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THE NETWORK INFRASTRUCTURE E-M

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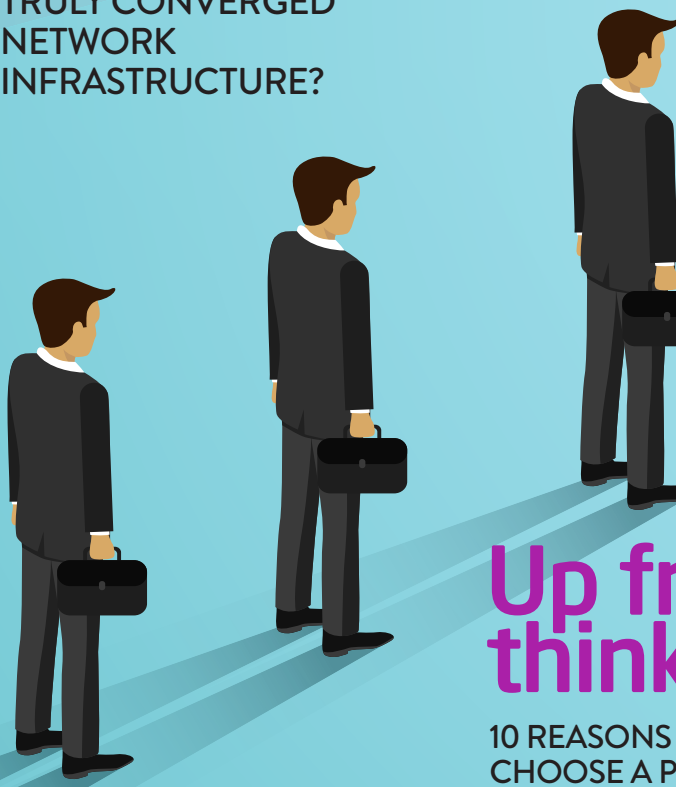
WHAT IS THE BIGGEST BARRIER TO ACHIEVING A TRULY CONVERGED NETWORK INFRASTRUCTURE?



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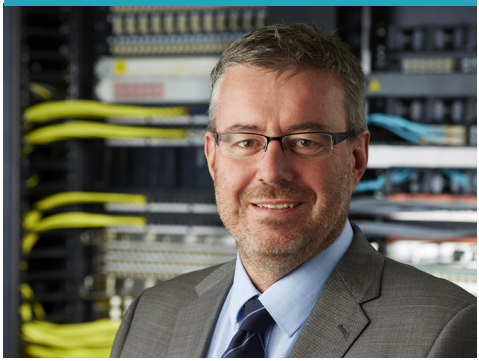

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CHALK HILL MEDIA

I'd like to start by thanking everyone who responded to last month's Question Time, which tackled whether manufacturers and distributors within the network infrastructure industry are doing enough to reduce the amount of plastic packaging they use. It's clear that this subject is a major concern and while current initiatives are most welcome, it seems that much more could be done. I therefore hope to be able to report on further positive developments in the not too distant future.

Back to this month and intelligent buildings continue to be an area of considerable interest, with a level of innovation that is simply fascinating. Although the ability to operate a multitude of building services over a single network infrastructure is perfectly possible, it seems that there are a number of concerns about doing so. As well as asking what is the biggest barrier to achieving a truly converged network infrastructure within an intelligent building, we've asked a panel of esteemed industry experts to outline the risks to occupants, technology and operational security in configuring building services over a single unified cabling system. **CLICK HERE** to read their comments.

With data centres becoming increasingly reliant on high density cabling, pre-terminated solutions continue to grow in popularity. We have two articles on this subject and, in the first, Richard Cann of Excel Networking Solutions offers 10 reasons to choose a pre-terminated solution. In the second piece, Colin Parker of EDP Europe explains why pre-terminated optical fibre offers a flexible and easier route to delivering faster network speeds. **CLICK HERE** to read Richard's article and **CLICK HERE** for Colin's.

Also in this issue **CLICK HERE** to read Clive Partridge of Rittal's article on how edge data centres create decentralised IT resources quickly and flexibly in retail environments, and don't miss our UPS and power management special feature with excellent articles from Chatsworth Products (CPI) and Kohler Uninterruptible Power (KUP) – **CLICK HERE** for the former and for the latter **CLICK HERE.**

Don't forget, if you'd like to comment on any of these subjects, or anything else, I'll be delighted to hear from you.

Rob Shepherd
Editor

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Businesses continue to invest in IT infrastructure at the digital edge

The latest Equinix Global Interconnection Index (GXI) predicts private connectivity at the edge will grow by 51 per cent and exceed a total bandwidth capacity of more than 13,300Tb/s, equivalent to 53ZB of data exchanged annually. This is enough to support every person on earth simultaneously downloading a complete season of Game of Thrones in ultra-high definition resolution in less than a single day.

The GXI market study finds interconnection bandwidth – the capacity for direct and private traffic exchange between key business partners – is an essential component to digital business. In fact, according to a separate independent survey commissioned by Equinix of more than 2,450 global senior IT professionals, almost half (48 per cent) of global IT decision makers believe interconnection is a key facilitator of digital transformation. Companies are continuing to invest in this critical infrastructure, with almost half (49 per cent) of IT decision makers in the UK stating that any uncertainty around Brexit has not impacted their company's decision to invest in IT infrastructure.

Russell Poole, managing director UK at Equinix, stated, 'With Brexit looming, businesses in the UK are continuing to forge ahead with plans to invest in IT infrastructure. The results of this survey demonstrate almost half of businesses in the UK are prioritising moving their infrastructure to the digital edge as part of their organisation's technology strategy. Regardless of the potential impact of the UK's departure from the European Union (EU), having a strong digital infrastructure in place is crucial to the success of a business.'

Leviton becomes first and only company with third party verification of products that support 100W PoE

Leviton's 100W power over Ethernet (PoE) products have been verified by Intertek ETL to meet the IEC 60512-99-002 standard for support of IEEE 802.3bt Type 4 PoE (100W) applications.

Following the 2018 ratification of the IEEE 802.3bt standard, all Atlas-X1 and eXtreme jacks, as well as select patch panels, were tested and have now gained full third party verification. This makes Leviton the first and only company in the cabling industry to date to achieve third party verification at this power level for its PoE products.


Yuna Shin

'We're pleased with this development given how demanding the testing process is,' said Yuna Shin, senior product manager at Leviton Network Solutions. 'This once again demonstrates Leviton's commitment to delivering the highest quality system solutions for PoE applications.'

Cybersecurity breaches to increase nearly 70 per cent over the next five years

A new report from Juniper Research has found that the cost of data breaches will rise from $3tn each year to over $5tn in 2024, an average annual growth of 11 per cent. This will primarily be driven by increasing fines for data breaches as regulation tightens, as well as a greater proportion of business lost as enterprises become more dependent on the digital realm.

The new research – The Future of Cybercrime & Security: Threat Analysis, Impact Assessment & Mitigation Strategies 2019-2024 – noted that while the cost per breach will steadily rise in the future, the levels of data disclosed will make headlines but not impact breach costs directly, as most fines and lost business are not directly related to breach sizes.

'All businesses need to be aware of the holistic nature of cybercrime and, in turn, act holistically in their mitigation attempts,' remarked research author, Susan Morrow. 'As social engineering continues unabated, the use of human-centric security tactics needs to take hold in enterprise security.'

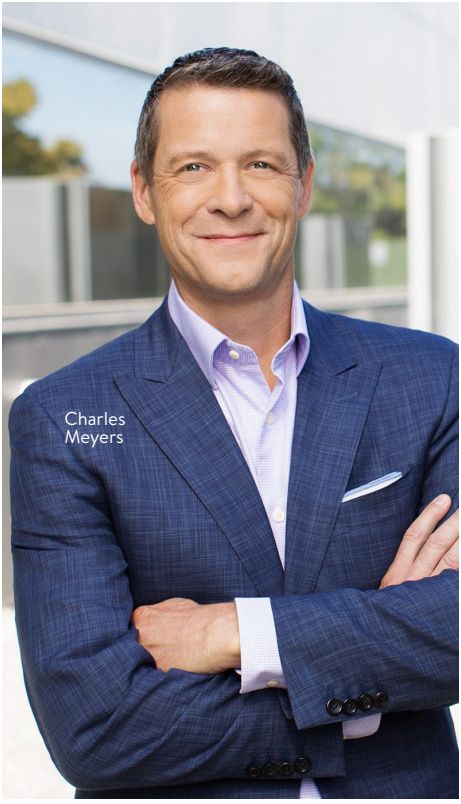
Equinix and GIC complete formation of $1bn European data centre joint venture

Equinix has completed the formation of a $1bn joint venture, in the form of a limited liability partnership, with GIC, Singapore's sovereign wealth fund, to develop and operate xScale data centres in Europe.

xScale data centres will serve the unique core workload deployment needs of a targeted group of hyperscale companies, including the world's largest cloud service providers.

The initial six facilities in the joint venture will be located in the Amsterdam, London (two sites), Frankfurt (two sites) and Paris markets, on some of Equinix's existing International Business Exchange (IBX) data centre campuses.

Charles Meyers, president and CEO at Equinix, said, 'This is a strategic milestone for Equinix, as we continue to deepen our relationships with the world's largest cloud and hyperscale companies and help them meet their core workload deployment needs and gain proximity to the thriving business ecosystems available at Equinix.'


Charles Meyers

Schneider Electric announces partnership with Avnet and Iceotope to develop liquid cooled data centre solutions

Schneider Electric has teamed up with Avnet and Iceotope to jointly develop innovative liquid cooling solutions for data centres. This newly announced partnership brings together three global technology innovation leaders – Avnet for technology integration services; Iceotope for chassis-level immersion cooling technologies; and Schneider Electric for data centre infrastructure solutions.


Kevin Brown

'Compute intensive applications like artificial intelligence and the internet of things are driving the need for better chip performance,' said Kevin Brown, CTO and SVP of innovation and secure power at Schneider Electric. 'Our quantitative analysis and testing of liquid cooling approaches shows significant benefits to the market. This partnership is the next step in solution development and we are excited to be working with Avnet and Iceotope.'

Schneider Electric has collaborated with Iceotope since 2014 on the research and development of new liquid cooling technology. Iceotope received $10m in funding led by Aster Capital in 2014 and the deal also established the partnership between the company and Schneider Electric.

Green credentials are incomplete without 'cloud sustainability'

Businesses need to understand the environmental consequences of their cloud storage infrastructure and take steps to minimise its impact, according to Memset.


Annalisa O'Rourke

While adopting cloud has resulted in a whole range of efficiencies – including energy consumption – data storage is rapidly rising in the league tables as a major source of carbon. It is only a matter of time until environmental campaigners like Extinction Rebellion turn on this major area of sustainable development and corporate social responsibility.

Annalisa O'Rourke, chief operations officer at Memset, commented, 'Storing and using data consumes a lot of energy, and many businesses have been able to remove this energy consumption from their sustainability books by using outsourced cloud providers. But shifting the problem to a supplier is not taking responsibility. Organisations need to not only develop sustainable policies for themselves, but to also include their whole network of suppliers in their strategies.'

Lack of IT security training is leaving businesses open to data breaches

New research by Claranet has revealed that 61 per cent of organisations believe that their general workforces need much more training in cybersecurity awareness.

In one of the key findings, 38 per cent of respondents said that their software development teams also need a great deal more training in this area. Furthermore, 29 per cent said the same is required for IT operations teams.

