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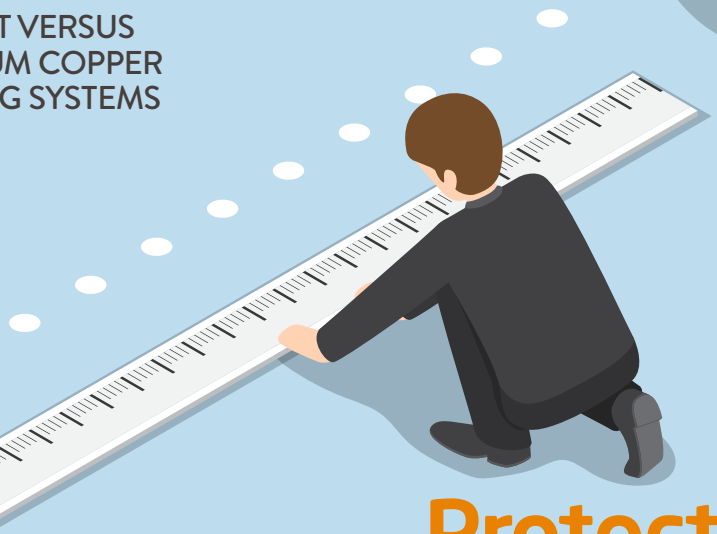

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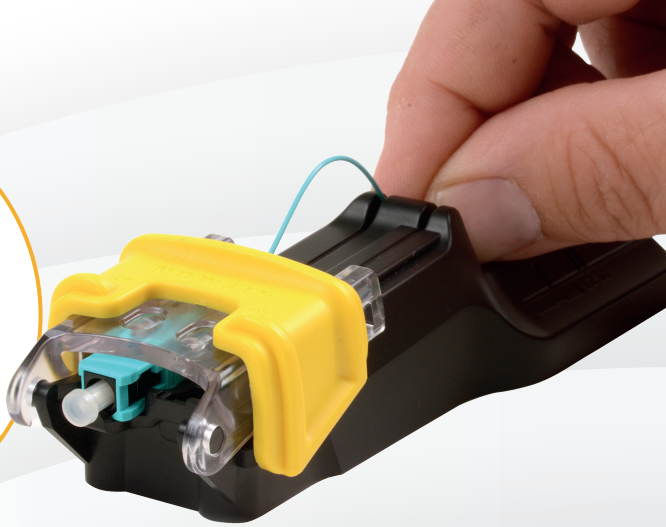

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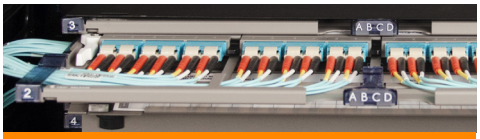

CNCI® Apprenticeship

Certified Network Cable Installer (CNCI®) Apprenticeship

CNCI® Apprenticeship:

Duration: 12-15 months
Funding Value: £9,000
Delivery Method: Flexible block release
Content: Timetable is available

CNet Training Launch the First Government Funded Apprenticeship for Network Cable Installation in England and Wales.

The Certified Network Cable Installer (CNCI®) level 3 Apprenticeship is designed for those wishing to aquire the highest levels of knowledge, skills and expertise in network cabling infrastructures whilst gaining valuable on-the-job experience.

The CNCI® Apprenticeship is levy funded to £9,000 or 95% co-funded. It has been developed by CNet Training with major installation companies, it's perfect for new or existing employees wishing to acquire the knowledge to enable them to complete both copper and fibre cable installation projects.

The content of the Apprenticeship has been carefully planned and prepared and provides the apprentice and employer with a full itinerary of activities to follow and implement. It introduces the concept of an 'Apprenticeship in a Box', designed to take care of the time-consuming planning often associated with Apprenticeships and on-going professional development.

In addition to the technical skills gained surrounding installing, testing and certifying copper and fibre cable installs, the Apprentice will also learn to work to the correct standards and best practices around Smart Building technology such as wireless access devices, VoIP telephony, CCTV cameras, door access controls and biometric security systems. They will also be eligible for an ECS card and undertake full health and safety training.

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CHALK HILL MEDIA

Now and again an event occurs within the network infrastructure sector that signals a new direction. Usually these are technology related, however, on this occasion it concerns a move that will go a long way in ensuring that the sector attracts competent professionals to carry out the installation and integration of the systems that comprise the fourth utility.

The Certified Network Cable Installer (CNCI) Apprenticeship has been developed by CNet Training and aims to give young people a route into this vibrant and growing sector. From regular contact with the company I know that getting to this point has taken many years of dedication and hard work, so I'm pleased to say that the response to it so far has been highly enthusiastic. Well done to all concerned and you can find out more by **CLICKING HERE.**

One of the key questions facing those installing copper cabling systems in intelligent buildings is whether to use a low cost or premium solution. Given how much reliance is placed on a structured cabling system this is not as straightforward as it would first appear, so we've asked a panel of experts to examine what to consider and you can **CLICK HERE** to read their comments.

In this issue we have a special feature dedicated to the hot topic of micro-modular data centres. Eddie McGinley of Leviton Network Solutions Europe examines the reasons behind their rise in popularity, while Chris Wellfair of Secure IT Environments talks about how they are taking on a whole new look and demand serious consideration. **CLICK HERE** for Eddie's article and to read Chris's **CLICK HERE.**

Once again it's been great fun putting together a review of the Inside_Networks 2019 Charity Golf Day and reliving some fantastic memories of the event, which raised over £13,000 for Macmillan Cancer Support. You can see it by **CLICKING HERE** and we'll be doing it all over again on 20th May 2020, If you'd like to take part you are advised to register early, as places are limited, and this can be done by **CLICKING HERE** to email Mark Cumberworth of Slice Golf and Events or calling 07769 696976.

With lots more besides the above, I hope you enjoy this issue of Inside_Networks and 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.

Rob Shepherd
Editor

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LEVITON

CNet Training launches the first government funded apprenticeship for network cabling installation

CNet Training has launched an apprenticeship scheme within the network cable infrastructure sector across England and Wales. The company has fully planned and prepared the content of the Certified Network Cable Installer (CNCI) Apprenticeship that provides apprentices and employers with a full itinerary of activities to follow and implement. It introduces the concept of an 'apprenticeship in a box', designed to take care of the time consuming planning often associated with apprenticeships and ongoing professional development.

The CNCI Apprenticeship has been put together as the result of close collaboration between major companies from the network cabling sector. It recognises network cable installation as a role and provides industry approved certification which standardises technical education for network cable installers. CNet Training is committed to the network cable installation sector and is looking to encourage more people to join the sector and inspire future career goals.

The CNCI Apprenticeship is available to all across England and Wales. Apprentices will benefit from on and off the job training and activities such as mentoring, shadowing, internal training and specialist external education programs. It will take between 12-15 months to complete.

Apprentices must pass a practical assessment and professional discussion to successfully complete the CNCI Apprenticeship, which ensures that the learner is fully competent and ready to work independently within the industry. On successful completion, learners will be able to confidently install, test and certify copper and fibre optic cable across a variety of environments, working to the correct standards and best practices. Learners will also be taught how to install smart building technology including wireless access devices, CCTV cameras, door access controls and biometric security systems.

The CNCI Apprenticeship is hugely beneficial as not only does it teach highly technical industry skills, but the learner will also gain a large variety of transferable skills that are valuable across any career going forward. This includes timekeeping, communication and organisation, customer service as well as how to participate in a variety of work environments, learning how to prioritise projects, work with a variety of people and to take responsibility and ownership of work.

Andrew Stevens, CNet Training's CEO commented, 'The network cable infrastructure sector is beset with significant skills shortages. The CNCI Apprenticeship has been long awaited and we have worked incredibly hard to get this off the ground and approved. It's a massive step forward and I hope it will motivate companies looking for new junior recruits to train. The CNCI Apprenticeship will inspire a generation and encourage them into the sector by offering a career opportunity following school education. It will ensure that all learners are trained, educated and certified properly from day one and therefore gives them a great starting point to a great career.'


Andrew Stevens

Frost & Sullivan claims global edge computing market will be worth $3.62bn by 2022

The continuous rise in the number of connected and internet of things (IoT) devices, connected and autonomous cars, content streaming, and multiplayer games will accelerate the edge computing market at a compound annual growth rate (CAGR) of 36.3 per cent from 2017 to 2022, according to Frost & Sullivan's Global Impact of Edge and 5G Technology on Data Centers Forecast to 2022 report.

It also claims that with the number of connected devices set to triple by 2025, and with most of these applications requiring close to zero latency data transfer, the $768m global edge computing market is forecast to touch $3.62bn by 2022. The fastest growing edge segments will be small and medium capacity, which are likely to grow at a CAGR of 63.7 per cent and 30.9 per cent respectively.

'Edge data centres are focusing on high density cooling solutions,' said Frost & Sullivan's energy analyst, Vasanth Krishnan. 'Meanwhile, market participants are expanding their data centre footprint to Tier II and Tier III cities to develop their network at the edge, creating opportunities in these cities for other participants in the value chain.'

He added, 'It is important for market participants to forge partnerships and leverage existing relationships in the industry in order to unlock new revenue streams. Colocation providers will look to penetrate Tier II and Tier III cities where the workload potential is expected to increase, while enterprise class users are likely to opt for edge based colocation services or push their own networking infrastructure to the edge.'

Kao Data deploys 100 per cent renewable energy at its London Data Centre Campus

Kao Data has announced it will operate using 100 per cent renewable energy and be cost neutral to its customers. When the campus is operating at full load (43.5MVA), this will effectively reduce CO2 emissions by over 80,000 tons per annum, the equivalent of removing more than 30,000 vehicles from the road.


Paul Finch

By today's standards, many legacy data centres and colocation providers are unable to provide the same level of technological advancement, scalability and low cost of operations as those built on innovative hyperscale principles.

Paul Finch, COO at Kao Data, stated, 'Although the industry can evidence tremendous improvements in operational efficiency over the last decade, data centres will continue to be an increasing consumer of power driven by consumer demand. The EU Commission recently concluded by 2030 annual energy consumption relating to servers and infrastructure is forecast to rise to 75TWh. It is Kao Data's belief that we need to work closely with our supply chain to ensure renewable energy remains fully accessible, promoting sustainability and strong industry stewardship.'

Legrand launches iMasons in France

Legrand has launched the very first iMasons (iM) French Chapter. The official opening was carried out by Frédéric Xerri, Legrand's executive vice president for Europe.

The mission of iM is to unite the builders of the digital age by creating the platform for members to connect, grow and give back. The data centre industry is key for the French economy, as it is an enabler for the digital age. In the United States, iM is very well respected, and now beginning to grow in Europe.


Frédéric Xerri

Commenting on the new initiative between Legrand and iM, Xerri said, 'iM's beliefs are synonymous with those of Legrand. We connect by staying close to our customers, we grow through employee enablement and training, and we give back through the development of buildings with a view to promoting progress for the communities around us. We believe Legrand can offer iM members a lot of experience and we can learn so much from them too.'

In addition, Amelie Zegmout, Legrand's director of residential and tertiary industries, has been appointed as the iM Women EMEA Champion. The iM Women aim to celebrate and recognise female industry individuals who empower and inspire others to play a part in the digital economy.

2019 FIA Summer Seminar signals a bright future for fibre optics

The recently held 2019 Fibreoptic Industry Association (FIA) Summer Seminar highlighted the positive role that optical fibre continues to play in the development of modern communications networks.

Speakers came from a diverse variety of backgrounds and specialist areas and included Andy Hudson of Aqua Comms, who stated that, when it comes to subsea cable systems, speeds of several hundred Gb/s are frequently discussed, and that might well be heading towards Tb/s in the near future.


Andy Hudson

Other highlights included Adrian Wooster of Gigaclear, who discussed fibre to the home, John Cotterill of Fibre Knight on the use of fibre on aircraft, whilst Mike Andersson of Andstrom Consulting highlighted the increasing opportunities for quality fibre installers in hospitals, with the release of the Building Infrastructure for Healthcare ICT code of practice.

John Colton, the FIA's technical director, commented, 'The FIA Summer Seminar was a great success and the range of speakers attracted delegates from across the optical fibre sector. Overall, the feeling was one of a strong demand for fibre and related services for the years to come in a wide range of market segments – a bright future arriving at light speed.'

Wi-SUN Alliance survey provides insights to enable timely realisation of smart cities

Smart cities are expected to be commonplace within the next 10 years, according to a new poll by Wi-SUN Alliance. Over half of respondents expect to see widespread smart city deployments in 10 or more years, while a third predict 5-10 years. Just 15 per cent expect it in less than five years.

However, half cite lack of funds or investment in projects as the biggest challenge currently holding back smart city development. A further 21 per cent point to security and privacy issues, while lack of interoperability (14 per cent) is also seen as a major factor in progressing deployments. When asked about their specific security concerns, respondents point to data privacy as their biggest worry (37 per cent), while attacks on critical infrastructure (28 per cent) and network vulnerabilities (24 per cent) are also cause for concern. 11 per cent cite insecure IoT devices.

'It's interesting to see the timeframe that many of our respondents place on smart city deployment, when in fact smart cities are already here,' stated Phil Beecher, president and CEO of Wi-SUN Alliance. 'Certainly security and interoperability remain critical factors in any smart city deployment. As more devices connect to the network, the opportunity for major disruption through security vulnerabilities is increasing all the time, while greater convergence, especially in utilities, will increase the risk of attacks on critical infrastructure.'

NEWS IN BRIEF

Excel Networking Solutions has opened a new demonstration facility in Stockholm. The facility is a shared office building featuring four hot desk office spaces and two meeting rooms alongside a sitting area. A 42U Environ rack is on display to view in the location, while Excel's Swedish representative, Stefan Levin, frequents the demonstration facility, which is a key place for industry professionals to meet and exchange ideas.

