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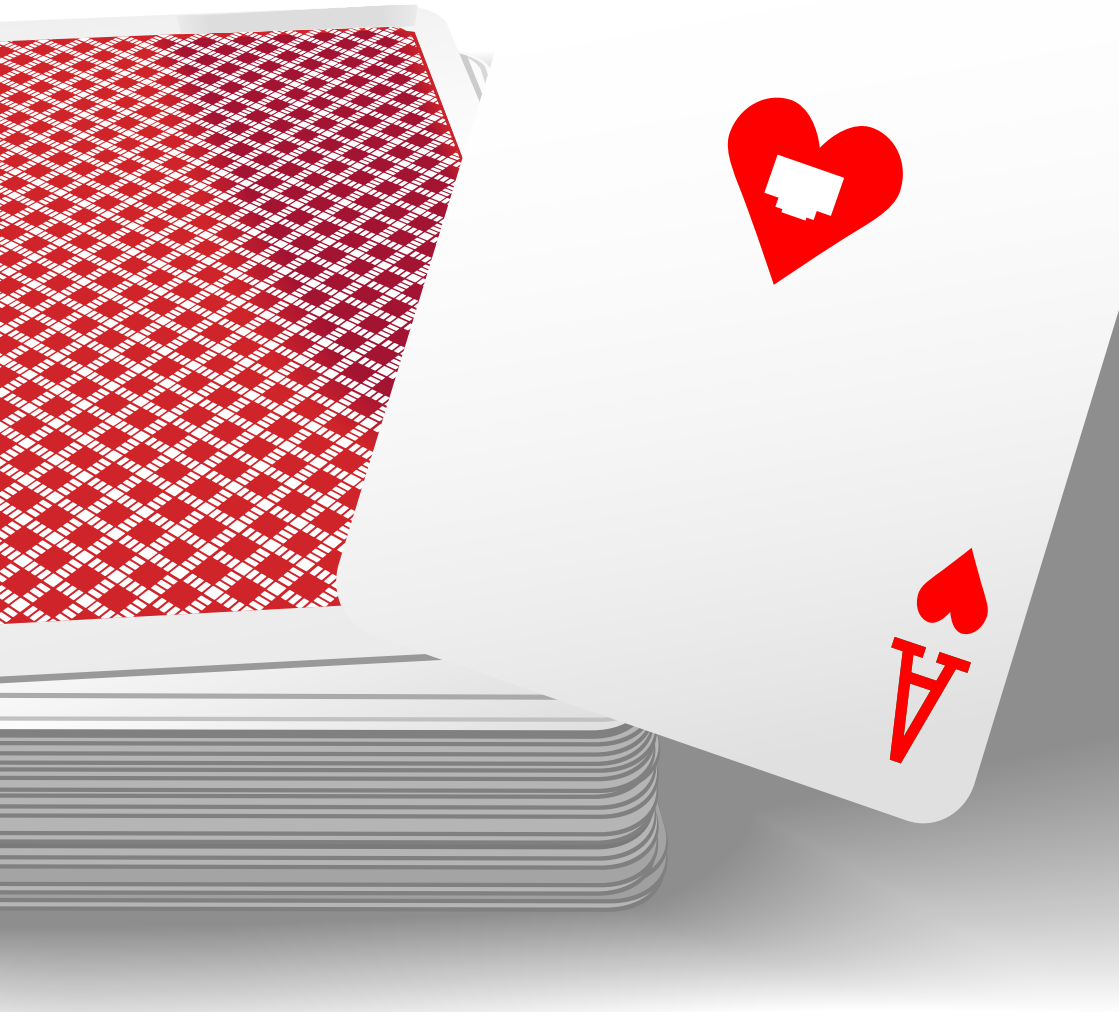

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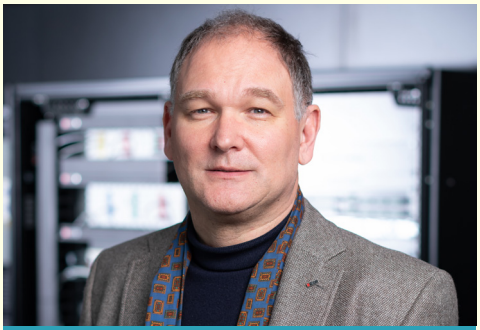

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Postcards from the edge

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As we reach the halfway point in 2021, it's still all about the edge. And there seems little sign of interest in it diminishing any time soon. This shouldn't come as a shock to anyone – 5G, the internet of things (IoT), our reliance on the cloud and even the increase in remote working fuelled by the coronavirus pandemic all point to the edge. What's particularly impressive though is the sheer level of innovation and technological development that's going on – even through these tough times.

In this issue we have a special feature dedicated to micro-modular and edge data centres. Russell Poole of Equinix offers an excellent overview of how the nature and role of the edge data centre is evolving, while Dave Mullen of Leviton examines the networks that support these facilities.