The survey was carried out by Vanson Bourne and surveyed 100 IT decision makers from a range of UK businesses with more than 1,000 employees. According to the findings, 61 per cent of general staff have not had full IT security training. This figure is lower for software development teams (38 per cent) and IT operations teams (29 per cent), but shows that training coverage is still by no means comprehensive.

Neil Thomas, group security services director at Claranet, said, 'Most business leaders are aware of the need for effective cybersecurity measures to counter the constantly evolving threat landscape, but this research shows that efforts to train staff still haven't been as effective as they could be. This is critical for all technical teams but general awareness across all business functions is also extremely important.'

NEWS IN BRIEF

The Telecommunications Industry Association (TIA) TR-42.7 Engineering Committee on Telecommunications Copper Cabling Systems (568) has issued a call for interest for document ANSI/TIA-568.5 titled Single Balanced Twisted-Pair Cabling and Components Standard. TR-42.7 is developing the standard to provide specifications for cables, connectors, cords, links and channels using 1-pair connectivity in non-industrial premises telecommunications networks.

Helmut Binder has joined Paessler as CEO.

Maven Capital Partners has led a £12m investment in LIMA Networks and Data Centre UK.

The Continental Automated Buildings Association (CABA) has appointed Andrew Wale, vice president product marketing, building control systems at Legrand, to its board of directors.

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We need to shape ou

Hi Rob

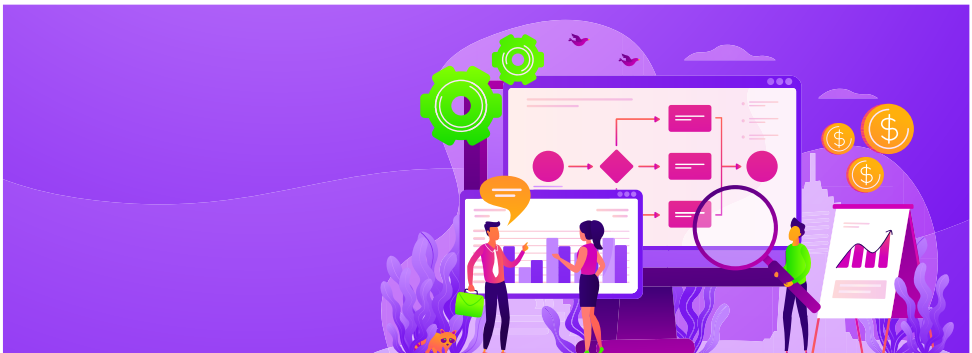
When reading about the future of the industry and the biggest challenges we face, I can't help but feel we need to stop talking and take a more thoughtful approach. For example, Gartner continues to cite that talent is consistently one of the main concerns for organisations, with the skills shortage a reason for this. But this isn't just a problem in IT – manufacturing, engineering and other highly skilled sectors are struggling too. However, considering the role of IT and the functions it performs changing at such an astonishing rate, maybe it's unwise to try and retrofit jobs to the current status quo?

Perhaps a proactive approach is required, and firms must decide how their businesses will operate in 5-10 years' time, which, in turn, will help sculpt who is hired.

Automation has already altered how IT software and development is done – and has created new specialities as a result. Technologists have consequently needed to master innovative skills for building, deploying and monitoring large, dynamic business services, which was not the case just a few years ago. With machine learning and, in the long-term, AI, set to accelerate these trends, our sector will need new skills and jobs in a relatively short timeframe, as best practices will continue to change.

I believe that the future IT workforce will be more strategic and smaller teams will more agile than what we see now. This is because automation will be able to pick up manual toil, which is currently still being performed by IT departments. I'd hope that issues such as IT outages will soon be consigned to history, as automation and IT monitoring will be able to detect and fix potential issues before they cascade. No longer will employees be firefighting and manually checking jobs that could easily be taken on by a machine – freeing them up for more strategic, engaging work.

This will also fuel on the job learning. Juniors will be exposed to more strategic work earlier, which will help to fast-track their development. If you think about how things stand now, this isn't always the case – often it's all hands on deck to fix issues within the IT estate due to tool sprawl and no single version of the truth. This leaves little time for a culture of learning and experimentation, which is needed for innovation. IT monitoring via a single pane of glass combined with automation could solve that issue instantly.



ur future workforce

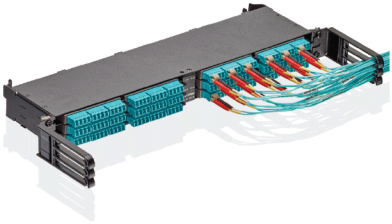
If firms can decide on the level of automation within their businesses, and utilise it in conjunction with IT monitoring to pick up some of the slack and convey system health at all times, then we'll see a new breed of agile, proactive teams which can demonstrate IT's value to the business and help change the perception that it is merely a cost centre.

Granted, for some organisations this is too far off, but only by alleviating employees from manual, repetitive processes can we get the best out of people – helping them to grow and develop their skills and the business in tandem – driving a culture of consistency and excellence in the process.

Mike Walton
Opsview

Editor's comment

The idea that AI will help do the heavy lifting and free up IT personnel to carry out more strategic work is a very interesting one that seems to be gaining traction. Mike makes a very convincing case for the benefits of such an approach – the question is whether, in due course, AI will actually be able to do the strategic stuff too?



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One way street

Commercial buildings have changed out of all recognition over the last decade and with new technology being introduced on a continual basis the process of evolution is far from over. Inside_Networks has assembled a panel of industry experts to identify the biggest barrier to achieving a truly converged network infrastructure and what can be done to overcome it

The age of the intelligent building is truly upon us. This means that the network infrastructure has become a fundamental enabler in terms of making sure that a diverse range of building services can be monitored, managed and controlled.

Modern buildings can be configured with a diverse array of networked technologies that make them more functional, secure, comfortable and energy efficient than ever before, including audiovisual (AV), security, building management systems (BMS), mechanical and electrical, and lighting, to name just a few.

However, by having multiple networks – each for different functions – users have little knowledge of their quality, performance or full capabilities. Intelligence actually starts with having building services converged on to a single unified network infrastructure and this also enables the integration of low voltage technologies such as power over Ethernet (PoE). Progressive companies are already gravitating towards intelligent buildings, as allowing building services to work together provides optimum comfort conditions and improves occupant wellbeing.

Yet an understanding of how vital a converged high performance system is in optimising building effectiveness still appears to be missing from a significant number of design and builds, or even retrofits, of office spaces. There is a even a belief that there are risks to operational security in configuring building services over a single unified cabling system.

Until this situation changes it is possible that the true potential of intelligent buildings will not be realised. Therefore, Inside_Networks has assembled a panel of experts to examine the biggest barrier to achieving a truly converged network and how to mitigate risk when designing an infrastructure to accommodate multiple building services systems.

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

WHAT IS THE BIGGEST BARRIER TO ACHIEVING A TRULY CONVERGED NETWORK INFRASTRUCTURE WITHIN AN INTELLIGENT BUILDING AND HOW CAN IT BE OVERCOME? WHAT ARE THE RISKS TO OCCUPANTS, TECHNOLOGY AND OPERATIONAL SECURITY IN CONFIGURING BUILDING SERVICES OVER A SINGLE UNIFIED CABLING SYSTEM, AND IS ENOUGH BEING DONE TO MITIGATE THEM?

PAUL GORMAN
TECHNICAL DEVELOPMENT MANAGER AT CNET TRAINING

ISO 11801 was published in 1995 signalling the arrival of Class D links over Category 5 cables and connectors. Advancements in the Ethernet protocol and development of active network equipment with RJ-45 ports provided a second layer of network convergence capability. And that's where it stopped for a while. Why? Fears about security, greater risk of failure and enterprise mentality perhaps?

A move into the modern world and we witness a step-change in attitudes – network convergence, the internet of things (IoT), smart technologies, smart buildings, intelligent buildings etc, are all becoming commonplace. Massive advances in technology and information security have changed the way the we communicate both in the workplace and socially, where applications are able to communicate with other applications, with or without human interface.

Intelligent buildings incorporate a variety of smart technology functions, aimed at maintaining a comfortable, safe and efficient working environment. Environmental monitors ensure that constant temperatures are maintained through automated heating or cooling adjustments, AV systems ensure that we are well informed and entertained, whilst the placement of Wi-Fi points ensures that we are 'always on'. You get the picture.

What could go wrong? Network convergence incorporates common infrastructure that provides the communications channels connecting smart devices to their data store, usually a local network room or a remote data centre.

Whilst data centres are designed and operated on the principle of maintaining the security, integrity and availability of data, less rigor is often applied to enterprise network rooms, leaving them vulnerable to becoming a single point of failure. Cabling also adds to the risk profile, particularly when large bundles of cables are routed through single pathways. Risks will increase further as we embrace PoE with ambient cable temperatures set to rise. Cable does not often fail of its own accord, malicious damage or serious fires are more probable and can be catastrophic.

With modern construction trends favouring multi-function buildings, the consequences of catastrophic network failure must be carefully assessed and managed. Apply some risk mitigation to communications design, treat network rooms as data centres, apply appropriate design principles, engage with architects at the earliest opportunity, and ensure that diverse cable routing is part of the design specification.

'With modern construction trends favouring multi-function buildings, the consequences of catastrophic network failure must be carefully assessed and managed.'

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ROB KELLY
HEAD OF TECHNOLOGY AT SUDLOWS

When we think of intelligent buildings the image of a high-tech futuristic environment comes to mind, however, the concept of building intelligence is not quite as new as we may think. In fact, a number of the systems that may make up an intelligent building have existed in a standalone fashion, or with limited connectivity, for quite a while now.

The biggest challenge to delivering a truly converged infrastructure to support an intelligent building during the formative years of the concept would have been the closed nature of the systems involved. The use of a wide range of communication protocols along with the inability to easily exchange data artefacts, resulted in an inability to deliver inter-system communication in any real terms.

Fast forward to the here and now, however, and common adoption of Ethernet based structured cabling systems, the ubiquitous uptake of TCP/IP as the communication protocol of choice, a general understanding that 'communication is good' via application programming interface (API), along with many vendors publishing software development kits (SDKs) to support cross platform development, shows the first hurdle has truly been crossed.

While the first step is always the hardest, there are still a number of challenges to delivering a fully converged network solution to support an intelligent building deployment. I believe security is the most important of the remaining challenges to be overcome. Cybersecurity is not a new challenge in the IT arena but the introduction of these new systems on to the IT/OT infrastructure represents a significant challenge to parties who possibly have not worked with this level of system interconnectivity before.

That challenge exists in two forms in the main. Firstly, in the need to provide a secure converged infrastructure for multiple systems, many of which may present an increased attack surface above and beyond the traditional IT infrastructure. Secondly, in the education of all stakeholders in a given project to understand the security implications of connecting multiple systems and the cyber hardening requirements that may exist as a result.

'The concept of building intelligence is not quite as new as we may think. In fact, a number of the systems that may make up an intelligent building have existed in a standalone fashion, or with limited connectivity, for quite a while now.'

BOB ALLAN

BUSINESS DEVELOPMENT MANAGER FOR INTELLIGENT BUILDINGS AT SIEMON

The biggest barrier to achieving a truly converged network infrastructure is the willingness to think about different building systems and device connectivity.

In a traditional deployment, systems run separately whilst in an intelligent building they converge on to one unified IP based infrastructure that also supplies power to end devices. The risk in deploying a single unified cabling system, however, is no greater than a traditional deployment.