According to research by Close Brothers, 58 per cent of UK small to medium sized enterprises (SMEs) do not use cloud based computing. In total, a third of small and medium sized businesses (33 per cent) say that they do not use the cloud at all and 25 per cent say that they are not currently using the technology, but plan to implement it in the next 12 months.

Harting is cooperating with TE Connectivity to set single pair Ethernet (SPE) as the de-facto infrastructure solution to enable the industrial internet of things (IIoT). The two companies will together drive solutions which will define the infrastructure for SPE.

33 per cent of UK respondents say that they would rather pay a ransom to a hacker than invest more in security because it would be cheaper, according to the 2019 Risk:Value report from NTT Security.

Extreme Networks and Aerohive have entered into a definitive agreement under which Extreme will acquire all of the outstanding shares of common stock of Aerohive.

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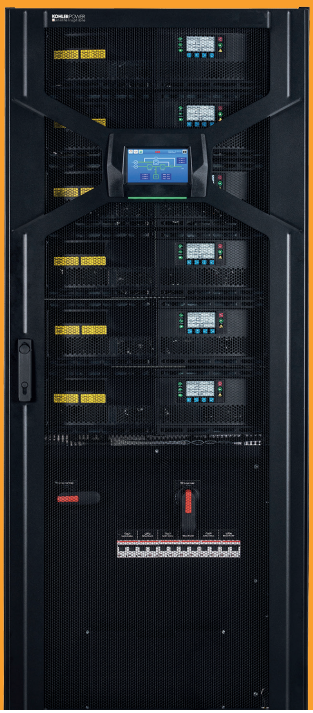

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Are organisations capitalising

Hi Rob

The growth of the internet of things (IoT) market is impressive, with analysts predicting that the number of connected devices around the world is on track to grow to almost 31 billion by 2025. Additionally, the projected impact of artificial intelligence and 5G on all sectors will help to unlock additional scale, security and interconnections between all parts of the IoT landscape, amplifying the positive impacts of the technology for all stakeholders. So how will these key elements influence and impact IoT as the technology continues to evolve at breakneck speed?

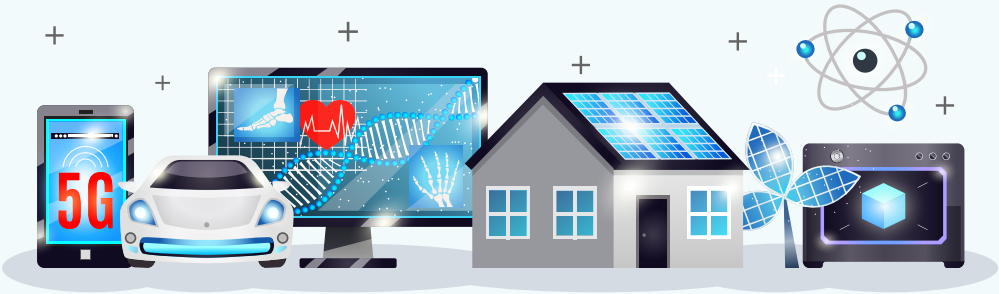
When it comes to big data, there is a business opportunity to acquire, manage and sell IoT datasets, which provide key insights and potential influence over the lives of billions. Larger organisations have already been amassing data on a vast scale, and with the deployment of new sensor networks, they are generating huge datasets. However, what is lacking is the structure around how to exploit this business opportunity.

Artificial intelligence (AI) is already well embedded in our culture and is achieving great success in driving efficiencies through numerous industries. For example, in the medical world, AI is able to learn from datasets and make projections about cancer diagnosis by looking at scans, with the same accuracy as an industry expert.

This is a huge step forward for technology becoming more entrenched in the applications and processes of cities, corporations and our day-to-day lives. The accuracy and capabilities of AI are already high and this will only grow further as more decisions and reactions are automated by machines. Combined with IoT technology, AI can determine insights and detect anomalies in data, offering accurate predictions to improve operational efficiencies.

Our planet is undergoing significant changes in terms of weather and climate challenges, but through the use of AI our outlook could be vastly improved – we will be able to react faster and proactively intervene before issues occur. For example, there is a problem with drought in many locations and machine learning can determine how higher yields can be generated and which geographical areas shouldn't be used for planting.

Although the 5G standards are yet to be finalised, it is expected that 5G will be 10 times faster than 4G at an estimated 10Gb/s, as well as having ultra-low latency. 5G will be delivered by carriers



g on the opportunity of IoT?

installing 'small cells' that will allow a 5G infrastructure to be deployed. A number of carriers will use it for capacity augmentation and extending 4G capability, so 5G will not only provide higher bandwidth, it also allows for the network to be partitioned in several ways. For example, IoT over 5G will have its own dedicated pathway, as will voice.

5G will enable IoT innovation to be extended further to multiple use cases across numerous industries. In particular, low latency improves response times, so when it comes to manufacturing machinery or autonomous vehicles, it will ensure near instant reactions to safety issues. However, to ensure the 5G IoT ecosystem functions effectively, cities and businesses will need to have a strategy in place to support 5G networking to ensure the full benefits of the technology can be realised.

Nick Sacke
Comms365

Editor's comment

Nick covers a lot of ground here but his point is clear – the potential of the IoT is immense and not only offers significant business advantages but can benefit many aspects of our day-to-day lives.

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Cost benefit analysis

When it comes to selecting a copper cabling system for an intelligent building there's a diverse array of solutions to consider, at a variety of price points. Inside_Networks has assembled a panel of industry experts to discuss the differences between products at the premium and economy ends of the spectrum and whether it really is a case of getting what you pay for

Even though network cabling is an important element of an intelligent building, it can often be tempting to assume that, as all copper cabling has to meet a required minimum standard, choosing the least expensive option makes good financial and business sense. However, it is worth questioning why prices differ so considerably and whether using a premium solution is more cost effective in the long-term than a low cost or budget alternative.

WHEN IT COMES TO SPECIFYING COPPER CABLING FOR USE IN AN INTELLIGENT BUILDING, ARE THERE ANY GENUINE ADVANTAGES IN USING A PREMIUM SOLUTION OVER A LOW COST OR BUDGET ALTERNATIVE? IF SO, WHAT ARE THEY AND HOW CAN THIS DECISION AFFECT THE OPERATIONAL QUALITY OF THE INSTALLED NETWORK INFRASTRUCTURE AND ITS LONGEVITY?

It is widely acknowledged that the majority of failures in the network infrastructure are due to the physical layer, so selecting the right cabling system for the job is vital. This process begins with an analysis of business needs and goals and, once established, makes it easier to determine the business processes likely to be employed, the applications needed to run these processes and the IT architecture required to support them.

When faced with the wide range of products and systems on offer, being able to establish what justifies the vast differences in price can be difficult and not always immediately apparent. While there has always been a determination by certain vendors to push the technology as far as it will go and produce systems which provide enhanced bandwidth and headroom, these have always had a corresponding price position.

Also, will the 'extras' that are used to justify the higher price of a premium product be worth the additional money, or is it simply clever marketing spin?

In order to establish truth from fiction, Inside_Networks has assembled a panel of experts to explain the difference between premium copper cabling solutions and low cost alternatives, what should be the key criteria to assess when making a purchase, and how any decision affect the operational quality of the installed network infrastructure and any return on investment.

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.

DOMINIC ROSS
TECHNICAL MANAGER UK & IRELAND AT SIEMON

One of the biggest issues regarding cabling for buildings over the years has been cost versus performance. With the growth of the intelligent building market the need for performance is now vastly outweighing the cost issue. We have seen a large majority of end users switching to shielded copper cabling for electromagnetic compatibility (EMC) to ensure that their data can be transmitted error free. This is increasingly important for newer technologies such as 5Gb/s Wi-Fi access ports.

Cabling designs are becoming more flexible to support a building's needs and applications. With more and more devices connecting to the building network, the cabling infrastructure must be able to support current and future needs, both in terms of required data performance and remote power delivery to these devices via power over Ethernet (PoE) technology.

Growing bandwidth requirements, as seen in applications like audiovisual over IP and the latest Wi-Fi 6, demand cabling solutions that can support 10Gb/s speeds. Higher performing copper cabling such as shielded Category 6A not only delivers the performance and headroom needed for reliable 10Gb/s performance, but the cable is also qualified for mechanical reliability in high temperature environments, in addition to superior support of the latest higher power IEEE 802.3bt Type 3 and Type 4 PoE.

Selecting lower category performance could easily affect the operational ability of any business in the future. Building owners and those in charge of design have to think carefully about how long they need installed infrastructure to support their long-term business goals.

Standards groups including ISO and TIA provide guidance on performance and lifecycle considerations. For most commercial building end users, this means specifying a cabling plant that is capable of supporting not only 1000BASE-T today but a planned upgrade to 10GBASE-T in five years.

When it comes to cost, yes, there will always be cheaper alternatives available. However, often lower cost means lower quality, which can affect the robustness of the network and cause higher follow on costs, if networks need to be replaced – not to mention the disruption or downtime this may cause. Also, lower cost cables can't offer the levels of warranty that a premium brand can.

'Building owners and those in charge of design have to think carefully about how long they need installed infrastructure to support their long-term business goals.'

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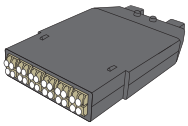
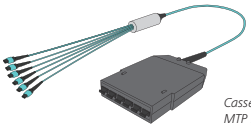
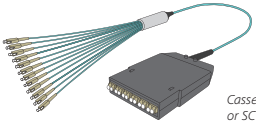


Cassette to MTP Backbone



Cassette to MTP Fan Out



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ALAN BULLEN
MANAGING DIRECTOR AT LYNX NETWORKS

My guess is that most of the other participants in this Question Time will make the case for a premium solution. However, I'm going to argue that it's horses for courses because, in my experience, a lower priced but good quality solution can provide the same benefits and virtually never fail. It just has to be correctly designed, installed and tested.

Saying that, in favour of a premium solution, most of the cost of an installation is for labour, and this is roughly the same whatever the materials, although the better manufacturers usually select and train their installation companies more thoroughly.

Also, bear in mind that paying 30 per cent more for higher grade cable and connectors may only increase the total cost by about 15 per cent. Also, if you're paying £60 per square foot to rent office space in central London, the additional cost may be a drop in the ocean, and if your building intelligence is mission critical, you shouldn't skimp on it. Any cabling installation service should include test results showing performance to the required standard and a warranty that is still going to be worth something in 20 years.

Operational quality must not be sacrificed at the altar of cost savings, and it's not just about reliability. It's being able to commission new equipment, make patching changes easily and quickly trace any problems. So a well labelled, fully documented system in the right enclosures and racking is vital. This can be achieved with a premium or low cost solution.

So, it is possible to get a cabling system suitable for an intelligent building without over spending. Buyers just need to beware that lower price doesn't mean better value and, conversely, paying a premium could mean diverting scarce budget from somewhere where it is badly needed. I would suggest paying for an excellent installation company rather than a premium solution and maybe the savings could be spent on some additional outlets to allow for the inevitable growth of the wireless network.

'Operational quality must not be sacrificed at the altar of cost savings, and it's not just about reliability. It's being able to commission new equipment, make patching changes easily and quickly trace any problems.'

KEITH STEWART
PRODUCT MARKETING MANAGER AT NETWORKS CENTRE

Structured cabling has continually evolved and now connects not only business systems but also many building services systems. Not only does it provide a pathway for data but also extra low voltage (ELV) power through the evolution of PoE.

Devices requiring Ethernet connection above the ceiling can now potentially equal the number used at floor level. In addition, wireless access points (AP) and associated networks have quickly developed to the high performance enterprise class IEEE802.11ac Wave2 AP devices we see today. With the additional PoE provision to CCTV, distributed AV (HDBaseT), and now PoE lighting and HVAC control, the case for a structured cabling 'grid' above ceiling is now being seen as a sensible infrastructure provisioning strategy by many network designers.

Zone architecture has not really taken hold in commercial office space in the UK, which means structured cabling needs to be home run and, consequently, link distances to SERs need to be considered. Cabling needs to be suitable to connect to any device for its lifetime. We now have a standard for modular plug terminated links (MPTLs), meaning links are certifiable and consistent to help ensure required performance standards are met. With Wi-Fi radio devices running at 2.5GHz and 5GHz it makes sense to deploy a high bandwidth cable such as Category 6A.

In addition to current carrying for PoE and bandwidth of the cable, we now have to ensure that the Construction Products Regulation (CPR) is met by using a Euroclass Cca cable or better. This relates to testing for flame propagation and spread, heat release, smoke, acid and flaming droplets. Using low cost cables can mean the cable fire performance when measured against its official declaration of performance (DoP) may be variable.

Quality brand named cables, where the original manufacturer's name is on the DoP certificate, are more likely to be on top of the CPR third party testing process. There is also emerging evidence that cable on a reel performs more consistently to CPR type when compared to Reelex cable packaging. This is thought to be due to the distortion of the cable fillers and air spacing in the Reelex process.

'In addition to current carrying for PoE and bandwidth of the cable, we now have to ensure that the Construction Products Regulation (CPR) is met by using a Euroclass Cca cable or better.'

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- **7 second test time**
  test a Cat 5e / 6 / 6A cable within 7 seconds.
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  everything you need, in the palm of your hand.
- **Certify Cat 8 cabling**
  including TCL and resistance unbalance.
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  pre-configure the project in the free IDEAL AnyWARE Cloud.

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FLUKE networks

VERSIV™
Cabling Certification System

The Best PoE Test & Troubleshooting Solution

There are additional requirements that data cabling must meet to ensure PoE will operate as expected. By selecting "+PoE" tests in the DSX CableAnalyzer™ Series, a complete set of resistance measurements are made on the link to ensure proper PoE operation.

By the time powered devices are connected to the network, you want to make sure the switch is providing sufficient power in order for them to operate. The MicroScanner™ PoE displays the class and power level as reported by the switch, so you can verify if this is the case.

