical and mechanical infrastructure within the data centre and allow the rapid acquisition of data for machine learning. The extensive data gathered can then be fed into the cloud and analysed by AI algorithms and human experts. The gathering and analysis of data in this way is advantageous as it enables customers to react to significant events and utilise configurable reports and alerts, to proactively plan and alter deployments.

EFFICIENCY DRIVE

It goes without saying that optimising efficiency is important in terms of cost effectiveness. Data centre engineers need to quickly and expansively answer queries around the power consumption of specific utilities. In an increasingly power conscious age, this is probably one of the most important benefits of machine

learning and AI – enhanced efficiency means enhanced sustainability.

It is estimated that three per cent of all global electricity consumption currently comes from data centres. And this is predicted to rise to 4.5 per cent by 2025 – so even slight improvements in efficiency could yield sizeable cost savings and cut millions of tonnes of CO2 emissions.

Predicting the data centre of the future to be greener and more sustainable, Gartner states that 'a green data centre gleans the maximum amount of production from the minimum amount of materials and energy'. Indeed, extremely aware of cost and availability of power, data centre providers have some of the most advanced tools of any sector for improving energy efficiency.

An important industry metric to consider when analysing the sustainability efforts of data centres, both current and future, is Power Usage Effectiveness (PUE). PUE measures the energy efficiency of a data centre's infrastructure under normal operating conditions, and helps track power usage trends on an individual facility over time.

BREAKING GROUND

Groundbreaking technology will become increasingly commonplace in the data centres of the future, as industry players look to pioneer solutions that will streamline and optimise operations. With sustainable business practices increasingly on the news agenda, particularly since the 2016 Paris Agreement – the first truly global deal to fight the climate crisis – we are more frequently seeing customers prioritise the reduction of their carbon footprint, as they look to industry to analyse best practice. With customers often basing their colocation decisions upon this, sustainability and profitability can no longer be seen as competing interests and, in fact, both can benefit from optimised efficiency. What remains clear is that the data centre of the future will need to balance sustainability, efficiency and profitability in order to thrive in an ever more data heavy and environmentally conscious world. ■

RUSSELL POOLE
Russell Poole is managing director UK and The Nordics at Equinix.

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