Leveraging a low voltage (LV) infrastructure is still a 'one connection per device' topology and you will find the same in a traditional AC power and legacy communication infrastructure. The only difference is that we can now supply power through the communications cable and don't have to run two separate cables to one device.

In a legacy system, if the power or the communication is interrupted, then the device may fail. The situation is no different with a unified cable system. The benefit, however, is that you only need to troubleshoot one source – either the network or the PoE switch and it should take much less time to troubleshoot the edge device. There is also less risk to the occupants as LV is safer than traditional AC power.

Security needs to be considered early in the design phase of construction. There are two common deployments for intelligent building systems – on the corporate network or on a separate network. There are pros and cons to both deployment types. The best option is to work with an end user's IT department, a master systems integrator, and/or an IT security specialist.

In my opinion, a smart building can be secured better than a building with legacy systems. One of the biggest fears is if 'that' cable goes down. The most important thing to keep in mind is that a single unified cabling system is not a single cable to all devices and systems, and the potential for system software failure is no different in either scenario. If that is a risk that would impact mission critical systems, a redundant server/software system should be designed.

'In a legacy system, if the power or the communication is interrupted, then the device may fail. The situation is no different with a unified cable system.'

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ALAN BULLEN
MANAGING DIRECTOR AT LYNX NETWORKS

Convergence offers a utopian world where everything is connected and working in harmony. With data and voice networks already running over a single wire, it makes complete sense to merge in BMS, CCTV and access control systems to complete the picture. But is it that easy?

Here's the scenario. You get a call from the facilities manager to say that all the blinds keep going up and down and every light in the building appears to be on. Even worse, no one can gain access to the building with their key fobs.

You log on remotely to discover that your intelligent BMS appears to have been compromised. Luckily, it's not a sophisticated hack and it's recoverable. You lock out the hackers, restore from a back-up, change the admin passwords and within a couple of hours everything is back to normal.

However, you're responsible for IT security, so your job is on the line. What do you need to do to prevent a reoccurrence?

The challenge is that most IoT devices are designed for a single purpose, such as an intelligent light switch or door lock. Therefore, they are low powered devices. This means that built-in security is limited and the firmware is often not easily updateable.

In the ever-changing world of cybercrime, these devices are often seen as being a weak point. Criminals can take advantage and use them as a way in to gain intelligence of other devices in the network. In order to prevent this, you need a multi-layered cyber defence solution, from a next generation firewall with active updates, to tight control of inter-VLAN traffic.

It is important to look at the whole network with a security lens. Some simple techniques can also be used to help protect vulnerable IoT devices, like removing internet access unless it is needed. Also, a regular firmware update process should be adopted for IoT.

With the onward march of internet connected smart devices, it's important that manufacturers invest more in their security if we are to stand a hope of having secure converged networks.

'It is important to look at the whole network with a security lens. Some simple techniques can also be used to help protect vulnerable IoT devices, like removing internet access unless it is needed.'

TODD HARPEL
STANDARDISATION DIRECTOR AT NEXANS

Currently, many of the OT systems in a building operate over separate, proprietary networks. As more and more of these OT systems migrate to Ethernet networks, a converged network infrastructure is often viewed as the best way of supporting not only the OT systems, but also the IT systems in a building.

The challenge with this is the need to integrate two different departments – facilities management and IT – that have very different operational policies and departmental objectives.

This can be overcome by ensuring that all the stakeholders within an organisation are given the opportunity to contribute to defining the desired outcomes of creating an intelligent building. It is equally important that the departments managing the systems and supporting networks identify the potential impacts that this convergence may have on each of their domains and clearly define the delineation of responsibilities.

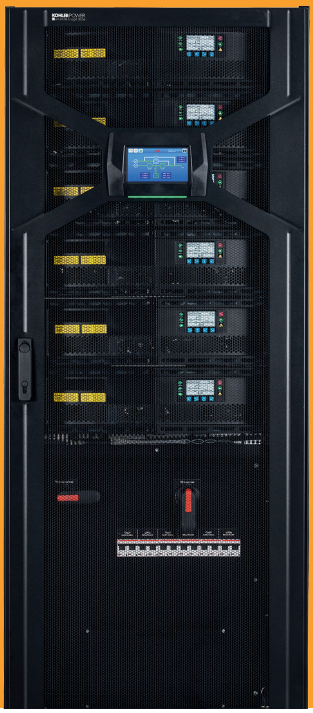
Just as the security of a company's core business network holds a high priority for IT management, protecting the OT networks that are operating and controlling so many building services must not be overlooked. OT networks may be supporting devices critical to operational and safety functions that had traditionally been on standalone, isolated systems.

Security threats to these legacy OT networks were rare and affected individual functions or devices. With the integration of legacy systems and new technology, cybersecurity experts are implementing new security protocols specifically designed to protect OT systems and recommend firewall protection between the IT and OT network.

In some cases, intelligent building designers have opted to embrace a separate cabling infrastructure for the OT network that looks and feels like an IT structured cabling system, but includes termination points in very different areas of the building. This physical separation can help protect the IT network from incursions originating from the potential vulnerabilities in legacy OT systems.

'Just as the security of a company's core business network holds a high priority for IT management, protecting the OT networks that are operating and controlling so many building services must not be overlooked.'

We really hate interruptions.



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Top 10 countdown

Richard Cann of Excel Networking Solutions offers 10 reasons to choose a pre-terminated solution

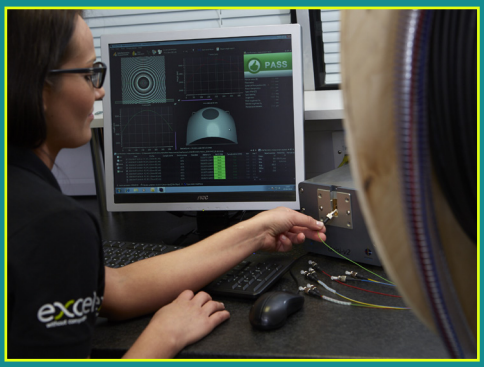
When designing a system to meet a given specification, you need to consider both the environment that the products will be installed into and the products themselves. Each project will have unique architectural features that may determine what can and cannot be installed, and the available timeframe for the installation will undoubtedly differ from project to project. Likewise, each specification will require a different product set that has been selected specifically with the individual environment in mind. This could be copper or fibre, internal or external, Eca to B2ca Construction Products Regulation (CPR) compliance with jacks, modules, plugs, panels or cassettes – the possibilities are endless. Sometimes, it may prove beneficial to fulfil the termination away from the site prior to the installation.

Here are the top 10 reasons for choosing a pre-terminated solution:

1 SAVE MONEY

The cost comparison of a pre-terminated solution to a traditional approach isn't always a black and white calculation. On paper, based on product alone, a pre-terminated solution will seem more expensive, as it incorporates the manufacturer's pre-termination labour, time and cost.

When taking a more holistic view, bearing in mind the on-site termination requirements and specialist skills and equipment needed for the job, the cost difference is vastly reduced. This is particularly the case for optical fibre installations, which require polishing, testing and cleaning equipment, where a pre-terminated solution could well be a more affordable option.



2 REDUCE INSTALLATION TIME

Installation time is a key consideration for both the end user and the installer. Often the project completion date is fixed. As data cabling is usually the last stage of project, the time window for this can be vastly reduced if the construction elements overrun. This is where a pre-terminated solution can be a saving grace. With all the termination work being done during the construction phase away from the environment, the time required on-site is considerably less, helping to meet those tight deadlines. The sooner the cabling infrastructure is in place, the quicker the end user can 'move in' and begin using

their new facility. The reduced installation time should also mean that the installer has a greater capacity for additional projects. A win-win scenario!

3 OPTIMUM PERFORMANCE

A pre-terminated solution is designed to meet a specification, taking specific environmental features into consideration. Terminated at a manufacturing facility by trained specialists in the field and tested to industry standards, a pre-terminated solution guarantees optimum performance levels to withstand the demands of the network it is installed into.

For example, a pre-terminated fibre solution is terminated using factory processes, which include polishing and scrupulous end face contamination testing to ensure optimum light can pass through the cable. A pre-tested, pre-terminated solution removes the risk of failure and helps to avoid troubleshooting at the end of the project, where any performance

issues could result in a need to re-cable, causing significant delays and costs.

4 QUALITY ASSURANCE

A pre-terminated solution undergoes rigorous quality checks prior to delivery to ensure the final product adheres to the specification and meets or exceeds industry standards. Removing the need for skilled technicians to be on-site, the termination work is completed and tested by the manufacturer, whose staff have daily interactions with the product and enhanced knowledge of termination best practice for maximum quality assurance. The works are typically carried out in a clean and dry, well-lit environment, which reduces contamination.

5 100 PER CENT TRACEABILITY

As part of a pre-terminated solution, a manufacturer may recommend the use of bespoke laser engraved labelling sheets to be pre-affixed to the products. These labels can be printed by the manufacturer according to the unique locations and system design for a project.

For example, if a communications room has a specific name that the end user refers to, it would make sense for that to be used on the labels that identify cables, panels, outlets and racks to ensure 100 per cent traceability post-installation. Acrylic labelling sheets offer enhanced longevity and durability compared to standard label types that can be added after the installation, so they do not fade over time

and are ultra-adhesive to ensure effective, standards compliant system labelling long after the installation is completed.

6 FULLY TESTED

Testing is a crucial element of the pre-termination process. On-site engineers are unlikely to have all the equipment required to fully test every element of the cabling system, much less the time to do so. By off-handing this to the manufacturer's team, the installer can guarantee that every step of the cabling system has undergone appropriate levels of testing at each stage of the termination process, which helps to eliminate the potential of issues during and after installation, preventing a time consuming cabling recall right at the end of a project. Certain tests can generally only be carried out in the factory, such as interferometer and return loss checks on fibre optic connectors, for example.

7 FLEXIBLE DESIGN

With so many options available, a pre-terminated solution is flexible to meet the exact requirements of a specification. No matter how complicated a design is, an ergonomic system design can be produced using appropriate jigs and templates to ensure every element of the specification is covered, before the product even reaches the installation site.

8 QUICK TURNAROUND

Installation windows for data cabling are slim. A pre-terminated solution provides installers with the opportunity to get ahead of the game and assign termination work to the manufacturer well in advance of the installation window opening, so when the time comes to begin the cabling installation, the turnaround is much faster.

9 MINIMISE WASTE

Terminated by a manufacturer's specialist in-house teams, pre-terminated solutions mitigate any unnecessary product waste. By making the most of every inch of cable, a pre-terminated solution ensures that installers receive exactly the amount of cable required.

Further to this, as the product is unpackaged and terminated away from the installation environment, the installer doesn't need to allot time to managing any packaging waste, as this is dealt with by the manufacturer prior to product delivery. Aside from minimising waste on-site, a pre-terminated solution also allows the installer to order the products as per the specification, avoiding a situation where there are handfuls of jacks, plugs and patch leads remaining at the end of a project – keeping purchasing costs to a minimum.

10 ENVIRONMENTALLY FRIENDLY

With all packaging removed and properly disposed of or recycled by the manufacturer prior to delivery, a pre-terminated solution is an environmentally friendly option. Although some manufacturers are taking significant steps to remove single use plastic packaging from their products, the use of plastic is

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ppropriate design consideration, ation and communication between acturer, installer and end user, the ts of a pre-terminated cabling system outweigh any drawbacks.'

still a popular choice for packaging within the industry. By choosing a pre-terminated solution, the installer and client can contribute to protecting the environment.