The MicroScanner PoE provides a complete set of tools for the technician installing PoE and non-PoE devices. Cable wire-mapping, a built-in toner, and distance-to-fault indicators can track down cabling problems quickly. When connected to a live switch port, the unit displays the speed of the port up to 10 Gbps, especially useful for troubleshooting slow access points. Fluke cable identifiers can be used in conjunction with the MicroScanner™ PoE to track which cable goes where within your environment.

See more details about the best PoE Test & Troubleshooting Solution

Download the guide to Successful Installation of Power over Ethernet

KIRK KRAHN
SENIOR PRODUCT MANAGER AT LEVITON NETWORK SOLUTIONS

Intelligent building initiatives can provide significant energy savings, but it's important to select cabling that will provide optimal performance for all of the system's applications. Premium components are more often designed to meet or exceed industry standards for performance, ensure system longevity, and prepare networks for future upgrades and growth.

Some networked devices in a digital building, such as wireless access points and high end displays, will require quality high bandwidth cabling like Category 6A. But many of the networked devices in a digital building, including lighting or thermostats, will not require a high bandwidth solution, so you won't necessarily need higher category rated cabling and connectivity. However, these devices may have high PoE requirements, which means you should consider quality PoE optimised cable and connectivity.

PoE is an instrumental part of supporting digital building initiatives for remote connected devices, and high quality connectivity and cable must meet PoE performance requirements. Cable tests by standards bodies like ISO/IEC consistently show that cables with larger conductors and shielded cables perform better at handling temperature rise than cables with smaller gauge conductors or unshielded cable, when energised. This is an important consideration, as high temperatures in cable bundles have the potential to negatively affect channel performance.

As with cable, temperature rise in jacks can also affect performance. Testing for compliance with the IEC 60512-5-2 and 60512-99-001 Connectors for Electronic Equipment standards revealed that a jack with a metal body provides a 53 per cent improvement in heat dissipation over the more common ABS plastic body of other jacks on the market.

Premium connectivity will help ensure the longevity of the system as well. For example, some jacks are designed with PoE optimised tine geometry that prevents tine damage caused by higher current PoE applications. The tine geometry ensures that any arcing damage caused by powered disconnects does not occur at the critical location where data transmission occurs. This increases system longevity and prevents costly repairs.

'Cable tests by standards bodies like ISO/IEC consistently show that cables with larger conductors and shielded cables perform better at handling temperature rise than cables with smaller gauge conductors or unshielded cable, when energised.'

ANDREW WHITTAKER
SENIOR DESIGN MANAGER AT SUDLOWS

Intelligent buildings are understood by most to be the adaptation or converging of a building's automating devices on to its IT network.

Arguably the most publicised method is PoE lighting. If we take PoE lighting in isolation and were to look at designing a solution, we should focus on selecting the correct components to make up a complete copper solution. However, it is also vital to determine which solution architecture – zone, consolidation or home run – is best suited for the environment in which the system is to be deployed.

When pairing a proposed solution to its planned environment, one starting point is to refer to the telecommunications standards for guidance. These tell us that distributed building services should, at a minimum, be supported by a Class EA solution. Furthermore, BS EN 50174-2 provides guidance on installation methods – focusing in particular on the rising use of PoE, its potential for detrimental temperature increase, and the installation methods advised to reduce these effects.

A further design consideration would be to anticipate the evolution of technology and implement a solution which could handle a technological upgrade. Providing longevity to the infrastructure can be seen as trying to look into a crystal ball at times. However, we should look at past trends as an aid to prediction. One such example of this can be seen in the last 10 years of Wi-Fi evolution – from IEEE 802.11n (Wi-Fi 4) up to IEEE 802.11ax (Wi-Fi 6).

Regardless of the premium or low budget label, the solution selected for the installed network must, ultimately, be able to support the demands of the devices which are to be implemented, so as not to cause any detrimental effects to the operational quality.

As there are no clear definitions of what truly defines a building to be intelligent or digital it is necessary to understand the goals of the client or customer. The devices and systems which have been specifically selected by the client are the starting point from which a system designer should work back from. Understanding the performance requirements of these systems should determine the infrastructure needed to support them.

'Regardless of the premium or low budget label, the solution selected for the installed network must ultimately be able to support the demands of the devices which are to be implemented.'

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FIBRE TRUNK CABLE SYSTEMS

A FIBRE TRUNK CABLE SYSTEM FULLY CONFIGURABLE TO SUIT YOUR DESIGN PERFECTLY.

Our pre-terminated fibre trunk cable assemblies offer a streamlined approach to network design by reducing the number of individual components in the structured cabling system.

The trunks are fully configurable and available with a variety of cable and connector configurations. These trunks are ideal for the following applications:

- Data Centre
- LAN
- Building Networks

FEATURES AND BENEFITS:

- Simple design process with two performance levels
- Fully configurable and available with a variety of cable and connector combinations
- Typically supplied on tight buffered fibre cable
- Easy and fast installation due to lightweight product
- Minimal packaging makes disposal and clean up easy once project/install is complete
- Limited lifetime product warranty
- Cost-effective option, resulting in an improved project ROI
- No specialist tools required on site
- Manufactured to industry standards and pre-tested before deployment

CONFIGURE TO SUIT YOUR DESIGN

Fibre Tails

Options include both staggered and fan-out configurations

Fibre Length

There are two ways to specify the length:

Overall length of pre-terminated gland to gland or overall length of pre-terminated tip to tip

Other Configuration Options Include:

Fibre Type	Cable Specification	Connector Options
OM1	Tight Buffered	LC
OM2	Loose Tube	SC
OM3	Breakout	ST
OM4	—	FC (UPC)
OS2	—	—

PAUL BIGGERSTAFF
DESIGN MANAGER AT EXCELREDSTONE

Bringing building services on to a common internet protocol (IP) platform enables a building to become alive, allowing devices and sensors to communicate information. The success of an intelligent building can be measured by the following – its efficiency, its sustainability over the lifecycle of the facility, its profitability and the ability to make operational cost savings on an ongoing basis.

To ensure an intelligent building can tick all these boxes, it is fundamental that the proposed physical cabling infrastructure looks to serve not just the devices that will run across the network on day one, but future proofed for the entire lifecycle of the building.

The cabling design needs to be robust, not just for the transmission of data packets, but many intelligent building devices will require remote powering using Type 3 (60W) and Type 4 (100W) PoE systems. Therefore, as a default, I would recommend a Category 6A (Class EA) 10Gb/s cabling solution to support these systems.

The importance of using a premium cabling solution is paramount, as it offers confidence that the solution will operate with no failures. That's not to say cheaper solutions aren't effective for the right purpose, but we need the right solution for the right purpose. Choosing a premium cabling solution partner with a proven track record in research and development is key. It will be able to understand the technology challenges of these systems, particularly with the need for ever increasing PoE levels and bandwidth. It is important that the cabling solution selected supports specific application protocols and the warranty provides the client with reassurance.

With a low cost system, although the initial capital expenditure is tempting, the ongoing operational expenditure could be much higher if customers have to rectify faults and, in some cases, the need to replace the entire cabling system. The downtime of such critical systems would be a much more serious concern for the business.

Smart buildings can deliver on their promises, but only through a well designed, high end integrated infrastructure. It's important to get it right.

'With a low cost system, although the initial capital expenditure is tempting, the ongoing operational expenditure could be much higher if customers have to rectify faults.'

Safety first

Luca Rozzoni of Chatsw
looks at how physical s
to the edge

When choosing a data centre, a key priority for any business is to know that their data will be safe and cannot be compromised. Data centre owners must also demonstrate that their infrastructure is robust and secure, and that it adheres to critical security processes. Threats have become more sophisticated and customers are requiring a greater level of security to ensure absolute data privacy.

OVER THE EDGE

Historically, a large central data centre has been the hub for all of an organisation's core network activity and transaction processing. However, as internet of things (IoT), mobile and artificial intelligence (AI) technologies continue to develop at rapid speed, businesses are responding with the addition of edge computing alongside the core data centre. This is leading to an increased number of micro data centres in different locations, putting an additional strain on security, which now must be applied across multiple sites.

The introduction last year of the General Data Protection Regulation (GDPR) to protect data privacy added an even greater urgency for data centre owners to ensure they had robust data protection and security policies in place. Whilst organisations within European Union (EU)

worth Products (CPI)
ecurity is being taken

countries should have already taken the appropriate technical and organisational measures to ensure compliance, any organisation collecting or processing data for individuals within the EU should also be able to demonstrate their own compliance procedures.

UNDER REVIEW

Data centre owners need to regularly review and, if necessary, update their security processes to protect their customers' data assets, starting with the data centre's physical security and access control.

Whilst access control may seem an obvious part of any security policy, data centres must be able to demonstrate that they have the appropriate access policies in place. In fact, Regulation (EU) 2016/679 warns of 'preventing unauthorised access to electronic communications networks and malicious code distribution and stopping denial of service attacks and damage to computer and electronic communication systems'.

Extending access control to enclosures that house IT equipment, especially in shared spaces, is increasingly important. If IT equipment is housed in separate, secure rooms with controlled access, this may not be a concern. But as IoT applications

grow, the network may extend into areas that aren't controlled by IT and this should be a key consideration when planning and reviewing security.

BOXING CLEVER

Analysing the access control provided at cabinet level is therefore crucial. Many industries have their own strict data privacy and security compliance requirements, such as the Health Insurance Portability and Accountability Act (HIPAA) for healthcare and online retail's Payment Card Industry Data Security Standard (PCI DSS), in which audit logs of every access attempt are required as part of physical access control.

Relying purely on mechanical keys is ineffective and potentially negligent, considering that research consistently shows that most security breaches are carried out, intentionally or unintentionally, by employees. According to 2018 research conducted by Shred-it, more than 40 per cent of senior executives and small business owners report that employee negligence or accidental loss was the root cause of their most recent data security breach. Meanwhile, IBM X-Force's 2017 report estimated 58 per cent of attacks in the financial sector and 71 per cent in healthcare were from within.

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TWICE AS NICE

An electronic access control (EAC) solution can play a vital role in any data centre's user access management plan. The dual factor authentication provided by an EAC solution gives a second layer of security above a simple password or user name and takes data security to the next level.

One of the most secure forms of physical access verification is biometric authentication. Using DNA, voice or fingerprint authentication, this is also considered one of the most expensive, as it usually involves the installation of additional readers to every cabinet or facility door. However, fingerprint activated cards that are able to work with existing EAC or other card activated locks are now providing a cost effective alternative. A card that is compatible with readers for 125KHz, HID ICLASS and MIFARE proximity cards, and can work with existing campus security systems, eliminates the need for expensive deployments and means data centre employees only need to carry a single card.

REMOTE CONTROL

Remotely managing the networked EAC locks by using a straightforward, easy to use web interface allows the data centre manager to monitor, manage and authorise each cabinet access attempt, wherever the cabinet(s) might be situated. Using this type of intuitive interface provides log reports, which can be easily exported and emailed to the administrator for review and, critically, create an audit trail for regulatory compliance. Managing the networked EAC locks through a web interface also reduces the need for wiring the electronic access systems to security panels, eliminating another unnecessary expense.

Data centres can realise a notable reduction in networking costs and deployment times through the ability to network several locks through IP consolidation. Solutions are now available, for example, that will allow up to 32 cabinets or EAC controllers to be networked under only one IP address.

Many EAC solutions also provide environmental monitoring. Utilising only one IP port for an appliance that offers both EAC and environmental monitoring will bring additional savings. EAC solutions are now highly effective at monitoring and managing temperature and humidity through the same web interface, sending notifications to warn data centre managers when they need to take action to ensure service reliability and avoid downtime. Monitoring and detecting smoke, water and motion through an EAC solution is also possible.

ESSENTIAL SELECTION

As edge computing continues to become more commonplace, it will be essential to ensure intelligent security technologies are rolled out across all locations, not just the main data centre, and that compliance policies and procedures are adhered to by all employees, to stay one step ahead of the latest threats. ■

LUCA ROZZONI

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

MAYFLEX
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AXIS COMMUNICATIONS

A guide to choosing the right door controller for your business

As your businesses starts to grow, there is an increased need to improve security and control who has access to your property. Navigating the door entry systems market can be difficult with so many options, ranging from key cards to facial recognition technology. Access control systems are largely driven by which software and hardware solutions will best serve the individual needs of a business.

One key consideration should be using an open, non-proprietary management platform, which allows for a choice of hardware and software from many vendors. Using an open platform to manage your security network means your access control system is not only able to meet your needs today but can also adapt and scale to fulfil your future requirements.

Protect your investment: Having an open, non-vendor-specific solution means you can invest in best-of breed technology from any provider. With an open platform, new hardware or software can integrate with your existing solution. This means that you can purchase the most cost-effective solution for your current and future business needs. Also, not being restricted to one vendor's solutions means your system always grows with your business, step-by-step.

Scalability and flexibility: To easily grow your solution, look at starting with what you need and adapting it to your changing needs, in step with your business and your requirements. This flexibility means new demands on functionality can be met throughout the lifetime of your business, regardless of what stage it is at. As you grow, you can smoothly scale-up to suit more complex security demands, such as access control combined with video surveillance.

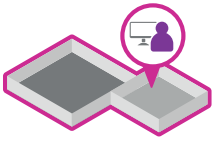
AXIS A1001

AXIS A1601

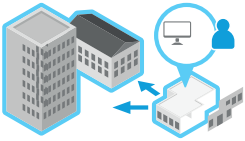
Which network door controller is right for you?

This infographic can help you understand which is best for your business. Both network door controllers offer true openness, which results in a lack of dependency on proprietary hardware or software. You can use Axis solutions for everything from basic to highly advanced access management. The key is to understand and investigate your options to be able to make the right choice for your access control solution today and in the future.

Who's it for?

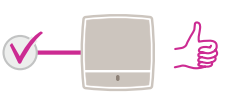


Users with small, single-site systems with local administration.