PLAN OF ACTION

For all its advantages, a pre-terminated cabling system can be something of a double-edged sword. Comprehensive planning, site surveys and specification reviews are all necessary steps to delivering a first class system. Once the cables have been cut to length and terminated with jacks or panels, the cost to either manage excess cable slack with little to no containment space, or ending up with cables that are too short for the environment, could cost time and money. However, with appropriate design consideration, preparation and communication between manufacturer, installer and end user, the benefits of a pre-terminated cabling system will far outweigh any drawbacks. ■

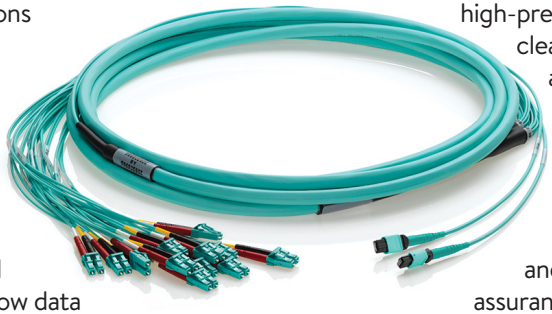
RICHARD CANN

Richard Cann is technical services manager at Excel Networking Solutions. Having graduated in mechanical engineering, he has a wealth of experience in production and product engineering, design, manufacturing, engineering and operations management. Specialising in fibre optics for the past 25 years, Cann is responsible for strengthening the various technical support services, manufacturing and assembly elements at Excel Networking Solutions.

Leviton

Get the pre-terminated copper and fibre optic solutions you need from the Leviton Data Centre Factory, located within our manufacturing facility in Glenrothes, Scotland.

Our made to order fibre optic and copper cabling solutions reduce network downtime, jobsite waste, labour costs and installation time by as much as 80 per cent. The pre-terminated and tested fibre optic and copper assemblies allow data centre managers to order cabling to match the specific length, type, breakout lengths, and fibre count they need, with order turnaround time on par with stock cable assemblies.

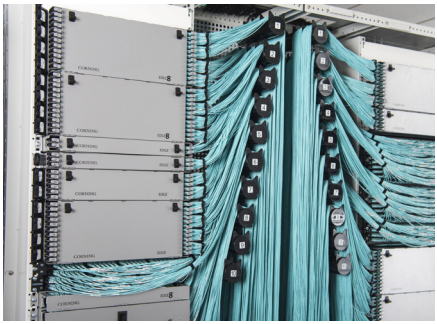


Precision factory termination processes and quality testing procedures to ensure IEC standards compliance are performed on-site. Additional capabilities include high-precision laser cleaving technology and unique barcodes for product tracking – providing superior quality and performance assurance.

To explore your made to order options **CLICK HERE.**
www.leviton.com

Corning Optical Communications

Demand for high-speed applications, driven by technologies and trends such as the internet of things, artificial intelligence and the rise of machine-to-machine communications has meant that speed of deployment is becoming ever more critical.



As more enterprises outsource workloads to multi-tenants, Corning Optical Communications' EDGE solutions are maximising the consistency and speed to revenue benefits that pre-terminated products can bring to customers. They are 35 per cent faster to deploy than traditional pre-terminated solutions, offering double the density of the next best alternative, and are ready to migrate to 40 and 100 Gigabit Ethernet.

For maximum performance, Corning's EDGE8 solutions provide added superior network scalability, improved link performance and 100 per cent fibre utilisation of a Base-8 design, providing 15-25 per cent link cost savings.

All of Corning's pre-terminated products come with a range of commercial, technical and sustainability benefits – from reduced installation time and zero-scrap to universal polarity and accelerated 'turn on' dates.

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

EDP Europe

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

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

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

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

IANOS is available from stock at EDP Europe.

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

www.edpeurope.com

HellermannTyton

RapidNet is HellermannTyton's fully patented pre-terminated, pre-tested modular cabling system, eliminating the need for on-site terminations and reducing 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 (fibre) and, because it is pre-tested, minimal on-site testing is required once installed.

The pre-terminated solution delivers high performance across all formats including Category 6A, 6 and 5e in copper and OM5, OM4, OM3 and OS2 in fibre. The Category 6A and fibre solutions will support high speed 10 Gigabit Ethernet 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.

CLICK HERE to find out more.

www.htdata.co.uk

Excel Networking Solutions

Excel Networking Solutions can provide both copper and fibre pre-terminated solutions, which offer a plug and play system – helping to reduce cost and installation time by up to 75 per cent.

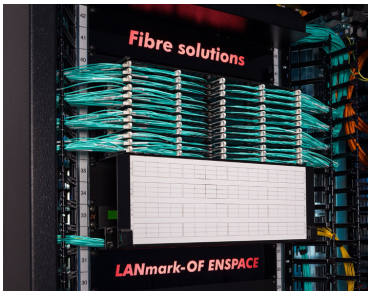
Excel's copper cabling can be fitted with modules, jacks or plugs, on either or both ends, supplied pre-labelled as single assemblies or loomed. Excel's pre-terminated fibre offering can be supplied in bespoke breakout lengths, with all end faces machine polished and ferrule geometry checked on an interferometer to ensure best performance in all conditions. Both copper and fibre cabling can be supplied pre-terminated into patch panels, to make on-site installation easier.

Excel's pre-terminated solutions are subject to a rigorous quality check to ensure delivery of a 100 per cent tested, traceable system. The products are covered by the Excel 25 year warranty when installed by an accredited partner and are delivered without any plastic packaging for an environmentally friendly solution.

For more information about Excel Networking Solutions **CLICK HERE.** To contact the sales team call 0121 326 7557 or **CLICK HERE** to send an email.
www.excel-networking.com

Nexans

A modern data centre has many network layers and zones – all requiring different types of cabling. The ideal cabling solution supports several generations of active equipment and should be quick and easy to install. But what type of connectivity should you use? Multimode or singlemode with LC connectors? Or MTP for protocols based on parallel optics?



Nexans can advise you in the choice of assemblies using LC or MTP connectivity.

LC connectivity has a proven track record for 10 Gigabit Ethernet in data centres. New standards developed for 25 Gigabit Ethernet and proprietary solutions for 40 Gigabit Ethernet and even 100 Gigabit Ethernet based on duplex transmission are extending the lifetime of LC connectivity in data centres.

High-speed protocols require parallel optics supported by advanced multi-fibre MTP connectors. Pinned connectors on MTP-MTP pre-terminated solutions need only one type of patch cord, reducing operational complexity for 100 Gigabit Ethernet and 400 Gigabit Ethernet. With pre-installed MTP-LC modules LC connectivity based networks are deployed easily and quickly.

To find out more about Nexans ENSPACE **CLICK HERE**.
www.nexans.co.uk/LANsystems

ORTRONICS®

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	—	—

Trip the light fantastic

Colin Parker of EDP Europe explains why pre-terminated optical fibre offers a flexible and easier route to delivering faster network speeds

When the first low loss optical fibre cables were invented in the 1960s and 1970s, transmitting data at the speed of light started a telecommunications revolution. Fast forward and the need for high density and scalable fibre connectivity that not only meets today's data hungry applications, but is also flexible enough to be easily upgraded for the demands of tomorrow, requires the latest fibre connectivity – enter pre-terminated fibre systems.

THINKING AHEAD

Traditionally, tight buffered multi-fibre cables have been run as a fibre network's backbone, which has required each fibre to be individually field terminated by a skilled technician, meaning extra time and installation costs.

This has changed significantly with the introduction of pre-terminated fibre cabling systems, and even more so with the evolution and growth in parallel optics and increased adoption of MPO/MTP connectivity. This is now widely used in high density cabling environments such as data centres and enterprises. Parallel optics are now at the centre of high-speed optical networks making MPO/MTP connectivity and low loss pre-terminated fibre cabling systems the obvious choice when designing and deploying the physical layer.

Factory terminated and tested, providing greater reliability and performance, MPO/MTP assemblies present multiple fibres in a single connector – most commonly 8, 12 or 24 fibres – removing the need to terminate each individual fibre with a connector, therefore speeding up installation time, reducing the risk of errors and improving reliability and performance.

WHAT'S THE DIFFERENCE?

MPO and MTP are terms that are used in a similar way to vacuum cleaner and Hoover.

MPO refers to the type of fibre connector and stands for multi-fibre push on, whilst MTP stands for multi-fibre termination push-on and is a registered brand of high performance MPO connector that has been designed to deliver better mechanical and optical performance.

MTP connectors have a floating ferrule to improve mechanical performance, utilise stainless steel elliptical guide pin tips and a metal pin clamp with features for centring the push spring.

With ever increasing demand on the number of network connections required in data centres and enterprises, traditional fibre cables can make management difficult due to the sheer number of cables involved. With pre-terminated solutions the installation of pre-terminated trunk backbone cables makes cable management easier and quicker, due to the number of fibre connections carried in a single cable. Through the use of MPO/MTP connectors, fibre trunk cables can carry 4, 8, 12, 24, 36, 48, 96 or 144 fibres in a single cable, with some manufacturers now even offering 288 fibres in a single cable for even greater packing density.

FUTURE PROOF

These latest developments in fibre network connectivity not only enable network backbones to handle current data volumes of 10 Gigabit Ethernet but make them more resilient to future proofing and the migration to the 40 Gigabit Ethernet, 100 Gigabit Ethernet and 400 Gigabit Ethernet connectivity speeds demanded in the future.

To better utilise this improved connectivity requires the use of advanced high density, in-rack cable management systems that are specifically designed to utilise MPO/MTP connectivity, whilst still providing the flexibility to use current LC splicing or patching within the same system.

Purpose built 1RU or 4RU chassis form high density, scalable sub-racks designed to house modules that match the required connectivity. This modular design enables connectivity speeds to be adapted to suit the requirement simply by changing the modules. The chassis also provides better cable separation and management, improved thermal management within the rack and easier access to the fibres via pull-out drawers that provide access to the modules. Labelling within the front door enables quick and easy identification of connections, whilst the door itself adds an

‘With pre-terminated solutions the installation of pre-terminated trunk backbone cables makes cable management easier and quicker, due to the number of fibre connections carried in a single cable.’

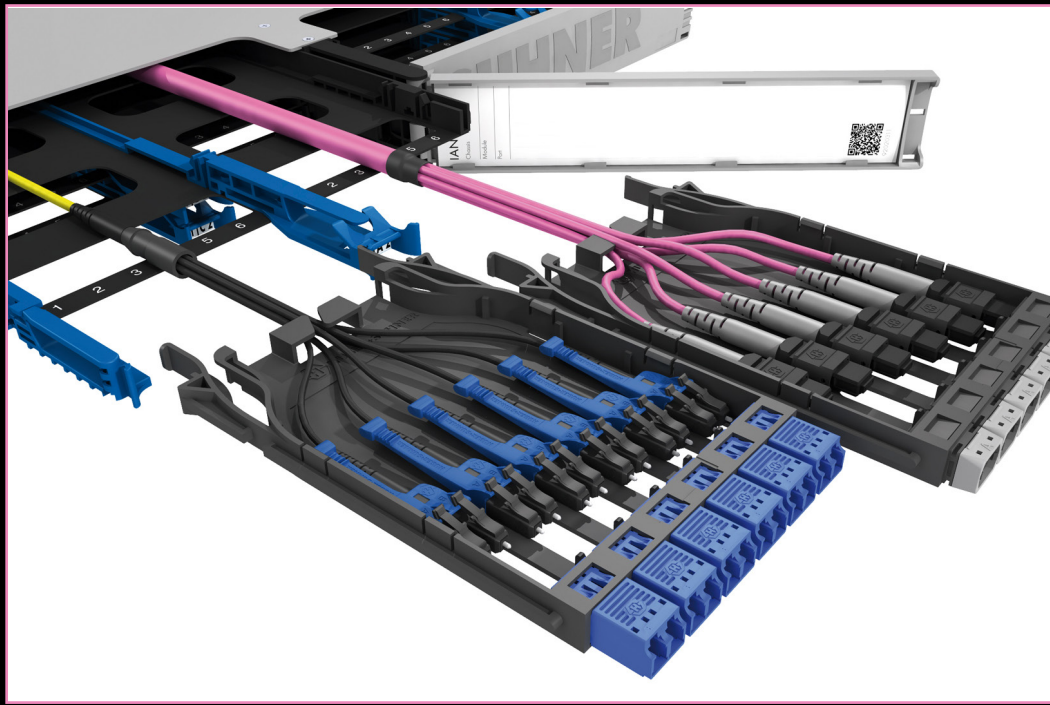
extra level of protection and security to the fibre connections.

TODAY AND TOMORROW

The modular design of advanced high density fibre cable management systems means that modules are available to suit the Base-2 connectivity provided by existing LC splicing or patching, but with the extra flexibility to incorporate the MPO/MTP connections required for the faster speeds needed in the future. Base-8, Base-12 and Base-24 MTP-MTP patching modules and MTP conversion modules are available to distribute MTP connectivity.

The MTP backbone fibre plugs directly into the back of the module and, in the case of conversion modules, enables an easy upgrade path for users who want to convert existing MTP trunk cables to match newer transceiver requirements. For example, two Base-12 trunks can be converted to three Base-8 MTP connectors (40Gb/s SR4) or to a single Base 24 connector (100Gb/s SR10).

From the front connections, pre-terminated patching or breakout cables can be utilised to connect servers,



storage area network (SAN) equipment or distributed to other network switches.

FEATURES AND BENEFITS

Pre-terminated fibre harnesses and patch cords have their own benefits. One of the first benefits of using pre-terminated fibre is the reduction in the cost of installation, which can be between 30-45 per cent. This saving is based on the reduction in hours required to complete a project, along with the reduced equivalent product costs.

The fact that connectors are fitted in the factory removes the cost of terminating fibres on-site. Another benefit of factory terminated fibres means testing is quicker to do, as the assemblies would have been tested in the factory with test results included in the packaging. There's also less requirement to purchase expensive splicing equipment. Factory terminated fibres also offer improved optical performance down to higher quality connectors and ferrules, advanced machine polishing and multi-stage testing.

Pre-terminated harnesses or fan-outs also take up less rack space, often removing the need for 1U splicing panels, and with harnesses containing multiple fibre connections the amount of space taken up by cabling is greatly reduced. They also provide greater flexibility, enabling one type of connector to connect to the distribution point and connect equipment of a different type – for example, MTP to LC-Duplex.

YOUR FLEXIBLE FRIEND

One thing is for certain, the demand on data centres enterprise environments to reliably process and store data at greater speeds and higher volumes is only going to continue to grow. Those organisations that adopt a flexible and easier route to deliver these speeds in the future now will benefit most in the long run. ■

COLIN PARKER

Colin Parker is the marketing manager for EDP Europe and has been with the company for 21 years. As an experienced and creative marketing professional, he has helped establish EDP Europe as a leading supplier of infrastructure solutions for the data centre environment, providing a broad portfolio of leading edge systems to optimise performance, efficiency, resiliency, flexibility and security of its customers' data centres.

Mayflex reduces plastic packaging for the distribution of customer goods

Mayflex has made some fundamental changes to the way its customers' goods are wrapped and secured for delivery. Following the highly successful implementation of plastic free packaging for the Excel Networking Solutions range, Mayflex has continued to work to introduce environmentally friendly replacements for much of the packaging it uses.


Andy Cooper

The first of several changes to be made is the removal of plastic bubble wrap, which has been replaced by a cardboard equivalent. Standard tape has been replaced by a paper version and plastic bubble packaging has been replaced by a corrugated recycled paper tubing. The cable winding service that is offered free of charge to customers now utilises corrugated cardboard covering opposed to plastic wrapping and the Specialist Support Services team is using brown paper bags to despatch GOP boxes and protect cassettes situated at the end of all pre-terminated copper looms, opposed to plastic bubble bags.

Andy Cooper, chief operations officer at Mayflex, commented, 'Everyone is tremendously aware of the damage that plastic has on the environment and by making these simple changes, we can continue with our mission to lead the way in our industry to remove as much single use plastic from the supply chain as possible.'

STL acquires IDS Group

STL has announced its acquisition of IDS Group. As part of the overall transaction structure, STL will acquire a 100 per cent stake in Impact Data Solutions (IDS) and its affiliate, together represented as IDS Group.

The acquisition solidifies STL's position in the cloud and data centre market and brings access to two of the top global cloud providers into its customer pool. This acquisition brings STL one step closer towards its journey of expanding its addressable market to $75bn by 2023.

'It is our endeavour to be more and more relevant to our customers' data network creation needs across the globe. The massive growth in data transmission and high bandwidth applications are driving a large need for edge compute and localised data centre, which makes this an extremely attractive space for investment,' said Anand Agarwal, group CEO at STL.

Ben Parker, CEO at IDS, added, 'We are incredibly excited at the prospect of working together with STL to scale our already highly successful business operations and services to support our growing customer based. Joining the STL global platform will enable us to fast-track our expansion with the quality, scale and breadth of competencies needed to meet our customers' complex design and deployment requirements.'

Chatsworth Products expands edge offerings with acquisition of Oberon

Chatsworth Products (CPI) has completed the acquisition of Pennsylvania based Oberon. The combined expertise of both companies will benefit all customers looking to extend their networks to the edge and outdoor environments, with an enhanced CPI portfolio that now includes a wider selection of indoor and outdoor wireless enclosures and Wi-Fi mounting solutions.

'With artificial intelligence, the internet of things (IoT) and industrial IoT driving ubiquitous connectivity, edge computing is no longer a nice to have, but a must have for any business that wants to remain competitive now and in the future. CPI is proud to be a stronghold in the industry and this acquisition underscores this vision,' said Michael Custer, CPI president and CEO.


Michael Custer

WM Reply sets example in recruiting diverse workforce

WM Reply is leading by example as it announces its most recent recruits in a sector where women are still underrepresented, in the hope it will encourage more tech companies to push for parity in terms of gender representation.

The firm has long been committed to improving gender diversity in the workplace. Through a combination of a creative recruitment strategy and a proactive approach, WM Reply is now able to boast a level of female representation over double the UK-wide average of 18-19 per cent. It has made six new hires, four of which are female, taking up roles in business analysis, consultancy and front-end development. Their addition to the team adds to its level of female representation, which currently sits at around 40 per cent.

Baxter Willis, partner at WM Reply, said, 'Gender bias continues to be an issue and one which has contributed to fewer women than men entering the tech sector. By recruiting people as early on as possible in their career, focusing on ability and investing in learning and development for individuals, we're able to attract and retain diverse talent, something our latest recruitment drive demonstrates perfectly.'


Baxter Willis

Saturn Business Systems adds EkkoSense's thermal optimisation software to its portfolio

EkkoSense has signed a reseller agreement with Saturn Business Systems – a New York based provider of integrated information technology solutions to mid-market and enterprise accounts. Saturn will add the EkkoSoft Critical M&E SaaS software to its select portfolio of market leading solutions.


Matthew Cichoski

Matthew Cichoski, enterprise account executive at Saturn Business Systems, said, 'Building a new data centre can cost millions of dollars, so optimising the performance of existing assets can prove a smart choice when it comes to improving bottom line returns. EkkoSoft Critical is an important addition to our data centre portfolio and will be invaluable in helping our customers to monitor their critical environment, manage it more efficiently, and maximise efficiency by releasing hidden capacity. We are looking forward to helping our US clients realise the business benefits it has consistently delivered in other countries.'

HellermannTyton announces the purchase of gabo Systemtechnik

HellermannTyton has completed the purchase of gabo Systemtechnik (gabocom), a leading German manufacturer of micro duct systems designed for the telecommunications industry.


Matthew Hunter

The purchase of gabocom adds considerable strength to HellermannTyton's Connectivity product range, enabling international growth and the ability to develop new market opportunities. The gabocom product set highly complements HellermannTyton's global cable management solutions range, delivering further strength and opportunity to the wider business.

Matthew Hunter, HellermannTyton Connectivity's managing director, commented, 'By bringing the product solutions of both companies together, not only can we offer comprehensive, market leading connectivity solutions to the optical fibre sector, but HellermannTyton can increase its international footprint with accelerated growth in both new and existing markets.'

CHANNEL UPDATE IN BRIEF

CityFibre has made its full fibre products available to Digital Wholesale Solutions (DWS). Through the agreement, DWS is offering a full portfolio of Ethernet products over CityFibre's future proofed full fibre networks, offering guaranteed symmetrical bandwidths from 100Mb/s to 1Gb/s.

Wavestore has appointed Mark Claxton as its managing director.

Resolve Systems launched its expanded global partner program. This initiative has been designed to expand Resolve's reach through a global partner community and allow it to deliver its IT automation platform to new markets.

Mitel has announced the appointment of Mary T McDowell as president and chief executive officer. McDowell brings an intimate understanding of the communications and technology markets and a strong track record of driving growth for global organisations.

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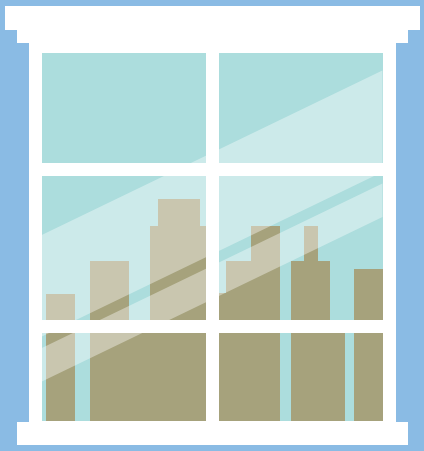
Your one click guide to the very best industry events, webinars, electronic literature, white papers, blogs and videos



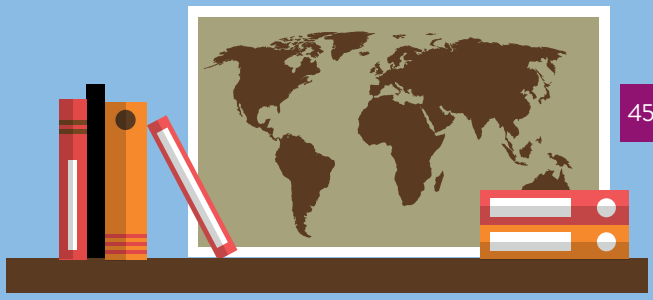
A whitepaper titled A Safe Step Forward – The Challenges of Determining the Reaction to Fire Characteristics for Data Communication Cables has been released by **Prysmian.**
CLICK HERE to download a copy.

What does it cost to upgrade to 100G? And 400G? is a blog from Mike Connaughton of **Nexans.**
CLICK HERE to read it.