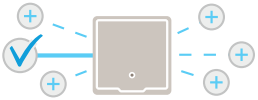


Users with large or multisite systems and central administration.

Most important benefit



Ease of use.



Advanced functionality and maximum flexibility.

Access control software

AEM — AXIS Entry Manager (embedded).

Third-party software from Axis partners.

System size

Optimized for 10 doors — 10x

Unlimited number of doors — ∞

Number of credentials

Up to **400**

Up to **70,000**

Level of complexity supported

Standalone access control with no VMS.

Integrated access control with VMS.

Basic use case.

Advanced use cases.

Hardware

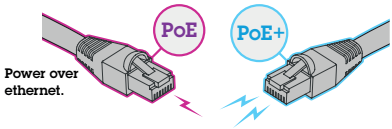
Suitable for small systems.

- 2 lock outputs
- 2 IOs

Suitable for large or advanced systems.

- 2 relays
- 6 IOs
- Optimized power management

Power



Power over ethernet.

Power over ethernet with higher capacity

Axis network door controller solutions are flexible, and future-proof and can easily grow with your needs. And, of course, AXIS A1001 and AXIS A1601 also complement each other perfectly in an installation.

Learn more at: www.axis.com/products/access-control

EDP Europe

EDP Europe recognises the need for maintaining visibility and controlled access to IT racks. As a leading supplier of rack security and access control systems, EDP Europe offers solutions that meet the demands of securing single or multiple racks with systems that can also link to building management systems for greater control and visibility.

EDP Europe has launched its RackANGEL Lite system to provide a cost effective security and access control solution for small cabinet footprint environments, perfect for securing remote wall boxes, main distribution frames (MDFs) and other enclosures across a distributed network.

Its on-board webserver provides easy access via any standard web browser, enabling remote triggering of the door handle, as well as access via card reader. Two models are available – the standard provides rack security along with environmental monitoring, whilst the in-line version also provides power monitoring. This system works with most intelligent door handles available on the market, offering greater flexibility.

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

Austin Hughes

Given the mission critical nature of the data centre environment, InfraPower intelligent rack power distribution units (PDUs) from Austin Hughes are designed, built and manufactured to provide extremely high levels of resilience.

The use of latchable relays at the socket or receptacle level, which will always supply AC power or are always on in the event of component failure, are standard features within the InfraPower metered and outlet switched (WS) PDU and the outlet switched with outlet metering (WSI) PDU models. As with all InfraPower PDUs, configurations including multiple socket types per PDU, as well as coloured PDU casings to allow differentiation of power feeds, are available customised and supplied.

InfraPower PDUs can be integrated with InfraSolution networked smart card access control for added cabinet security and InfraGuard for full cabinet environmental monitoring and management.

For more information **CLICK HERE.**
www.austin-hughes.eu

Chatsworth Products (CPI)

Chatsworth Products' (CPI) eConnect Electronic Access Control (EAC) has been named Data Centre ICT Security Product of the Year at the DCS Awards 2019.

CPI's patented technology integrates the functions of an intelligent rack PDU with electronic locking and environmental monitoring. Simply stated, eConnect EAC removes the need to power and network these devices separately, which offers significant deployment savings thanks to the technology's ability to link up to 32 PDUs – 16 cabinets with front and rear locks – under one IP address.

Additionally, users can programme, monitor and control every cabinet access attempt remotely, and keep an electronic log entry for security and regulatory compliance purposes. The EAC solution is also compatible with most existing employee cards and supports dual factor authentication methods.

For more information on the award winning eConnect EAC, **CLICK HERE** to download our white paper!

www.chatsworth.com

Mayflex

Mayflex has developed its business to become a leading distributor of converged IP solutions.

The product range includes IP security, cabling infrastructure and Ethernet switching products – everything necessary for a successful security installation.

Mayflex distributes a wide range of industry recognised security brands including Axis, Avigilon, Dahua and Mobotix. To support this comprehensive security portfolio, Mayflex has a number of committed security experts to assist on a day-to-day basis with all product and service enquiries. The security sales team are also able to support customers with product selection and system design.

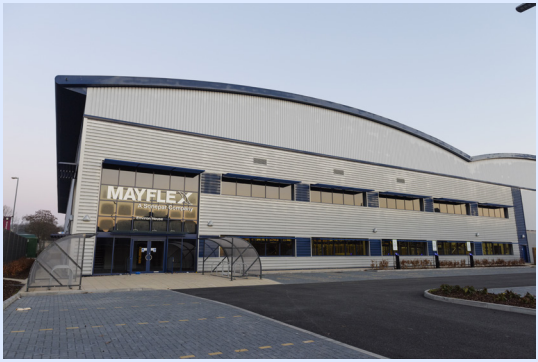
With a range of specialist support services including the pre-configuration of IP devices and bespoke labelling, along with our dedicated pre- and post-sales and technical support, Mayflex provides service, support and guidance with all security installations, small or large.

For further details on the full range of security solutions available from Mayflex, please speak to our team of experts on 0800 757565 or **CLICK HERE** to send an email.

www.mayflex.com

Mayflex opens its new state-of-the-art facility

Mayflex has opened its brand new, state-of-the-art warehouse, assembly and office facility located 0.5 miles from the Mayflex head office in Birmingham. The new facility, Environ House, provides 64,500ft² of warehousing, including 4,000ft² of additional office, training and demonstration space.



Currently, Environ House is primarily being used for the production and stock holding of the Excel Environ range of racks and enclosures. The building has the capacity to house a dedicated training facility along with the room to accommodate staff as the business continues to expand.

Andy Cooper, chief operations officer at Mayflex, commented, 'I am delighted that the new Environ House facility is now fully operational. This multimillion pound investment allows our warehouse and logistics teams to have direct control of all operations under one roof.'

Nuvias Group extends partnership with Juniper Networks to include Mist Systems

Nuvias has extended its remit to incorporate Juniper Networks' recently acquired Mist Systems, provider of artificial intelligence (AI) driven, all-in-one, cloud solution to manage wireless networks. The focus of the combined solutions is to simplify operations and improve customer experience while lowering costs for enterprise customers.


Paul Eccleston

Nuvias is building on its collaboration with Juniper Networks through a channel partner development and acceleration program that complements Juniper's own. Paul Eccleston, executive chairman at Nuvias Group, commented, 'We are delighted to add Mist Systems to our portfolio. Equipping our channel partners with cutting edge technology solutions that meet real business requirements is central to our strategy. AI-powered intelligent systems are an area of focus for our business, as they promise to deliver great efficiencies and improved productivity.'

Prysmian appointed a strategic partner in CityFibre's Gigabit City rollout

Prysmian Group has been awarded a strategic supplier agreement with CityFibre. The multimillion pound deal to supply fibre optic cable has been announced as CityFibre's £2.5bn rollout of full fibre networks gathers pace across the UK. CityFibre has already unveiled 12 Gigabit Cities where it is extending its existing metro networks to nearly every home and business, and has a goal to reach five million UK homes in more than 50 cities by 2025.

'We are delighted to have been selected as a supply partner by CityFibre at this pivotal moment for the UK fibre optic cable market. Our experience working with customers rolling out full fibre infrastructures around the world means that we have the products and technical expertise to enable us to make positive contribution toward the goals of CityFibre in the UK,' said Carlos Lopez, telecom business unit director at Prysmian UK.

James Thomas, director of supply chain at CityFibre, added, 'Our choice of fibre supplier is critical to us. We are focused on establishing a supply chain that can deliver the high quality materials we need at scale now and for the future of our rollout.'

Jeff Martin joins Excel's USA team


Jeff Martin

Excel Networking Solutions has appointed Jeff Martin as business development manager for the USA.

Martin has a wealth of knowledge and experience, having worked for Anixter since 2004 where he held various sales, strategic marketing and management roles. He will be working alongside Paul Mills, Excel's director of sales for the North America region, and will work closely with Sonepar companies including Codale, Cooper Electric, Friedman Electric, OneSource Distribution, Viking Electric and World Electric, which currently sell and stock the Excel system in the USA.

Speaking of the role, Martin commented, 'I am looking forward to facing the challenges of this role with Excel. I am confident that I can use my experience in the industry to promote the Excel product range throughout the USA to support and help to build a pipeline of projects.'

Ideal Networks invests in new US facility

Ideal Networks has established a new facility in New Jersey, USA, to best meet the needs of cable installers, IT technicians and distribution partners. The company will run management and finance functions from the new site, where newly appointed vice president of sales for North America, Jim Hunter, will also be based.

The facility includes customer service and technical support departments, giving technicians and distributors in North America access to support for service, calibration and warranty repairs. Expert advice and guidance will also be available from a dedicated training centre. In addition, the new premises include a warehouse and distribution centre to facilitate the same day dispatch of data cable and network tester orders.

'To accommodate our growing level of business in North America, we are making significant investments that will ensure our customers and distribution partners receive the best support possible,' said Hunter. 'This includes additional technical support, new salespeople, new rep agencies and an exciting new pipeline of products.'

CHANNEL UPDATE IN BRIEF

CNet Training's programs that span the network cable infrastructure and data centre sectors are now approved for funding for forces leavers under the Enhanced Learning Credits (ELC) scheme.

StarTech.com has appointed Andrzej Kasprzyk as vice president sales Europe.

Chatsworth Products' (CPI) eConnect Electronic Access Control (EAC) was named Data Centre ICT Security Product of the Year at the DCS Awards 2019.

Dispersive Networks has partnered with Clovity to enable quick and secure transmission, analysis, and visualisation of edge device data for enterprises, while providing two layers of security.

Nimans has won the NEC EMEA Distributor of the Year 2019 award.

Novosco is expanding its Belfast office space by 50 per cent as its headcount increases towards 300 people. Novosco, which won a £107m contract with a major health trust last year, has acquired an additional 5,000ft^2 of space in the Concourse 3 building at Catalyst in Titanic Quarter to house the additional team members.

Keep a close watch

Eddie McGinley of Leviton Network Solutions Europe examines the reasons behind the rise of micro-modular data centres

Over the last decade we have seen a significant trend concerning data centres migrating to hyperscale and colocation services. Faced with surging bandwidth demands, along with the promise of cost savings and greater efficiencies, companies continue to move their data centres off premises to large centralised locations.

KEEPING IT REAL

However, the internet of things (IoT) has become a major disruptor in this area. With billions of data generating devices on the market, from vending machines to traffic sensors and fitness trackers, data from IoT needs real time collection and processing in order to reduce latency. When data centres are far away they can't always support users when they need real time responses. Closer proximity between data centres and source devices have a direct impact, and for that reason many large data centres and cloud providers are decentralising computing to the edge.

According to the 2018 Uptime Institute Global Data Center Survey, more than 40 per cent of respondents expect their organisations will require edge computing capabilities. The respondents gave a range of answers when it came to how they would meet demand for edge computing capacity, with some using private data

centres, some using colocation services, and some relying on public cloud services like AWS and Microsoft Azure. Regardless of who does the deploying, much of the edge computing today is delivered in the form of micro-modular data centres.

CABINET MEETING

Micro-modular data centres are essentially IT cabinets with everything built in. They differentiate themselves from other prefabricated data centre designs with their ability to pack a lot into a very small environment. For example, one of these data centres can include 20 servers that harness virtualisation technology, switches that take up only one or two rack units, cooling and a UPS system. Need more than that? Just add another 'box'. This method is quick to deploy, highly scalable, and creates a uniform design, so the data centre technician knows exactly what's going on.

Many micro-modular data centres also include additional features, such as environmental, UPS, and network monitoring. They also offer physical security including cameras, biometric security and fire protection.

THEORY OF EVOLUTION

While the emergence of micro-modular data centres may be a recent development, the same

'When data centres are far away they can't always support users when they need real time responses. Closer proximity between data centres and source devices have a direct impact, and for that reason many large data centres and cloud providers are decentralising computing to the edge.'

scaling concept they offer can be found earlier in pod architectures and container environments. They're all modular building blocks that are repeatable and easy to scale up. CIOs today are equipping their tool belt with options that have evolved beyond the one size fits all data centre, and micro-modular data centres are a natural part of that evolution.

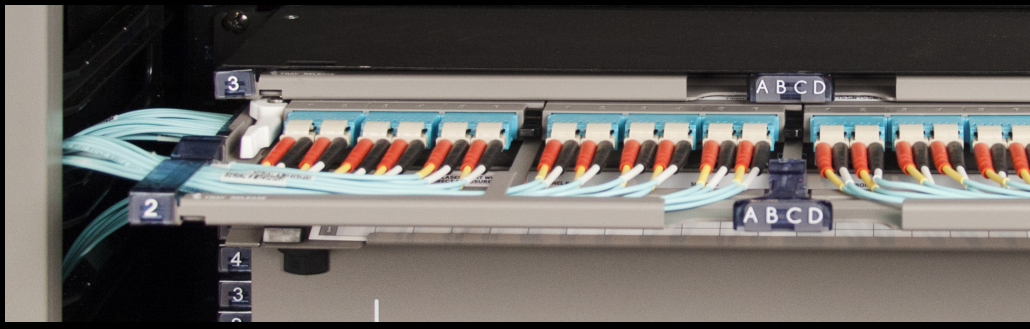
Not only do micro-modular data centres offer a fast, efficient way to address computing needs, they can provide a significant cost savings in comparison to a single centralised data centre. In addition to deployment for edge computing, micro-modular data centres are seeing use in other areas beyond edge computing requirements.

- While more businesses are moving processing to the public cloud, they may still want a small solution internally that is not as large as a secondary data centre. If there is downtime or disruption, three or four micro-modular data centres can act as a temporary fix. All a company needs is a little floor space – they don't need to invest in an environment.

- Power companies and utilities using smart grid technology can leverage their existing infrastructure by adding micro-modular data centres to substations, allowing them to quickly monitor energy use and gather information.

- Ruggedised environments like military or offshore oil operations can quickly deploy a robust, technically proficient environment with micro-modular data centres. A micro-modular data centre can be mobile – one could be thrown into the back of a vehicle and away it goes.