Excel Networking Solution's latest blog discusses the different cable constructions and provides a clear, easy reference chart to help identify which type of cable is the most appropriate choice for a given installation.
CLICK HERE to read it.

Leviton's PoE Infrastructure, Design, Lighting and Wireless webinar takes place on 25th November at 3.30pm GMT. Kirk Krahn will look at the potential benefits of PoE in digital buildings, as well as structured cabling choices that will maximise enterprise network capabilities. To find out more and to register **CLICK HERE.**

4 Simple Questions to Answer When Thinking About Battery Management for Your Single-Phase UPS Deployments is a blog from **Vertiv's** Phil Aldag. **CLICK HERE** to read it.



Different Plugs, Same Test is a blog from Mark Mullins of **Fluke Networks.** **CLICK HERE** to read it.

The Multi-Billion Dollar Success That Wasn't is a blog from Kevin Brown of **Schneider Electric.** It looks at the chequered history of data centre infrastructure management (DCIM). To read it **CLICK HERE.**

Good things come

Alex Emms of Kohler Uninterruptible Power (KUP) looks at the challenges data centres face from the rollout of 5G and how modular uninterruptible power supply (UPS) technology can contribute to solving them

5G is truly a gamechanger – its speed, latency and connection densities are such significant improvements over 4G that entirely new applications that simply weren't previously viable now become possible. Remote surgery and driverless cars are good examples, as both depend critically on the instant, no-latency response that only 5G can provide.

GROWING CONCERN

Emerging opportunities like these owe much to the growth of the internet of things (IoT), as well as 5G's promise. The IoT includes high volumes of geographically distributed devices that will benefit hugely from 5G enabled communications capability. But 5G's characteristics have major implications for hosting data centres in terms of performance, capacity, and geographical distribution.

The relationship between 5G and the IoT is highlighted by a Gartner survey, in which 57 per cent of respondents reported that their main interest in 5G was to drive IoT communications. With potentially billions of IoT connected devices, the amount of data generated will be huge. 5G is estimated to be able to handle 1,000 times more connected devices per metre than 4G without being affected by bandwidth congestion, meaning more devices can work in closer proximity.

Additionally, 5G's bandwidth and speed – estimated to be 20-100 times faster than 4G – will allow it to compete with ISPs' traditional broadband wired connections, so creating a further huge demand for data processing and storage capacity. Data centres will also need to compress data to handle the increase in, for example, video streams. This will require new technologies and compression algorithms.

POWER UP

Data centres and telecom providers will therefore require the right high-performance hardware and technology to handle the routing and switching necessary to match the flow of data. Additionally, they will need to manage their power consumption. This is not only for cost efficiency, but also due to increasing pressure to demonstrate a greener footprint and, in many cases, the need to avoid upgrading power feeds into the data centre.

One solution is installing software defined power (SDP) based on both hardware and software that can skilfully

in small packages

allocate power throughout the data centre, and another is to select more energy efficient equipment, to save both direct energy and cooling costs.

4G enabled data centres will have the capacity for handling 5G data. However, they will have to change their infrastructure to cater for 5G's super-high (30-300GHz) frequencies. These frequencies will only work if devices are in close proximity to antennas. Therefore, we will likely see multiple input and output (MIMO) antennas and many more small cells installed around public infrastructure.

SIZE MATTERS

Small cells have a clear advantage over traditional cell sites, as they can be located in areas lacking space for large cell towers. What's more, they are cheaper to deploy. Data centres will, however, need to be close enough to these cells to maintain 5G's low latency performance and meet service level agreements. Sometimes, micro-modular data centres might even be deployed at cell tower bases, allowing limited data processing with even faster response times for critical applications like autonomous vehicles.

These trends will likely lead to the break-up of larger data centres into smaller, more local facilities close to these cells. New, low latency IoT type applications will clearly depend on data processing, communications channels and power infrastructures that offer very high reliability alongside groundbreaking performance. This will call for Tier 3 and

‘A UPS with a centralised parallel architecture (DPA) means that single points of failure are eliminated, and uptime is maximised. Mean time to repair (MTTR) is minimised, as the hot swappable modules can be safely removed and replaced without interrupting power to the critical load.’

Tier 4 data centres with near 100 per cent redundancy.

SMALL AND MIGHTY

The predictions for 5G indicate a proliferation of small and very small data centres. However, these data centres must be just as reliable as the best of their larger counterparts. So how can UPS technology facilitate the scaled down yet highly-reliable power solutions essential to such environments?

The answer lies with today’s transformerless modular topology. With some leading devices, while a single module can be used to deliver 10kW or 20kW, further modules can be added incrementally to increase capacity or provide N+1 (or N+n) redundancy. Furthermore, up to 80kW (60kW N+1) rackmounting capacity can be provided, with an ultimate capacity of 400kW for two fully populated tower versions in parallel. This type of high power density allows a UPS into restricted spaces, while its high energy efficiency minimises the heat to be extracted from such spaces. As well as the completely self-contained UPS, each module includes battery and communications capability. This allows monitoring of UPSs in remote data centres from a centralised location.

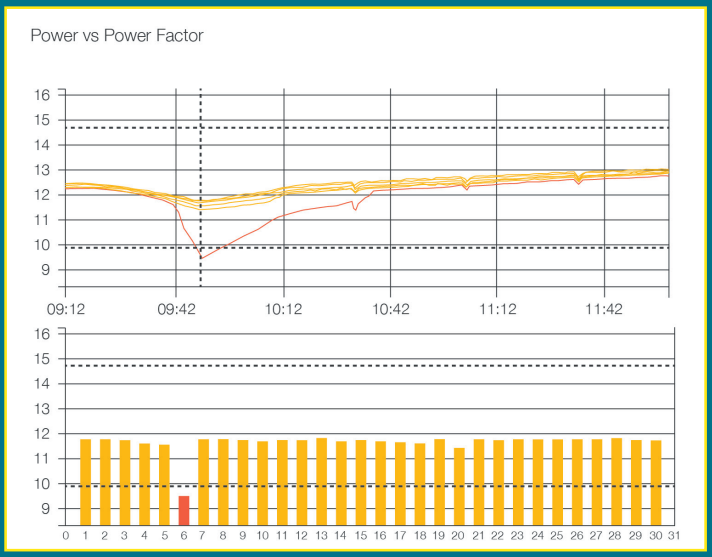
A UPS with a centralised parallel architecture (DPA) means that single points of failure are eliminated, and uptime is maximised. Mean time to repair (MTTR) is minimised, as the hot swappable modules can be safely removed and replaced without interrupting power to the critical load.

EFFECTIVE MAINTENANCE

While providing a UPS of suitable size, scalability, efficiency and availability is essential for the new generation small 5G oriented data centres, this alone is not enough. To be kept in prime condition and optimally reliable, a UPS, especially its battery, must be regularly monitored and maintained. This

can be challenging for an implementation comprising many small data centres distributed over a wide geographical area.

Suppliers with remote monitoring services can not only provide battery monitoring, but also perform proactive maintenance. Every battery's internal resistance, temperature and voltage can be checked and the results reported. Additionally, an equalisation process keeps battery charging voltages within operating range. By preventing gassing, dry-out and thermal runaway, this assures continuous battery availability.



CHANGE OF FOCUS

In recent years, news has focused on hyperscale data centres. However, the rise of the IoT and expected growth in 5G means that, for many users, the emphasis will shift towards smaller facilities. These will call for UPS that are suitably scaled down, while still offering levels of availability associated with Tier 3 and 4 installations. They must be compact, scalable, simply installed and efficient.

But it's not just about providing the right hardware. Critically, a UPS supplier must have the remote monitoring technology and field service infrastructure needed to guarantee that UPSs in multiple facilities spread over a wide geographical area unfailingly achieve their full performance and availability potential. ■

ALEX EMMS

Alex Emms is operations director at KUP. He has more than 28 years of experience of the UK power protection business. Emms started out as a field service engineer, progressing to senior engineer, supervisor, service manager and now operations director.

Kohler Uninterruptible Power (KUP)

Leveraging advanced technology, KUP's 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

EDP Europe

EDP Europe's custom built intelligent PDUs (iPDUs) are designed, manufactured and supported in the UK, providing a comprehensive and cost effective solution for the monitoring and management of rack power – either locally or remotely.

Because they are custom built, EDP Europe's iPDUs can be configured to meet the requirement you desire with the features you need now, or want for the future. They can be either single or three phase and rated up to 63A, with the outlet configuration you need, be it C13, C19, UK plug or Schuko. Access can be via web browser, SNMP or RS485 Modbus, while monitoring of entire PDU, individual outlet or remote outlet switching are all available.

EDP Europe's iREM is the latest addition that provides all the electrical measuring capabilities of an iPDU, but for little more than the cost of a passive meter. iREM will support collation of all readings into the PDU Agent DCIM and most other management platforms.

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

www.edpeurope.com

Centiel

Centiel's class-leading modular rack/edge data centre UPS system, CumulusPower, is now available for integration into a standard 19-inch server rack. This innovative solution gives you the benefits of a modular UPS and can be integrated into your existing rack space, making it ideal for anyone aiming to re-use their existing infrastructure.

The solution contains the class leading features that come with CumulusPower including 99.9999999 per cent (nine nines) system availability, which is achieved through fully independent and self-isolating intelligent UPS modules.

It also has Centiel's fault tolerant parallel Distributed Active Redundant Architecture (DARA), to remove single points of failure and reduce total cost of ownership through high double conversion efficiency of >97.1 per cent, meaning it is currently the best and now the most flexible solution available for power protection. Available from 10kW-100kW, matching 19-inch battery trays are available to make up the required autonomy.

For further information **CLICK HERE.**
centiel.co.uk

Excel Networking Solutions

The Excel Networking Solutions Intelligent Power Distribution Units (iPDUs) are high specification devices, which are designed to suit any environment where monitoring, measuring or managing of information is required.

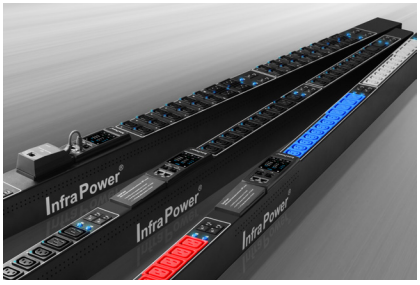
The iPDUs are a highly flexible solution, with all versions having a built-in environmental centre covering a series of functions for optimum analysis of power consumption and distribution – even down to individual socket monitoring and switching. The iPDUs can be configured in minutes and can communicate by HTML, HTTPs, SNMP and XML via an in-built web browser.

This product range has been developed so that devices can work as individual masters or run as a master and slave system. The iPDUs operate with one master and up to 31 slaves all from one IP address, reducing the requirement for multiple IP addresses. These iPDUs also have the capability to monitor temperature and humidity, as well as providing an option to enhance cabinet security by allowing remote access to lock and unlock doors.

For more information about Excel Networking Solutions **CLICK HERE.** To contact the sales team call 0121 326 7557 or **CLICK HERE** to send an email.
www.excel-networking.com

Austin Hughes

InfraPower W Series Three Phase rack power distribution units (PDUs) from Austin Hughes provide an industrial grade solution for mission critical data centres and remote installation sites. The real time monitoring provided by the W Series not only reduces manpower and related travel costs, but can also assist users with capacity planning and improving the overall efficiency of a data centre.



W Series Three Phase PDUs measure energy consumption (kWh), active power (kW), apparent power (kVA), power factor, voltage, current (amp), temperature and humidity. Features include reducing data ports and network IP addresses, zero power consumption latching relay for outlet control, capacity planning via network IP, enterprise class PDU software, and SNMP trap integration to data centre infrastructure management (DCIM). Protective components include MCB (standard), EMI filter, surge protector, leakage protection and individually fused options.

Complementary products including automatic transfer switches (ATS) and cabinet RFID smart card access control handles are also available.

To find out more **CLICK HERE.**
www.austin-hughes.eu

Schneider Electric

Schneider Electric has expanded its EcoStruxure Ready cooling portfolio with the 30kW InRow DX solution. Available in a 300mm rack format, this data centre cooling solution offers industry leading efficiency and addresses the increasing demand for higher density cooling in the data centre.

The trend toward modernisation and consolidation of data centres is driving the need for a cooling solution that provides more cooling capacity in a smaller footprint and flexible capacity to adapt to the actual data centre load. The 30kW InRow DX is ideal for data centres that are being modernised or retrofitted, or anywhere IT space is at a premium.

It uses energy efficient compressors and fans to reduce operational expenditure and make more power available for other IT equipment. Furthermore, due to its powerfully compact size and energy efficient design, the InRow DX is the most versatile and predictable cooling system for next generation small and medium data centres, and an optimal choice for edge and enterprise environments.

To find out more **CLICK HERE.**
www.schneider-electric.co.uk

Where the smart money is

Jon Barker of Chatsworth Products (CPI) makes the case for intelligent power management within high density deployments

With the growth of the internet of things (IoT), the emergence of agile cloud applications and increasing demand for faster, more reliable network services, the amount of processing happening in IT cabinets is at an all-time high. But considering the continued exponential growth in this global data and networking demand, usage will only continue to skyrocket. Therefore, attention must be paid to formulating a dedicated power distribution strategy at the cabinet level that can achieve the highest levels of availability and efficiency with minimum management overhead.

MONITOR AND MANAGE

To ensure highly available power to IT equipment and identify stranded capacity and equipment utilisation, all power components in the power chain need to have monitoring capabilities.

Rack power distribution units (PDUs) represent the last leg of the power chain. Considering this, it's critical that organisations choose rack PDUs with monitoring capabilities. It also is no surprise to notice that the rack PDU market is being driven by higher power ratings, a desire for more intelligent products, security features and the need for power provisioning, capacity planning and remote control.

FUNCTIONALITY LEVELS

Intelligent PDUs feature various levels of functionality. The benefits associated with each functionality within high density deployments are:

- Branch circuit and phase level monitoring. Continual monitoring of these parameters, along with the ability to set thresholds with notifications, ensures that the connected loads stay within capacities at all times. Phase level monitoring also ensures that the loads stay balanced for efficiency and optimum utilisation.

- Outlet level metering. This provides information about energy consumption of individual items of IT equipment that ultimately enables charge back reports and higher accountability. In addition, it helps set baseline energy consumption for individual equipment, which can be useful when choosing new equipment to be added to cabinets.

- Outlet level switching. This ensures proper provisioning by giving administrators the ability to control

what equipment gets powered from a PDU. As best practice, all unused outlets should be maintained in the off position until an administrator allows the connection of new equipment. This capability also provides the ability to turn equipment on in sequence at the initial start-up, identify underutilised equipment, and remotely cycle power to hung IT equipment.

- Integrated environmental monitoring. Continual monitoring of ambient temperature and humidity parameters at the cabinet level, provided by sensors that are integrated into or attached to the rack PDU, ensures availability of IT equipment by providing early notification of any pending issues.

CONTINUAL MONITORING

Particularly in high density environments, it is critical that intelligent PDUs have the capability to provide circuit breaker status at all times. For all the electrical parameters being monitored, PDUs must be able to set thresholds.

To warn if critical thresholds are exceeded, the PDU should have the capability to generate notifications. The intelligent PDU selected should provide flexibility with notification methods such as email, simple network management protocol (SNMP) traps or syslog. For troubleshooting and auditing purposes, intelligent PDUs should provide an exportable event log with a time and date stamp for each logged entry.

KEY ISSUES

In addition to the key considerations covered earlier, there are some important deployment considerations related to how an intelligent PDU integrates into the network. These include:

- Minimising network connectivity costs of all PDUs

Network connectivity of intelligent PDUs typically requires the installation of additional network switches and cabling from each PDU back to the switches.

'Intelligent power management at the cabinet level is critical to a successful high density deployment, and requires in-depth planning. The first step is to look at all the electrical input options available, and choose a compatible one that also supports the required cabinet density.'

Internet protocol (IP) consolidation technology minimises the network connectivity costs by consolidating up to 32 PDUs under one single IP address and physical network connection.

This reduces the total number of IP ports used, which ultimately translates to deployment of fewer network switches. The total installation time and the Ethernet cable length also decreases significantly.

A secure array also allows for another PDU within the array to be set-up as an alternate primary for network redundancy. This ensures continued communications across the array, even in the event of one of the enrolled PDUs losing its network connection or having its intelligence compromised. Other benefits of a secure array include the ability to mass configure all PDUs, as well as grouping of all PDUs and outlets within the entire array.

• Ensuring high levels of security

With the ability to turn outlets on and off and set thresholds remotely, network security is of paramount importance when considering intelligent PDUs.

It is important to ensure that security is built into all interfaces available for the monitoring and management of the PDUs. The web interface should support https protocol; SNMP compatibility should include v3 support that has built in SHA and DES encryption; and the command line interface, if supported, should include SSH capability.

The intelligent PDU should support remote authentication protocols such as LDAP and RADIUS to minimise the need to maintain passwords and user logins at each and every individual PDU. Meanwhile, all interfaces should provide separate permissions at the user and administrator levels. Functionality of the local interface should be limited as much as possible for monitoring items only. The ability to change settings and outlet control should not be available through the local interface.

• Comprehensive management of PDUs

A typical data centre has two PDUs within each cabinet. With any mid-size to large data centre, managing each PDU individually can be a cumbersome proposition. Thankfully, a comprehensive software solution can simplify the management of all PDUs within a data centre or multiple sites through a single interface that provides access, administration and auditing capabilities.

Key management capabilities of a comprehensive software solution include visual health map status of all PDUs, consolidated event log and alarming/notification capabilities, as well as an embedded database with reporting capabilities that helps data centre

managers take steps to reduce energy consumption, utilise stranded capacity and better plan for the future. It should also allow the grouping of all PDUs and outlets for energy consumption charge back reports, power control and setting permissions, in addition to configuration changes.

The software solution selected to manage PDUs should have the capability to auto discover all supported devices. Dynamic plug-in capability that allows quick development of support for new equipment is helpful, as it truly makes it a vendor agnostic software. An open database and provision of web application programming interfaces allow data centre operators to also customise the software solution to their own needs. This software solution should also be constantly synchronised with the PDUs themselves to ensure consistency within the common data model.

PLAN AHEAD

Intelligent power management at the cabinet level is critical to a successful high density deployment, and requires in-depth planning. The first step is to look at all the electrical input options available, and choose a compatible one that also supports the required cabinet density.

The next step is selecting the appropriate type and number of outlets required to support the high density environment. Proper care should be taken to ensure that the PDU selected will support the idiosyncrasies of high density deployments such as higher rack temperatures and branch circuit currents.

RETURN ON INVESTMENT

Ultimately, intelligent PDU deployments can provide significant benefits but also pose some challenges. Utilising PDUs with secure array technology and secure interfaces addresses issues around network connectivity and costs, while deploying centralised management software allows management to be seamless and makes the investment in intelligent PDUs meaningful. The modern data centre requires intelligent products that not only meet the minimum market requirements, but also exceed expectations in reliability, capability and quality. ■

JON BARKER

Jon Barker is CPI's technical manager for Europe. He has over 25 years in the engineering industry, with 11 years specialising in data centre infrastructure. Barker serves as a technical contact, accountable for resolving pre- and post-sales technical support questions and issues. He also provides support to CPI's sales team by delivering product and technology based presentations to customers, channel partners and industry event audiences.

Kao Data expands on-site collaboration with ServerChoice

Kao Data has expanded its on-site collaboration with ServerChoice. The collaboration demonstrates Kao Data's continuing commitment to organisations that require the highest levels of data centre capabilities to remain competitive in an increasingly digital world.

The initial footprint, comprised of four technology cells within the Kao Data London One (KDL1) facility, can be optimised to reflect ServerChoice's customers' requirements. Moreover, its customers will have access to the full range of ServerChoice solutions including its cybersecurity initiatives, disaster recovery, as well as high-speed network and peering capabilities through the installed Ai Networks virtual point of presence (vPoP), providing direct links to customer sites and hubs across the globe.

Secure IT Environments completes data centre build for Thurrock County Council

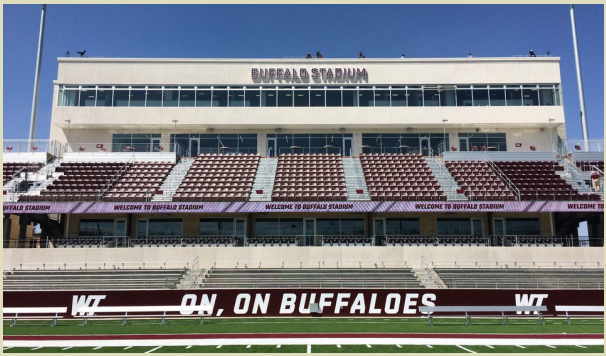
Secure IT Environments has announced the handover its latest data centre project to Thurrock County Council. The new 234m² data centre will provide a new energy and space efficient home for an IT infrastructure serving 170,000 residents.

The data centre was required as the previous operational location and IT systems had reached end of life. This led to a critical timeline to ensure handover for the new facility was achieved on time and within budget. The project was split into two phases – the first comprising the design, build and testing of the new data centre, the evaluation of existing critical and essential power, and decommissioning of the existing ICT infrastructure.

Phase two is an ongoing five year programme of planned preventative and reactive maintenance, including emergency callout services.

The new data centre room includes energy efficient air conditioning in N+1 configuration, Riello MPW UPS, a built-in 65KVA generator, 840U of server space, raised access flooring, environmental monitoring, biometric access control, CCTV and Novec fire suppression. The project also included all ground works and connection to existing electricity supplies and back-up generators located on other parts of the site.

West Texas A&M selects Extreme Networks' Wi-Fi 6 solution for Buffalo Stadium



West Texas A&M University (WTAMU) has deployed high-density, professional grade Wi-Fi 6 solutions from Extreme Networks at Buffalo Stadium. The initiative, spearheaded by students, will allow the it to use its Wi-Fi network to streamline game day operations at the new stadium, and offer digital fan experiences such as social sign-in, mobile ticketing, access to real time stats, and the ability to stream video. It will also power new high definition digital scoreboards.

WTAMU is part of the Texas A&M University System and is home to more than 10,000 students and 800 faculty and staff members. Its new 8,500 seat stadium opened in September 2019. In addition to working closely with the college's administration during the planning phase and funding nearly 75 per cent of the renovations via an increased athletic fee, students are playing an active role in deploying Extreme's stadium technology solution.

West Texas A&M is also planning to deploy Wi-Fi 6 access points and Extreme's Smart OmniEdge solution at its other sports venues.

PROJECTS & CONTRACTS IN BRIEF

An Openreach contract has been awarded to Fujikura for the supply of a new innovative ribbon fibre cable – Air Blown Wrapping Tube Cable (AB-WTC). This is alongside a contract for the supply of mass fusion splicers and associated accessories.