- Applications with temporary needs are a great fit for micro-modular data centres. For example, shopping malls can drop a micro-modular data centre into



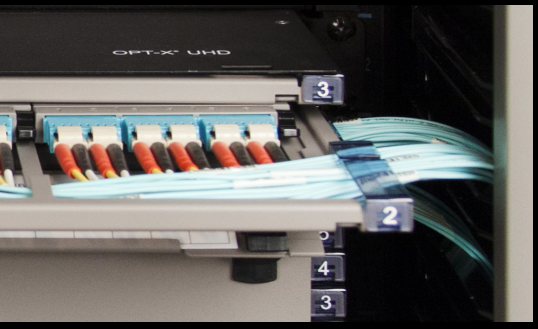
a telecom room to support additional kiosks for the holiday shopping season. It can then be removed when no longer needed.

PHYSICAL FITNESS

Fundamentally, cabling in a micro-modular data centre is no different than in a regular data centre. However, since some micro-modular data centres can be as small as half rack heights, they require patching to be as efficient as possible. Ultra high density fibre solutions, and in some cases high density category rated copper solutions, are essential in these installations. There are cabling systems available today that can patch up to 144 fibres in a one rack unit enclosure or patch panel.

These enclosures and panels often house compact cassettes, adaptor plates, or splice modules, designed for fast deployment. Fibre assemblies like patch cords and cables will use LC or MPO connections. Category rated copper patch cords will likely come in a smaller outside diameter and require shielding or foil for protection from signal noise. And since micro-modular data centres can be used in mobile or ruggedised environments, cabling and connectivity should be robust and protected within the rack.

While cable management is important for managing high density cabling, it also needs to take up as little space as possible. This means using fibre enclosures or panels with integrated cable managers for bend radius control. Angled patch panels will allow for optimised cable bend radius without needing horizontal cable managers typically found above and below traditional panels in a rack. Also, blank panels may be needed for better airflow, improving thermal management inside the cabinet.



WHAT'S NEXT?

Micro-modular data centres will continue to be deployed in new and unique ways. We can expect to see the market continue to find new uses for them in the near future. And with improvements in server technology, cooling and cabling density, micro-modular data centres will become even more efficient in the years to come. ■

EDDIE McGINLEY

Eddie McGinley is director of product management at Leviton Network Solutions Europe. , McGinley manages the European copper and fibre product portfolio. He was responsible for the operational set-up and launch of the Leviton Data Centre Factory make to order facility in Glenrothes, Scotland.

Excel Networking Solutions

In the digital world, the only constant is change. We have been talking about data centres for years now, then we started talking about the cloud, and stitched into these topics has been the internet of things (IoT). The thing is, just like in any walk of life, one size does not fit all, and not everyone needs their own data centre.

This has created new terminology – micro-modular data centres. A micro-modular data centre is a system that is small, compact, quickly deployable and can manage infrastructure, power and analytics at the edge and be located anywhere! This system can then link back to the cloud.

Excel Environ colocation racks and Excel intelligent PDUs are perfect for these edge, multi-tenanted and compact network deployments, providing adequate resource to house the servers and networking infrastructure needed, as well the ability to allocate and monitor the power distribution within the deployment both locally and remotely.

Micro-modular data centres are yours and can be whatever you want them to be. Excel can help to create your solution and to find out more **CLICK HERE.**

www.excel-networking.com

R&M

The EdgeGo pre-wired soundproof micro-modular data centre from R&M makes it possible to rapidly and effectively create infrastructures at edge sites.

A 42U ready for connection cabinet does away with the need to plan and build server rooms with raised floors and complex components. Users simply add cabling and IT equipment and can start operating the micro data centre immediately. If a facility needs to de moved or expanded, EdgeGo can be easily disassembled and reinstalled.

EdgeGo features sound protection, cooling and a security camera. Active equipment noise can be reduced by 31dBA, corresponding to 99.9 per cent of the typical emissions of IT devices, making EdgeGo particularly suitable for noise sensitive environments. A temperature regulated controller regulates fan speed, while active cooling attains a best in industry performance of 12kW and passive cooling capacity is 2.75kW.

To find out more **CLICK HERE.**

www.rdm.com

Kohler Uninterruptible Power (KUP)

Leveraging advanced technology, Kohler Uninterruptible Power (KUP) and its PowerWAVE range of UPS offers reliable and flexible single phase and three phase UPS solutions – providing bespoke systems for smaller network and server rooms, through to large data centres. KUP is also able to ensure a total no break solution with bespoke generator packages and a genuinely national support network to complete your power protection requirement.

Trusted by many of the largest organisations in the UK, the PowerWAVE range starts with the single phase PowerWAVE 1000, at just 1kVA capacity, and concludes with the class leading PowerWAVE 9500DPA, which has been designed specifically for data centre operations.

The flagship PowerWAVE 9500DPA UPS delivers the optimal balance between energy efficiency, availability and power performance, featuring up to five 100kW hot-swappable modules in a single frame, parallelable up to 3MW. For even larger power requirements, the standalone PowerWAVE 6000 offers both intelligent energy management and power protection up to 5MW.

To find out more **CLICK HERE.**
www.kohler-ups.co.uk

HellermannTyton

RapidNet is HellermannTyton's fully patented pre-terminated, pre-tested modular cabling system, which eliminates the need for on-site terminations and reduces installation times significantly. All terminations are housed in the RapidNet cassette, ensuring complete protection and strain relief of the cables.

The RapidNet system offers many advantages over a standard site-terminated solution. It can reduce installation times by up to 95 per cent (optical fibre) and, because it's pre-tested, minimal on-site testing is required once installed.

The pre-terminated solution delivers high performance across all formats including Category 6A, Category 6, Category 5e in copper and OM4, OM3 and OS2 in fibre. The Category 6A and fibre solutions will support high speed 10Gb/s networks and beyond. High port densities can be achieved using RapidNet fibre, with MTP connectors providing up to 144 fibres per cassette or up to 576 fibres in 1U of rack space.

RapidNet allows a greener approach to cabling infrastructure. With each RapidNet loom manufactured and supplied to pre-specified lengths, there is less on-site cabling and packaging waste. In addition, as RapidNet is manufactured in the UK, the environmental impact of shipping is greatly reduced.

To find out more **CLICK HERE.**
www.htdata.co.uk

Building blocks of success

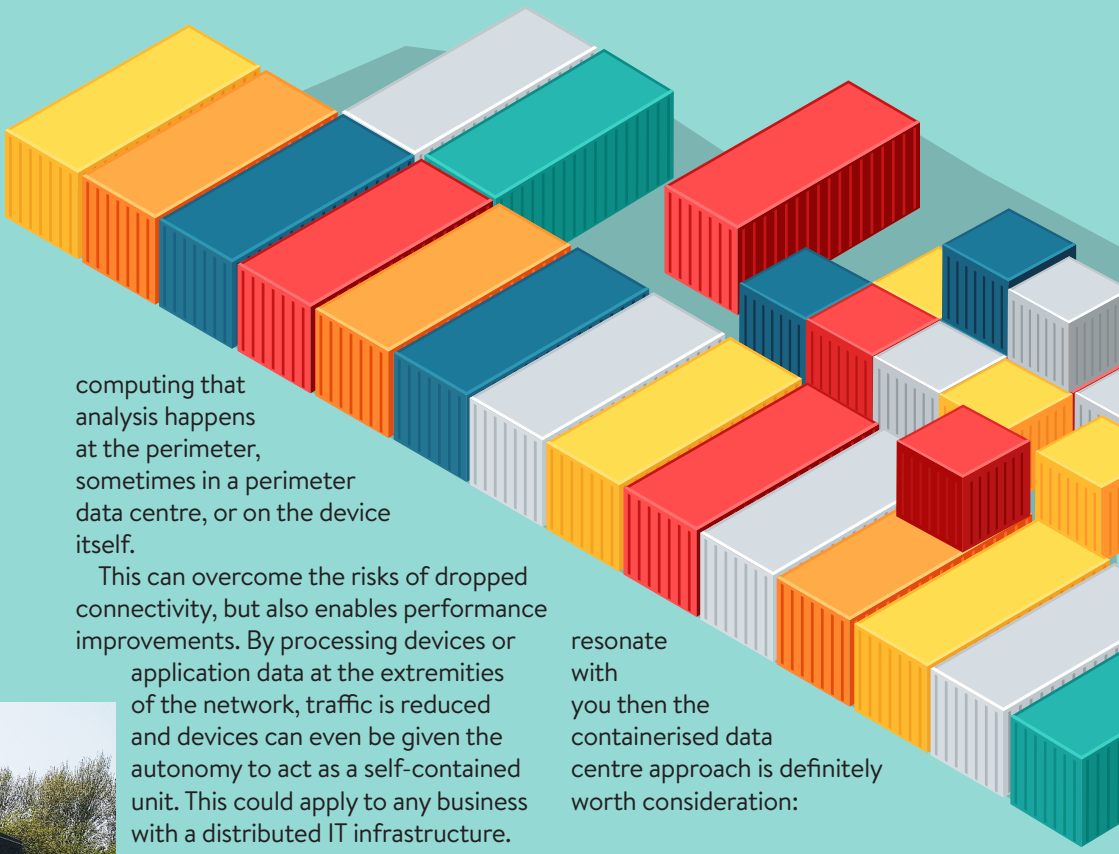
Chris Wellfair of Secure IT Environments looks at how micro-modular data centres are taking on a whole new look and demand serious consideration

In recent years we have watched organisations battle to overcome the same challenges time and time again – firstly, making effective use of space and, secondly, trying to build data centres as quickly and efficiently as possible. Whilst the modular panel constructed data centre remains a really great way to overcome these challenges, it is not always the best one. For some their data centre needs are simple enough that they can consider a micro data centre approach using cabinets housed in offices or rooms. However, for those needing something a bit more 'meaty', containerised solutions are the latest evolution in the modular world fighting for your attention.

CULTURE SHIFT

You probably associate the term 'containerised data centre' with huge data centre projects, such as those run by the public cloud vendors with tens of thousands of servers and the need for constant growth. In those instances, they are chosen for speed, cost effectiveness and ease of installation, but those benefits are not only true when working at scale. There are several scenarios where a containerised data centre might be suitable for businesses of all sizes.

For a long time edge computing has been associated with the internet of things (IoT) and those networks with naturally distributed networks, such as telcos or industrial networks that connect multiple sites. Where a company would have previously pushed data back to the corporate network for processing, say from a sensor, and then a corresponding action back to a valve, with edge



computing that analysis happens at the perimeter, sometimes in a perimeter data centre, or on the device itself.

This can overcome the risks of dropped connectivity, but also enables performance improvements. By processing devices or application data at the extremities of the network, traffic is reduced and devices can even be given the autonomy to act as a self-contained unit. This could apply to any business with a distributed IT infrastructure.

WHY A CONTAINER?

Containerised solutions can form small data centres where they help resolve space, deployment time, build complexity and cost challenges. Additionally, they are very flexible and, depending on the internal configuration, can perform very well in high density applications. They are also stackable and can be extended if specified as a requirement at the design stage. In an emergency, containerised solutions can also shine as part of a disaster recovery plan if already fitted out with the infrastructure, where they can be rapidly deployed to a site as a temporary solution.

If you are facing a data centre design and build challenge and any of the following resonate with you then the containerised data centre approach is definitely worth consideration:

- You need an edge oriented architecture. If you need to position your data centre(s) in a more distributed fashion, so that they are near specific mechanical plant equipment, or close to a fibre connection in a remote location, the containerised data centre is a secure and cost effective way to achieve this, with considerably fewer barriers to overcome before they can be implemented.

- Finding the right site. In some locations it is simply impossible to house a new a data centre. This could be due to footprint, budget or even local planning regulations. Often in these situations a container can be a solution accepted by all and that implemented with a minimum of fuss or raised eyebrows from a chief financial officer!

- Speed matters. If you need your data centre built quickly then containerisation can substantially shorten delivery times. Many companies offer them in standard 'ready to load' configurations, but you can of course have the interior designed to meet your specific requirements, if your partner offers this.

'The technology behind containerised data centres has developed considerably – thinking of them as just a temporary solution is no longer a valid position, considering the benefits they offer.'

- Building off-site. There could be many reasons why you can't build a data centre on-site, for example, if it is a high security area, or the data centre is only needed in a disaster recovery situation such as a flood. A containerised solution can be fully designed, fitted out and tested at a separate location. It could even be running in a separate location mirroring servers at the main location, and can then dropped in as a 'clone' when needed.

- It needs to be relocatable. If you need your data centre to be mobile, either because you know the facility will be moving to another site in the future or you want to ship it to another country once built, then containerisation is an excellent solution. Firstly, because units are normally designed to shipping container external dimensions, use the same interlock systems and meet or exceed the same rigidity and load standards, shipping them is a lot easier than sending individual components that must be re-assembled at the other end. Secondly, it is possible to get Container Safety Convention (CSC) insurance if it meets this correct international shipping container standard, giving you greater peace of mind.

HERE TO STAY

The technology behind containerised data centres has developed considerably – thinking of them as just a temporary solution is no longer a valid position, considering the benefits they offer.

One of the questions we encounter time and time again, when clients are considering how we should design their data centre is 'can a containerised data centre maintain effective cooling and achieve strong Power Usage

Efficiency rating?' Traditional thinking says they can't, but our experience proves they can deliver the same high standards as a modular or traditional data centre build.

Essentially, they use the same equipment, including monitoring systems, and are well suited to high density applications where heat can be an issue precisely because of the way containers are configured and fire rated. Also, where there are particularly stringent demands it is not too uncommon to have a second container which is responsible for housing switchgear, batteries, UPS and cooling hardware, and it can be housed within container 'rooms' separate from load bearing server racks.