Juniper Networks has announced the first phase of Telefónica UK's successful services migration to the Telefónica UK Fusión Network, a brand new infrastructure for which Juniper Networks is the strategic IP network provider.

CityFibre is to undertake an industry wide consultation on the role of alternative full fibre infrastructure in helping to switchover customers from legacy copper networks. The consultation has been triggered by the progress of CityFibre's Gigabit City rollout in Stirling, which will be the first city in the UK ready for a copper to fibre switchover in summer 2020.

IX Reach and Evoque Data Center Solutions have formed a new partnership enabling Evoque's tenants to directly leverage IX Reach's full portfolio of solutions including its SDN platform, One Portal.

Panduit

Panduit's Vari-MaTriX Category 6A copper cables offer reduced size and lighter weight for improved cable management and utilisation. They are compliant with Euroclass B2ca, Cca and Dca flame and have UL Listed CMP-LP (0.7A) rating for increased safety.

The smallest diameter Category 6A cable available on the market, through improved fill capacity, it allows more efficient use of cable pathways and spaces. Additionally, the lighter weight and increased flexibility help installation, whilst the in-operation temperature range of -20°C to +90°C is suitable for a wide range of internal and external environments.

Panduit's MaTriX series is the only Category 6A technology that offers a discontinuous foil tape layer providing the best in class alien crosstalk mitigation, heat dissipation and leading EMI performance in a UTP cable. The TX6A UTP copper cables with Vari-MaTriX technology exceed the industry standard for both electrical and alien crosstalk performance. The 23AWG cables are designed for full 100m channels and provide error free performance in high density cabinets and large cable bundles running power over Ethernet applications.

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

Draka/Prysmian

Prysmian Group has released three new interactive online product guides for its Draka UCConnect structured cabling system in the UK. These provide an overview and quick reference facility for its Category 6A, Category 6 and Category 5e solutions, combining data cables and connectivity for end to end permanent link and channel configurations.

The guides cover the Draka UC500 Cat.6A/Class EA shielded, UC400 Cat.6/Class E unshielded and UC300 Cat. 5e/Class D unshielded solutions. Each guide has been designed as a double page spread divided into three sections – floor distributors, installation cables and wall outlets/consolidation points.

Each product features the part number, part name, concise description and image.

Colour coding and easy to understand icons are used throughout the guides to highlight important information, such as Construction Products Regulation (CPR) classification, remote power over Ethernet compliance and third party certification. The guides also include interactive elements, including direct links to the installation cable datasheets, connectivity datasheets and termination demonstration videos for key connectivity products.

To download copies of the new product guides **CLICK HERE.**
uk.prysmiangroup.com

ShanCo IT Services

ShanCo IT Services is an up and coming professional services company.

Specialising in all types of network infrastructure projects and deployments, ShanCo IT Services works extensively within the education, corporate and public sectors, both in the UK and internationally, using quality products from top tier cabling manufacturers.

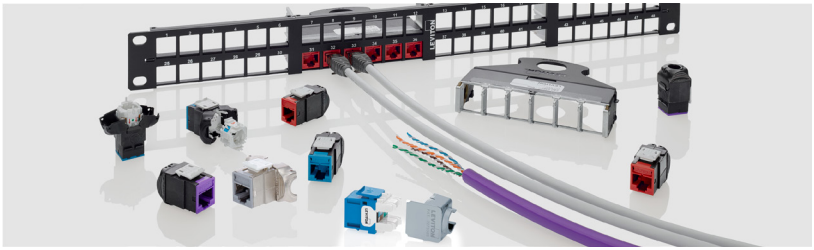
ShanCo IT Services offers:

- Voice and data structured cabling
- Fibre optic cabling
- Electrical cabling
- CCTV, security and access control services
- Data centre installations
- PA and AV systems
- Wi-Fi solutions
- Rack and stack
- Helping hands
- Hardware and product supply
- Deployment services
- Cisco TelePresence
- Site surveys
- Network audits

Call our friendly team today on 0800 865 4471 to talk about your infrastructure needs and projects for an immediate response! Alternatively, **CLICK HERE** to visit our website or to send an email **CLICK HERE.**

shancoitservices.com

Leviton



Leviton offers complete end-to-end copper systems – with both cable and connectivity – from one global solutions provider. All products are manufactured in our Leviton owned facilities in the US and UK.

Leviton systems are used in many different environments including data centre infrastructure, education and healthcare. The end-to-end systems are of superior quality, and Leviton offers unbeatable service and support throughout the lifetime of our products.

Leviton copper systems include category rated systems, cable management, make to order products and Construction Products Regulation (CPR) rated cable. They support applications such as power over Ethernet, digital buildings and enterprise wireless.

CLICK HERE to learn more about Leviton's end-to-end copper systems and related products.

www.leviton.com

R&M

Developed for data centre structured copper cabling applications, R&M's thinLine cables require 25 per cent less space than conventional patch cords, offering improved utilisation of distribution cabinets, raised floors and cable guides.

thinLine patch cables are thinner, lighter, and more flexible than conventional cables. They are easy to lay in tighter bending radii and easy to store in racks and cable guides, making cable management more convenient. As they take up less space, more air can circulate through the racks, saving cooling energy.

thinLine cables have a diameter of 3.8-4.7mm and an AWG28-30 wire cross-section – the diameter of comparable patch cords is typically 6mm. The range includes shielded and unshielded Cat. 6A cables as well as unshielded Cat. 6 cables.

thinLine cables have the same transmission values as thicker cables, ensured in part by R&M's Insulation Displacement Contact (IDC). The cables are specifed for use with four-pair power over Ethernet (4PPoE).

To find out more **CLICK HERE.**

rdm.com

Shop till you drop

Clive Partridge of Rittal explains how edge data centres create decentralised IT resources quickly and flexibly in retail environments

The volumes of data that now need to be processed are soaring as a consequence of digital transformation, so companies need a quick and easy solution for establishing new data centres directly where that data is generated. Micro-modular edge data centres offer the ideal solution here. The example of retail shows how the point of sale can be optimised using data assisted processes and why this calls for decentralised IT resources.

KNOWLEDGE IS POWER

Data is becoming increasingly important in physical retail spaces. Additional computing power enables companies to evaluate data relating to customer behaviour and enterprise resource planning more quickly and precisely.

For example, a retailer can compare the sales in its nationwide branches using surveys from social media platforms in order to identify new trends. Alternatively,

‘Data is becoming increasingly important in physical retail spaces. Additional computing power enables companies to evaluate data relating to customer behaviour and enterprise resource planning more quickly and precisely.’

on entering a shop, customers – provided they have consented beforehand – can be identified via their smartphone and greeted with offers that are tailored specifically to them. This, too, requires an IT system that responds in real time and can access large volumes of data.

In general terms, edge data centres help companies to evaluate all customer data and thus optimise sales. They intelligently network branches that are spread out geographically with regional warehouses and a central data centre so as to optimise product availability at the point of sale (POS). Retailers can thus harness networked edge computing to increase the availability of products, optimise logistics and use customer preferences to regularly improve product displays at the POS, for example. The continuous and rapid availability of data gathered via edge computing makes it possible to manage customer behaviour more effectively. If necessary, this can be done as often as every day based on up to date data.

TRACK AND TRACE

Retailers can also use the additional computing power and real time stock tracking to optimise their supply chain management. In this case, long-term analyses help identify patterns in sales and thus provide plenty of notice regarding when specific products may be affected by bottlenecks. Without predictive analyses of this kind, there is the risk of losing customers, who switch to the competition because they can’t get what they want.

To track goods and customers, retailers are installing networked sensors or using

cameras to analyse patterns of movement. This is creating an internet of things (IoT) that utilises a large number of sensors and data sources to generate a continuous data stream.

Retail chains use sensors, for example, to identify the positions on the shelf where each product sells best. This also involves developing the supply chain to the extent that a shop reorders new products in an automated process. In the future, a growing number of companies will be using edge data centres to expand the requisite IT infrastructure at the POS. According to IDC, edge IT systems could be processing and analysing 40 per cent of data from the IoT throughout industry by 2019.

WHAT'S AVAILABLE?

An edge data centre is designed so that companies can adapt it to the required performance level using preconfigured, standardised modules. Climate control and power supply modules, stable IT racks and robust security components are already aligned with each other. This is particularly important for sites that do not have a specific security concept at building level. If factors such as dust, humidity or dirt also pose problems at the site – because industrial production is carried out there, for instance – then the IT racks should have a high protection category, such as IP55.

Edge systems come in a wide range of output classes depending on the requirements and area of application. Edge gateway systems, for example, consolidate data directly on site and then initiate its transfer to downstream cloud data centres.

However, initial evaluations can also be carried out close to the data source. For instance, smaller systems for retail can perform tasks such as the initial aggregation of sensor data in a department store, supermarket or shopping centre, while powerful edge data centres can also be utilised that significantly increase the computing power at the relevant location. The latter may be necessary if retailers want to offer their customers elaborate product presentations based on virtual and augmented reality.

NEEDS MUST

The technology used in these edge designs can vary greatly – from a basic service rack to a specially secured IT rack with an additional protective cover. If more power is required, a high performance edge data centre based on a micro-modular data centre container with weather resistant and fire resistant covering is the answer. The solution is then installed in the immediate vicinity of the location where the data is generated, either inside or outside buildings. With appropriate cooling technology, it will support an output of up to 35kW per IT rack.

Thanks to their steel walls, IT containers are both stable and secure. Their excellent mobility also makes them highly flexible and means powerful data centres can be installed anywhere on company grounds or inside warehouses.

SELECTION PROCEDURE

If edge systems are being used to boost on-site computing power, the first step is to specify the associated business objectives. Technical and IT experts use this information to define the necessary software applications and it's then possible to determine the configuration of an edge data centre based on this list of requirements.

A number of criteria need to be taken into account during this process, for example, edge systems must be quick and easy to use in order to meet technical requirements promptly. The ideal scenario is for the manufacturer to supply a turnkey, ready-assembled system, complete with cooling technology, for plug and play connection to the power supply and network technology.

Edge system operation should also be automated and largely maintenance free to minimise running costs. This requires comprehensive monitoring that covers the power supply, cooling, fire detection and extinguishing. The necessary protection category is determined by factors such as location and how failsafe the system needs to be. It is also important to use a monitoring system that covers enclosure/rack doors as well as side panels – electronic door locks have the added benefit of making it easier to ascertain which staff had access to the IT and when.

Edge data centres can be installed in a room-in-room environment for the toughest security demands and a security room of this kind offers maximum protection in the event of fires or highly contaminated surroundings. Outdoors, it should also be ensured that the protection category supports reliable IT operation across a wide range of temperatures.

LOYALTY CARD

To increase choice and flexibility some manufacturers have created a pre-defined, standardised all-in-one edge system that can be augmented with active IT components and 'as-a-service' options in a turnkey solution. The retail sector is therefore able to use continuously updated data to optimise the customer journey, and thus secure customer loyalty on a long-term basis. ■

CLIVE PARTRIDGE

Clive Partridge is Rittal's technical manager for IT infrastructure. He began his career in the merchant navy before becoming a project manager for Siemens in Germany. He joined Rittal in 1994 as a product manager for electronic and data communications enclosure products. His experience of water cooled rack products and environmental monitoring allows him to provide expert advice and sales support for colleagues and customers alike.

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