SERIOUS BUSINESS

The bottom line is that containerised data centres can be a serious contender as an approach to meeting specific needs. In many cases it can be a solution that meets a budget and gives great opportunities for future expansion. ■

CHRIS WELLFAIR

Chris Wellfair is projects director at Secure IT Environments and is responsible for the specification and delivery of all the company's data centre implementations. He founded the company in 2003.

Protecting UPS remote m systems from adverse hu

Alex Emms, operations director at Kohler Uninterruptible Power (KUP), explains why full automation isn't always the best answer for remote UPS management

A data centre and the ICT equipment within it are often the result of many years' ad hoc growth and adaptation to changing circumstances. Nevertheless, uninterrupted system availability is often critical to the host enterprise's business, so clear visibility and control of equipment and environmental status at all times is essential – especially in remote locations. However, while tools to achieve this may be sophisticated, it's not always necessary or even desirable to set up an entirely automated closed loop control environment. In KUP's experience with UPS installations, for example, a degree of manual intervention is often advisable to ensure operational security.

Variables to be monitored

Management system design depends on the variables to be monitored. Fully effective management calls for awareness of tactical information such as battery temperature, voltage and resistance values, to allow immediate response and correction of potential or actual fault conditions. Monitoring of environmental, as well as security and access variables, is also important.

More strategic input, related to power consumption, points of power use and processing load variations should additionally be provided to facilitate longer-term power management and energy efficiency improvement.

The human factor

The Uptime Institute (UI), best known for its Tier availability classification system, recognises that operational sustainability depends on a data centre's building as well as its ICT equipment, and defines behaviours and risks that affect data centre uptime.

According to the UI, the three elements of operational sustainability, in order of decreasing impact to operations, are management and operations, building characteristics, and site location. Its Abnormal Incident Reports (AIR) database reveals that leading causes of reported data centre outages are directly attributable to shortfalls in management, staff activities, and operations procedures.

This poses the question – how can you set up a remote management system to eliminate or minimise these human behaviour problems? In KUP's experience, the answer doesn't necessarily lie in

management uman activity

KOHLER POWER uninterruptible

increased automation.

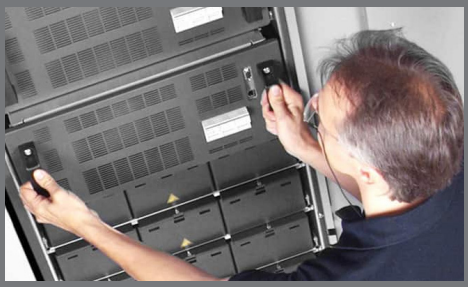
UPS remote management implementations are being accelerated by increasing use of edge micro-modular data centres, often unstaffed, which are geographically distant from an enterprise's hub. A remote monitoring and control management system, which improves data centre reliability and efficiency, may appear as ideal in such circumstances.

The benefits

In KUP's experience this shouldn't necessarily include automating the control aspect. Firstly, there can be a mistrust of two way communications systems, which are seen as a security risk in some organisations. There have been multiple instances of communications equipment manufacturers being blacklisted over concerns about data misuse and associated security risks.

Even without this concern, KUP's experience has shown that if remote access and control of a UPS is too generally available, damage can occur either by carelessness or malign intent. Better security can be promoted through using one way communications solutions. The UPSs should remain closely monitored, but the reaction to a fault should be a phone call or email to alert an authorised engineer located near to the UPS. This simplifies the limitation of access to the appropriate personnel.

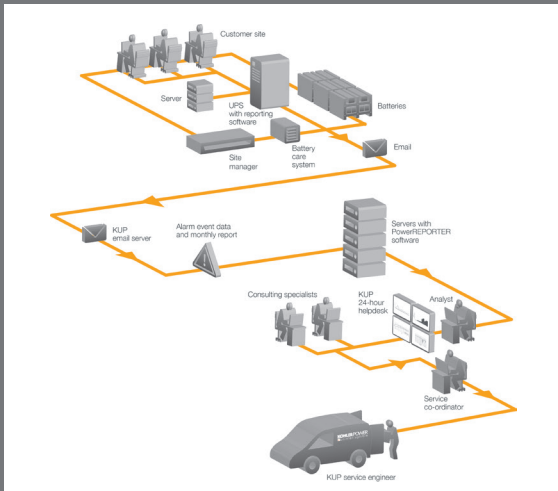
Nevertheless, once such a warning has been flagged, an appropriate response is essential. Engineers must arrive on-site, even if remote, within an agreed timeframe, and be equipped with the training, documentation, equipment and parts needed for any repairs.



Professional callout facility

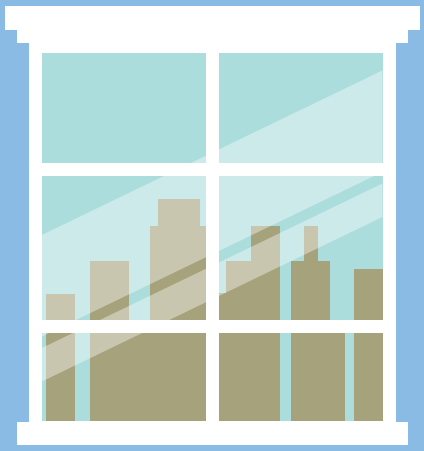
This is why leading UPS vendors such as KUP back-up their systems' functionality, performance and reliability with a callout facility run by well trained, well equipped service teams that have the 365/24 geographical coverage essential to the uninterrupted availability of their customers' entire fleet of UPS systems.

www.kohler-ups.co.uk



Quick clicks

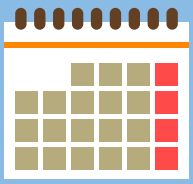
Your one click guide to the very best industry events, webinars, electronic literature, white papers, blogs and videos



Optical Fiber Cabling for Data Communication – Test and Troubleshooting Handbook has been created by **Fluke Networks** for project managers, technicians and engineers involved in the installation or maintenance of fibre cabling infrastructures.
CLICK HERE to request a copy.

Leviton has produced its latest Standards Report.
CLICK HERE to see it.

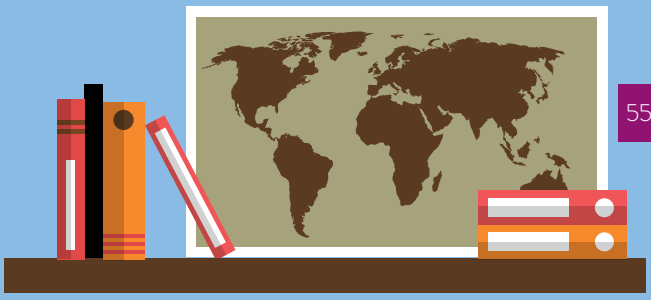
Schneider Electric has produced a white paper entitled Solving Edge Computing Infrastructure Challenges, which supports IT professionals in developing a strategy to deploy IT at the edge.
CLICK HERE to obtain a copy.



Preparing for Wi-Fi 6 is a white paper from **Siemon.** **CLICK HERE** to download a copy.

The European Data Centre Association (EUDCA) has published a white paper entitled Battery Opportunities for Data Centres. You can request a copy by **CLICKING HERE.**

The **Uptime Institute** 2019 Data Center Industry survey is now available to download by **CLICKING HERE.**



The Process of Getting a New Data Centre Up and Running is the title of a blog by **Sudlows.** **CLICK HERE** to read it.

The best course of action

One of the highlights of the network infrastructure calendar, The Inside_Networks 2019 Charity Golf Day recently took place at the prestigious Hanbury Manor PGA Championship Course in aid of Macmillan Cancer Support

As the players started to arrive bright and early, the sun soon made an appearance and expectations were high for another excellent day of golf at Hanbury Manor PGA Championship Course in Ware, Hertfordshire. By the end of a fun-filled, entertaining and laughter packed day, which included by a three-course dinner, prize giving, auction and charity raffle, the Inside_Networks 2019 Charity Golf Day had raised a staggering £13,000 for Macmillan Cancer Support.

'This is an event that everyone really looks forward to – the chance to play on one of the UKs' best golf courses, while raising funds for Macmillan Cancer Support, is eagerly anticipated,' says Andrew Stevens, one of the event organisers and CEO of CNet Training. 'Each year it gets bigger and better and this time 34 teams and 134 people took part. After last year, where we raised over £11,000, the challenge was to better that figure and I'm delighted to say that we smashed it! The generosity of those who sponsored the event and provided prizes was amazing and everyone had a great time.'

With main sponsorship provided by LMG, Excel Networking Solutions, Mills, ExcelRedstone, Comtec, Computacenter and CNet Training, it provided a welcome opportunity for all areas of the industry to network and take part in some good natured banter and competition.

The tightly fought Team Competition saw Team Webro Cables & Connectors emerge victorious, followed in second place by Team Comtec 2, with Team icableuk following closely in third place. The day's Best Individual accolade went to Stu Miller of Team ExcelRedstone, with John Hamilton of Team Comtec 2 in the runner-up spot, while winner of the Nearest the Pin competition sponsored by Comtec was Gavin Miller of Team ACI.

After the success of David Bowles of Team Technical Resources in the 2017 and 2018 events, this year it was the turn of John Byron of Team SpliceGroup to take the Comtec sponsored Longest Drive accolade. Hanbury Manor also has a world class golf simulator and Darren King of Team CNet Training 1 hit an impressive shot to within 7ft of the Par 3 14th at Wentworth to win the Simulator Nearest the Pin competition.

A regular feature of the Inside_Networks Charity Golf Day is Tricky Rob, who was unable to make it this year due to illness and we wish him all the best in his recovery. In Rob's place Paul Barrington was on hand at the Par 3 11th to demonstrate a range of

Inside_Networks 2019 CHARITY GOLF DAY 22ND MAY

WE ARE MACMILLAN. CANCER SUPPORT

Team ExcelRedstone are all smiles

Just some of the £13,000 raised

'Thank you to all the teams who turn out year after year for a truly great cause. Great to see us coming together for just one day, giving something back and having fun along the way. Every year it makes me proud to be part of our industry.'
Rob Jewell – Fluke Networks

The game of heads and tails gets underway

'This event gets better every year. It has a great atmosphere and is a fantastic opportunity to network with colleagues from across the industry and raise funds for Macmillan Cancer Support.'
Ieuan Rowe – LMG

Team Webro Cables & Connectors take the title

amazing trick shots and he hosted a Beat the Pro challenge. Three people beat him – Richard Watson of Team LMG 2, Darren King of Team CNet Training 1 and George Dykes of Team Nexans.

The traditional Inside_Networks Charity Golf Day prize of a golfing gnome is normally awarded to the individual with the lowest score. However, this year it was given to Rob Jewell of Team Fluke Networks, who demonstrated an unrivalled level of dedication by practicing on the driving range at 7:30am. Despite this he still failed to score more than Andrew Stevens of Team CNet Training 1, who did his practicing in the bar.

The generosity of sponsors and participants alike was phenomenal and the donated auction prizes raised £6,100 alone. Bidders fought for a range of exclusive prizes, which were donated by Technical Resources, Mills and Comms Centre. The traditional game of heads and tails provided moment of collective participation and the winner was Chris Carrington of Team Dunasfern 2 who, in a move that encapsulates the spirit of the day, donated his cash prize back to Macmillan

It's bottoms up with Team CNet Training 3

Hanbury Manor in all its glory

'The Brother team had a thoroughly enjoyable day. Unfortunately we came away empty handed but we look forward to challenging again next year.'
Ged Cairns – Brother

'Once again, this was a very well organised day full of generous people from the industry. Excellent venue, good weather and all for a great cause. We'll be back next year!'
Dan Little – J Brand

Inside_Networks 2019 CHARITY GOLF DAY 22ND MAY

WE ARE MACMILLAN. CANCER SUPPORT

Team Nexans take a break

'A great day, as always. A combination of fantastic organisation, excellent weather and good company. I was glad to come away with a bottle of whisky rather than a gnome!
Mark Bonner - Nexans

Team Excel Networking Solutions get ready for battle

Team LMG 1 strike a pose

Cancer Support.

During the dinner, a minute's applause was given in tribute to Jason Imi and John Shackley of Computacenter, who died tragically last year. Jason and John had supported the event since its inception, and they were greatly missed.

Rob Shepherd, editor of Inside_Networks, comments, 'The Inside_Networks Charity Golf Day is always a highlight of the industry calendar, but this year was exceptional – both in terms of the number of teams participating and the amount of money raised for such a worthwhile and important cause as Macmillan Cancer Support. I'm incredibly proud of our industry for showing such generosity and I would like to extend my thanks to all the players, sponsors and organisers for making the event such a success.'

On being presented with the cheque, Caitlin Ashdown, Macmillan Cancer Support's Hertfordshire and Essex fundraising manager, said, 'We are so grateful to everyone involved in organising and taking part in the Inside_Networks 2019 Charity Golf Day in aid of Macmillan Cancer Support. The event this year was absolutely fantastic and raised such an amazing amount, on top of everything raised in previous years, so we want to say a huge thank you. The money raised will go such a long way in helping support people living with cancer – emotionally, physically, financially and practically.'

Plans are already underway for the Inside_Networks 2020 Charity Golf Day, which will take place on 20th May. Places are sure to be snapped up quickly, so those interested in taking part are advised to register early. To enter a team or get more information about various sponsorship opportunities that are available CLICK HERE to email Mark Cumberworth of Slice Golf and Events or call 07769 696976.

'It was the first time that I have attended the Inside_Networks Charity Golf Day and it was a great day at a fantastic venue. Well done to everyone in raising the funds for such a great cause and it was a pleasure to take part.'
Ross McLetchie – Mayflex

Inside_Networks 2019 CHARITY GOLF DAY 22ND MAY

WE ARE MACMILLAN. CANCER SUPPORT

'It was a great pleasure to be part of this event again – you have many future years of Comtec support. It was, yet again, a fantastic day where leading members of the industry gathered to play some great (and not so great) golf in a beautiful setting. An extremely enjoyable and well run event and we can't wait to return next year. Well done to all who helped raise a staggering amount of money.'
Dave Jones - Comtec

Team Dunasfern 2 get set

'Another great day and very well organised.'
Matt Salter - ExcelRedstone

Team ACI stand to attention

Not the prize Rob Jewell was hoping for!

Chatsworth Products (CPI) helps Xfernet increase operational efficiencies

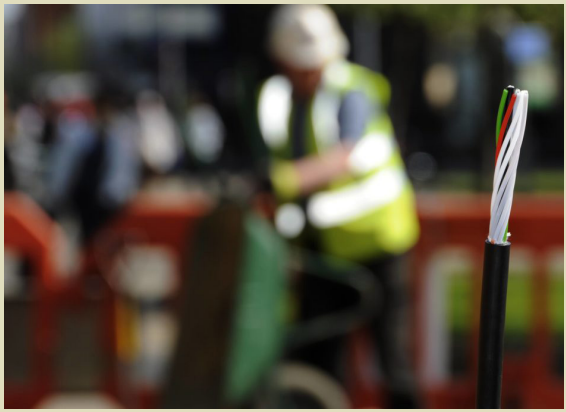
When Xfernet needed to migrate into a data centre space with shallow raised floors, low ceilings and limited footprint for new cooling equipment, it turned to Chatsworth Products (CPI).

Before the migration, Xfernet's data centre set-up included uncontained hot/cold aisles, which limited the company's ability to support increased demand for higher rack densities. In searching for a solution that would approach cooling more effectively within the architectural limitation of the facility, CPI Passive Cooling technology came to the fore.

CPI Passive Cooling completely segregates hot and cold air, and can be applied at the cabinet or aisle level, providing increased equipment cooling performance in all elements of the data centre mechanical plant, thereby reducing overall energy costs. It was provided through CPI's patented Vertical Exhaust Ducts attached to F-Series TeraFrame cabinets.

The ducts channel the hot exhaust air out of the cabinet and up into the drop ceiling, segregating the hot air out of the room, and ducting it back passively into the computer room air conditioning (CRAC) units. The cooled air from the CRAC units is then redistributed under the floor, into the room and through the racks. This cools the equipment without the need to overprovision the room, drastically reducing cooling costs.

CityFibre and Excalibur take Swindon businesses on full fibre journey with city network launch



CityFibre has declared its next generation Swindon network open for business. Over 1,100 Swindon businesses will now be able to access gigabit capable internet services from CityFibre, offered through Excalibur.

The arrival of the CityFibre full fibre network gives Swindon the platform to compete with advanced fibre driven economies in Europe. Spain, for example, has more than 80 per cent of premises within reach of full fibre. In Britain, the world's fifth biggest economy, it's only six per cent.

Swindon's 6.5km long CityFibre network will provide businesses with internet speeds around 100 times faster than a standard UK broadband connection, improving their performance and boosting the local economy by driving efficiency and productivity.

Green Mountain extension goes live at DC2-Telemark with Schneider Electric EcoStruxure modular data centres

Green Mountain and Schneider Electric have announced 3MW data centre capacity at the DC2-Telemark site has gone live in readiness for customer occupation.

In order to achieve rapid deployment at the brownfield development and meet customer requirements, Green Mountain deployed Schneider Electric's prefabricated EcoStruxure modular data centre infrastructure – reducing time to market by 50 per cent.

The new capacity has been enabled by a Schneider Electric turnkey solution comprising 15 state-of-the-art EcoStruxure Modular Data Centre power and cooling modules, together with switchgear and EcoStruxure management software.

The equipment was factory assembled and tested at Schneider Electric's new Barcelona facility, and delivered to site via road transportation. The modules supplied to Green Mountain incorporate Schneider Electric's latest innovations in air economised cooling, as well as high efficiency UPS with Li-ion battery back-up.

PROJECTS & CONTRACTS IN BRIEF

Colt Data Centre Services (DCS) has announced the expansion of its presence in Germany with its new Frankfurt West data centre. The strategic decision to expand comes alongside demand in the region from cloud service providers, but also complements the company's investment drive into new and existing markets, which recently included Tokyo and Mumbai.

Aspect Software to has implemented a dedicated, cloud-based customer engagement platform for William Hill.

Equinix has announced an expanded collaboration with IBM Cloud to bring private and scalable connectivity to global enterprises at the digital edge via Equinix Cloud Exchange Fabric.

The University of Pittsburgh's Petersen Events Center has chosen Extreme Networks to deliver a professional grade, high density Wi-Fi network capable of simultaneously supporting venue operations and the digital appetite of 13,000 attendees.

Rubrik has been selected by Coventry University to protect its user and research data across Nutanix, Microsoft and AWS environments.

Captain of the ship

A mainstay of the structured cabling sector and networker par excellence, Tim Clogg always has his ear to the ground. Rob Shepherd caught up with him to find out more about his life and career, and what he's learned over the years

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

TC: I have been involved in the structured cabling business for over 25 years – planning, selling and managing teams and projects. For the past seven years I have been consulting and developing opportunities for various companies and mentoring individuals.

I am currently working for PhoenixTrescray and responsible for building the opportunities pipeline and developing relationships with consultants, contractors and end users.

In addition, I organise the Mixing IT Network Group events with Scott Cunningham. These meetings have been held for almost 20 years and give the IT industry an opportunity every three months or so for a catch-up face to face. We have successfully developed the group to over 900 members.

I also sit on the UKI BICSI steering committee, working to develop membership and training.

RS: How did you end up working in the IT industry?

TC: I started life in civil engineering as a site engineer on motorways and bridges, and then construction projects in Saudi Arabia and the oilfields of Iran. On my return I joined Drake & Scull Engineering (D&SE) as a planning engineer, as they wanted someone who knew the build process for installing mechanical and electrical installations.

Part of the D&SE business installed the cabling for IBM, Type 1, and token ring into customer sites, which Andy Walls managed. I moved into that team, into structured cabling AT&T solutions planning, and ended up running the network and data cabling teams, with an office in Canary Wharf Tower.

Being part of EMCOR Corporation, I transferred to our New York office and worked at Forrest Electric Corp, one of the largest installers of data cabling in Manhattan. Project managing installations in Wall Street, the World Financial Center and World Trade Center, as well as multi-

'Treat people the way you would like to be treated – with respect. When you are up against it on a project, whether it's pulling fibre in a data centre or tight time constraints on a fit-out project, with respect your team will deliver above and beyond for you.'

tenanted buildings, gave me a great grounding for working back in London on the increasing number of high-rise buildings being developed.

RS: What are the biggest issues currently affecting enterprise and data centre network infrastructure design and build?

TC: With the complex range of IP based systems coming on to the structured cabling infrastructure, and the space required to install these volumes, high density panels are becoming the norm. As project timescales are squeezed and with limited availability of completed containment routes to enable a professional installation, the issue rises when cables are be pulled out of sequence.

A further issue is choice of cabling infrastructure. We see mostly Category 6A but should it be U/UTP, U/FTP, F/FTP, S/FTP and which Construction Products Regulation (CPR) rated cables should be used? In addition, the developing requirement to support the latest power over Ethernet requirements and resultant issues regarding cable temperatures and connector degradation are all considerations.

Data centre build has similar issues –

'There is always the suggestion if you train your team they will leave for other companies once qualified. However, if you can retain them it's better to have a qualified experienced team than an untrained one.'

should it be OS1, OS2, OM3, OM4 or OM5 optical fibre? On cabling topology should it be top of rack, end of rack or centralised, and how many cables should there be to each cabinet, whilst still providing options for changes?

RS: What differentiates a good installation company from a not so good one?

TC: It's all about the people – do you want to work with them and do they want to work with you? Good ones have well trained engineers, project managers who can work with the Cat A and Cat B fit-out companies, experienced management teams who will support them and will admit when, on the odd occasion, things don't go to plan but support the teams to resolve the issue and don't go on the blame trail. Finally, they really need to understand the customer and concentrate on their core business. Good communication is vital so their phones should always be on.

As for the not so good ones...

RS: Do end users give enough consideration to the physical infrastructure?

TC: This has always been a bone of contention. In the past the customers have been happy to pay £1,500 for a workstation and £500 for an office chair, but ask them to pay the going rate for Category 6A structured cabling and they almost fall off their new whizzy chair. Previously, I have explained without a suitable cabling infrastructure their workstation might not seem such great value. The good news is that most end users are now IT savvy and realise how a structured cabling infrastructure is good for their businesses.

Do companies need 10Gb/s to the desk? Not yet, but with the developing smart buildings, IP everywhere and Wi-Fi, Category 6A is the only way to go. In addition, we have seen a great increase fibre infrastructure and network requirements, installing diversely routed backbone cabling to link floors for security, building management systems and common services.

RS: How important should training and skills development be to installation companies?

TC: It's one of my passions – not only training the engineers and designers but the management team too. There is always the suggestion if you train your team they will leave for other companies once qualified. However, if you can retain them it's better to have a qualified experienced team than an untrained one.

One of industry's issues is attracting younger people. Structured cabling is not seen as very interesting but with the rapid development of IP led technologies and the newly launched apprenticeship scheme we hope this will help. The CNCI Apprenticeship is over 12-15 months and will focus on the installation, termination and testing of network cabling. This will provide, for the first time, a funded route into the network cabling industry. It's 95 per cent funded by government or via the

apprenticeship levy and will be delivered across the country.

Even the best employees have some weaknesses when it comes to their workplace skills. A workplace training programme allows employees to be well rounded and better skilled at every aspect of their jobs. In turn, this benefits the company, as projects are completed faster and employees need less assistance on tasks where previously their skills may have been weak. Ongoing technical training is important, either through specialist training facilities or through the manufacturer updates.

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

TC: Increase the margins. Structured cabling infrastructure is undervalued as a key service. Without a well designed professionally installed installation that is fit for purpose, with experienced project management and support, then the data centre or fit-out project will not function.

RS: You're involved with charity fundraising as part of Pink Elephant. For those that don't know, what is Pink Elephant and what does it aim to achieve?

TC: Pink Elephant started in the early 1990s, supported mainly by the money market traders from the dealing rooms of the City of London, where its founder, Peter Beckett, was a trader.

In those early years Reuters gave a fantastic amount of support to Pink Elephant by booking the Chiswell Street Brewery for an event in support of The Evelina London Children's Hospital. Over 1,000 people attended the event and raised over £30,000. Pink Elephant grew from there, with annual events and fundraising of around £15,000-£20,000 each year to various charities.

Since Peter Beckett joined the IT market the industry has given fantastic support and continues to support children's charities each year. This year's fundraising event was a continuation of that support and allowed those who have benefitted from working within the IT industry to give back some of their time and money. Our second annual Pink Elephant Regatta was held on 5th July in Lymington, where we raced 10 yachts with over a 100 crew, raising funds for our nominated charity – The Ellen MacArthur Cancer Trust.

On a personal level the event combines my love of sailing with raising funds for charity and having a great day out on the water.

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

TC: Treat people the way you would like to be treated – with respect. When you are up against it on a project, whether it's pulling fibre in a data centre or tight time constraints on a fit-out project, with respect your team will deliver above and beyond for you.

RS: Who is the person you most admire from the industry and why?

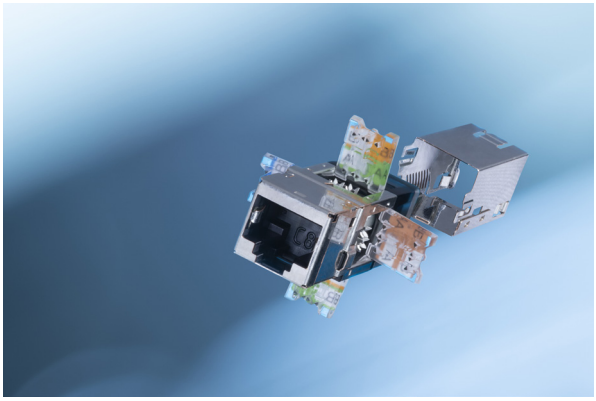
TC: There are several characters in our industry that I admire but the ones I have the greatest respect for are those who have built their companies from scratch and made a success from it.

For technical knowhow and insight to the industry my admiration has to be for TC Tan. He has more than 30 years of experience in the telecommunications and networking industry and is a recognised expert on cabling systems. He is a great presenter and if you get a chance to listen to him do so – just don't ask him about shielded copper cabling! ■

R&M

R&M is launching a universal Cat. 8.1 cabling system that supports up to 40 Gigabit Ethernet. This the fastest data transmission speed which local networks with structured copper cabling can currently achieve.

The RJ-45-based Cat. 8.1 cabling system is backward compatible so that currently used Cat. 6A patch cords can still be deployed. Networks can still be operated at 10 Gigabit Ethernet and migration to 25 and 40 Gigabit Ethernet can be achieved without additional adaptors, transmission cables or fibre optic interfaces.



After installation of a basic Cat. 8.1 infrastructure, faster switches and servers can be integrated seamlessly. This infrastructure (permanent link) consists of two RJ-45 connection modules and a shielded Cat. 8.2/8.1 S/FTP installation cable. The system complies with both standard families – ISO/IEC 11801, Class I, and ANSI/TIA-568.2-D.

To find out more **CLICK HERE.**

rdm.com

Corning Optical Communications

Corning Optical Communications has bolstered its portfolio of copper solutions following the acquisition of 3M's Communication Markets Division.

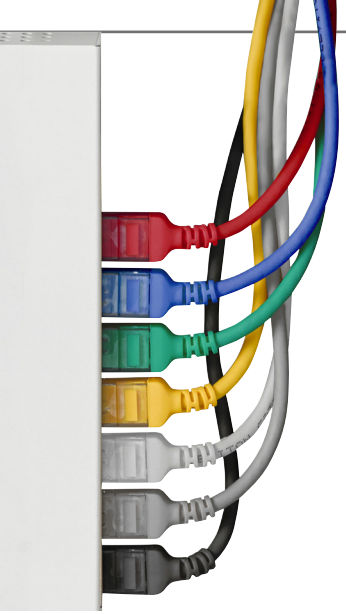
Corning now provides access to a comprehensive range of products for all copper cable requirements. This includes Category 5e to Category 6A shielded copper cable solutions (U/FTP, F/FTP and S/FTP) as well as the popular UTP cable from Category 5e to Category 6A.

Corning's portfolio provides full compliance to the Construction Products Regulation (CPR) for telecommunication cables intended for permanent installation inside of buildings and construction works.

This means that its product portfolio meets the highest standards for safety – including high performance B2ca rated products.

For more information, contact your distribution partner or **CLICK HERE**.

www.corning.com



Leviton

Leviton eXtreme High-Flex Category 6 patch cords offer flexible, high density patching.

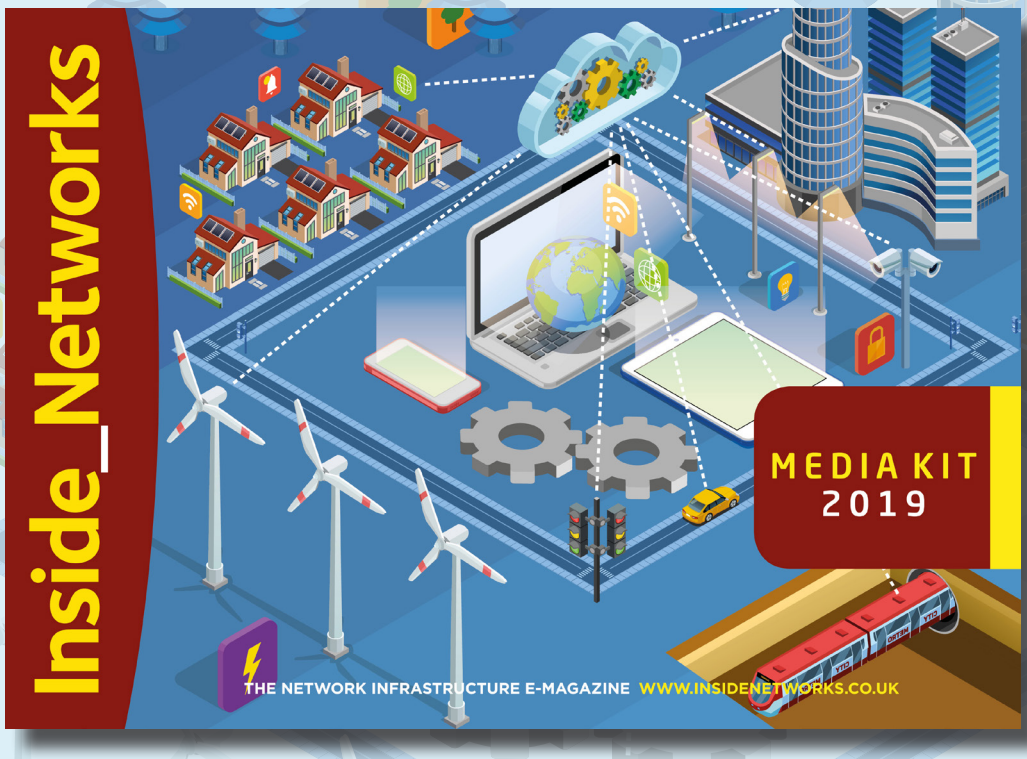
Cables support high speed data applications and reduce patch cord density in a 24-port patch panel by 38 per cent when compared to typical Category 6 patch cords. The cords are dual rated, making them ideal for a variety of global applications.

The eXtreme High-Flex patch cords are available in stock lengths of six inches or 1-20ft in 1ft increments. They are PoE and PoE+ compatible, and accommodate use in high density switches, routers, and other electronics. Their snagless plug design integrates a strain-relief boot, and the plug contacts are rated to 2,500 mating cycles.

CLICK HERE to learn more.

www.leviton.com

All you need to know



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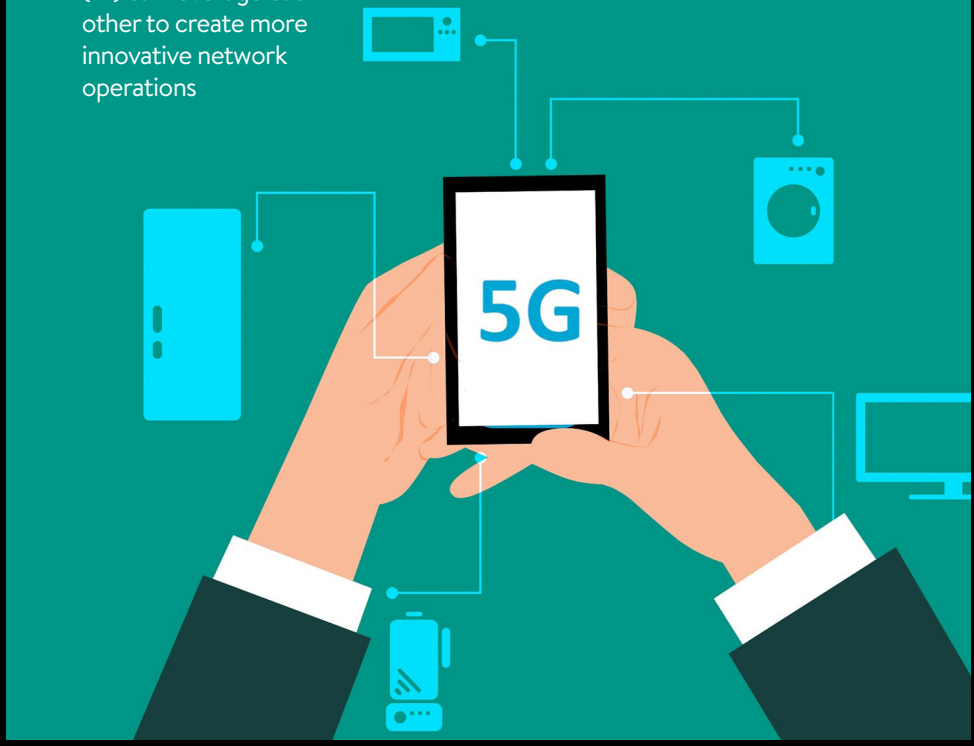
Joined up thinking

Brian Lavallée of Ciena looks at how 5G and artificial intelligence (AI) can leverage each other to create more innovative network operations



AI and 5G are two technologies gaining a lot of attention right now, but mostly as isolated topics. Instead, we should be looking at how both technologies can leverage each other to innovative network operations. AI can ultimately transform today's static networks into a more intelligent, dynamic, and autonomous network that is ready for the future of 5G and beyond.

NEW AND IMPROVED

Networks are continuously evolving to boost performance, convenience and user experience. Since the introduction of the first public switched telephone network the industry has continued to invest in new areas of development – from fixed endpoints in the early internet days, to today's broadband networks that connect mobile users to massive data centres – providing the required network and bandwidth needed for streaming services like Netflix and Amazon, as well as critical business applications in the cloud.

There is no denial that networks are

'Together, AI and 5G can help revolutionise the networking industry, not only by reducing costs related to maintenance and network downtime, but also by improving the user experience through improved end-to-end network performance.'

evolving and the move towards 5G and the integration of AI is a natural stepping stone on this journey. When compared to existing 4G LTE networks, 5G will deliver faster speeds, lower latency, increased availability, improved reliability, and guaranteed end-to-end performance. These enhanced benefits are allowing organisations and departments to develop new uses cases and applications, such as smart cities and driverless vehicles – all of which need unrivalled connectivity.

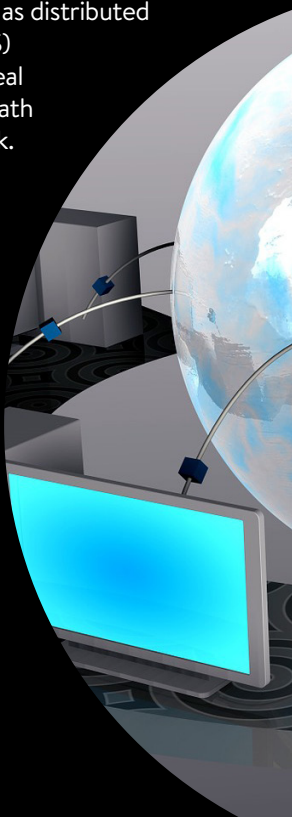
To meet these growing demands, networks need to become more dynamic, predictive, agile, and scalable. AI fuelled by analytics can enable this, as it has the potential to not only improve network efficiency, but also enhance network uptime, reliability and security. Together, AI and 5G can help revolutionise the networking industry, not only by reducing costs related to maintenance and network downtime, but also by improving the user experience through improved end-to-end network performance. This innovation promises to deliver an always on and always connected service that customers can utilise.

DEFINING MOMENT

With the increasing growth and complexity of networks to meet the ever escalating demand for bandwidth and new services, the need for network automation has never been greater. However, for network operators, understanding the value of AI must first start with an understanding of AI itself. It's important to look at what AI can offer in terms of network management, efficiency, profitability, and security, and how this will drive innovation in today's world.

At the core of AI we have intelligent analytics driven automation, which harnesses the power of streaming real time data to make insightful and informed decisions for greater workflow efficiency. The current vision of AI for operator networks is largely based in security functions such as distributed denial of service (DDoS) mitigation, migration/real time automation, and path selection in the network. In the future we expect to see AI expand into new areas such as defining network topology and eventually automating decision making.

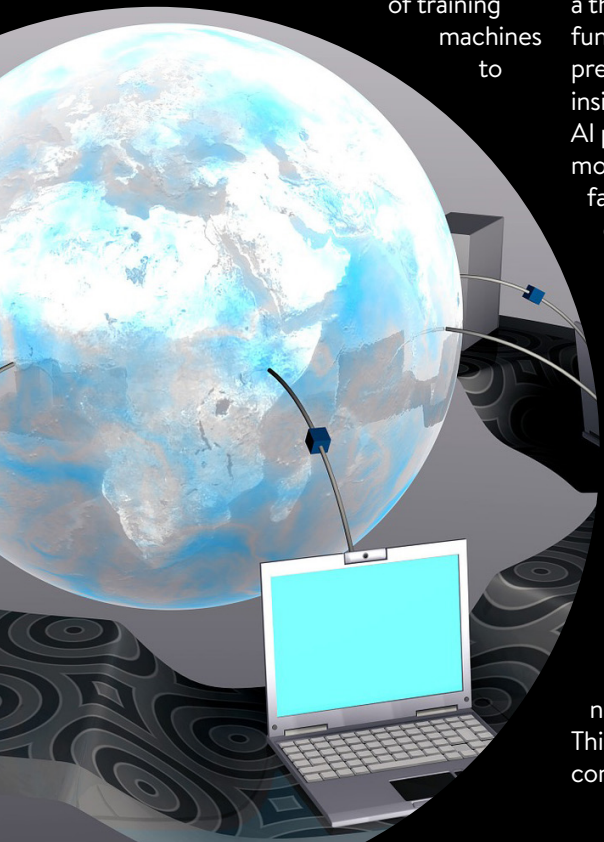
However, despite the significant benefits of automated networks, it's clear that operators will not surrender complete control of the network to the network. Instead, many are opting for adaptive



networking practices that harness the power and efficiency of data driven AI, but it is combined with the invaluable experience of their engineers. This adaptive network is transforming the network into a dynamic, programmable infrastructure that is built on analytics and automation.

MUST HAVE

AI won't just be beneficial to 5G, it will be a necessity, as the number of connected devices and the need for enhanced connectivity become a must. There is an opportunity in the telecoms industry to nurture the growth of powerful AI technologies, as the data generated by today's networks is vast and extremely valuable in terms of training machines to think for themselves.



By taking the data generated in the daily operation of communications networks, it will be possible to identify patterns and form effective policies to guide a machine's decision making skills, as and when new situations arise. For network operators, AI can offer considerable time and resource savings, as data collection and analysis can be automated, and with intelligent decision making engineers can be freed up from routine maintenance to deal with more challenging core issues affecting the network.

In addition, AI offers increased security through proactive network monitoring, using historical data to spot anomalies on network services and signs of intruder connections. It can thereby identify a threat and conduct self-healing functions to protect the network and preserve functionality. By leveraging data insights and applying analytics through AI platforms, network providers can more easily evolve their networks to be faster, smarter and governed by data driven business policies that ensure profitability through providing a superior customer experience.

GAINING AN ADVANTAGE

The network industry is already being disrupted and users want to start seeing the promised benefits of 5G. This disruption is only being exacerbated by the adoption of IoT and 5G. However, in the background is a set of challenging market dynamics.

Although everyone wants more from their service providers, they are not necessarily willing to pay more. This is driving the need for providers to continually lower cost structures, reduce

operating expenses, accelerate time to revenue, and launch and retire new services at unprecedented speeds. In short, providers need their networks to help them achieve better business outcomes in a new world of over the top competition and demanding, connected users. Therefore, operators need to start integrating AI capabilities into their existing 4G network infrastructure now, where it makes sense, to provide the additional functionality that will be a must for managing independent 5G networks in future.

ONE STEP BEYOND

A big part of the network evolution journey will involve developing AI capabilities that go beyond today's network functionality and embrace the world of high bandwidth, always on connectivity. There is universal agreement that whatever technologies are at play, the industry needs a more responsive, automated and agile self-optimising network. By leveraging the best capabilities of AI and 5G, organisations will be best positioned to address their business challenges and opportunities. ■

BRIAN LAVALLÉE

Brian Lavallée is Ciena's senior director of portfolio marketing, with global responsibility for the company's mobility, packet, and submarine networking solutions. Lavallée has over 20 years of telecommunications experience with past roles in product line management, systems engineering, research and development, and manufacturing. During his career, he has worked in various areas of optical networking including access, metro, regional, long haul, and submarine networks.

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