Having already become established in the industrial and automotive sectors, attention is turning to how Single Pair Ethernet (SPE) could impact the design of intelligent buildings and the operational technology (OT) used within them. To find out what's going on, this month's Question Time asks a panel of experts to explain the key considerations when implementing an SPE based network infrastructure, what opportunities it presents and how will it drive the development of the IoT.

In April, US authorities arrested Seth Aaron Pendley, who is alleged to have plotted to bomb an Amazon Web Services (AWS) data centre in an attempt to 'kill off about 70 per cent of the internet'. This incident highlights the need for rigorous and robust physical security and access control within data centre campuses, so we asked Rob Kelly of Sudlows to explain why no stone should be left unturned when it comes to protecting these buildings.

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

Rob Shepherd
Editor

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Majority of businesses approaching digital transformation without a plan

99 per cent of businesses in the UK see digitalisation as critical, yet nearly half are lacking a digital transformation strategy, according research from Pulsant. While 84 per cent of IT decision makers say their businesses have a clear vision for transformation, just 42 per cent have an established plan in place and 11 per cent admit that that transformation is ad-hoc.


Simon Michie

Digital transformation strategies appear to be held back by barriers such as accessing the right skills and systems, and problems establishing a company culture that embraces digitalisation. 87 per cent of business leaders say their location makes it challenging to hire and retain skills, 52 per cent say integrating new systems and applications with legacy infrastructure is a significant barrier and 40 per cent say their culture or structure doesn't support or enable digital change.

'The coronavirus pandemic has placed a higher premium on organisational agility over the last 12 months and the deployment of digital technologies and the cloud to achieve this,' said Pulsant chief technology officer, Simon Michie. 'However, by moving so quickly, many organisations can miss out on laying out a clear technology strategy and, as a result, critical transformation barriers are emerging.'

IT teams play a key role when it comes to going green

Research from Paessler AG has highlighted that energy efficiency, sustainability and environmental concerns are high on the agenda for IT teams. In fact, 80 per cent of respondents agree that sustainability is either very or quite important to their business agendas.


Martin Hodgson

The countries that ranked the highest when it comes to sustainability being very important were France, Canada UK and USA. IT teams working in manufacturing are the most aware of how important sustainability is to their businesses (71 per cent) in comparison to other industries. Those working in finance and financial services (55 per cent), government and education (41 per cent) ranked second and joint third in the research. While it is encouraging to see some companies making an effort to tackle climate change, 27 per cent admit that it isn't a priority at the moment.

Martin Hodgson, country manager UK and Ireland at Paessler AG, said, 'Whilst it's clear from our findings that companies know that they need to do more to become sustainable and environmentally friendly, there isn't a sense of urgency. Only 16 per cent of IT teams who hadn't yet implemented new sustainable IT strategies into the business intend to make changes in the next year.'

Over half of manufacturers have sights set on digital transformation initiatives to enhance operations


Jason Chester

Over half of manufacturers have their sights set on digital transformation initiatives to enhance operational performance, according to research from InfinityQS. The company's 2021 Annual Customer Satisfaction Survey reveals that 52 per cent of respondents already have, or are exploring the option of adopting, a digital transformation initiative, with advanced analytics (24 per cent) as a top priority.

This growth comes after a challenging year for the industry. It has seen many putting their strategic agendas on hold while they contend with unprecedented operational challenges, as well as market volatility and economic uncertainty.

Jason Chester, director of global channel programs at InfinityQS, commented, 'One thing that the pandemic did was expose significant and often widespread operational weaknesses within incumbent manufacturing environments. It brought into sharp focus where legacy systems and outdated processes exacerbated the problems that manufacturers faced alongside new challenges such as the rapid shift to remote working and supply chain disruption.'

30 per cent of businesses abandoned IT projects during pandemic

Three in 10 UK businesses lost time and money on unsuccessful digital transformation projects during the coronavirus pandemic, research from Studio Graphene has revealed. The survey of 750 decision makers found that 56 per cent of businesses have successfully adopted one or more new technologies since the beginning of the pandemic, with 54 per cent saying that using new tech has been key in enabling them to overcome challenges.


Ritam Gandhi

However, 30 per cent revealed they have scrapped one or more unsuccessful digital transformation projects that were launched since the beginning of the pandemic. When asked about the challenges of adopting new technologies, 28 per cent admitted that their business lacks the skills to do so, while 29 per cent said they struggle to keep pace with technological developments. Nevertheless, 65 per cent of companies plan to increase the amount they spend on IT in the coming 12 months and 62 per cent plan to launch new digital transformation projects.

Ritam Gandhi, founder and director of Studio Graphene, said, 'These findings should not discourage businesses that are working to upgrade their technology. Indeed, business leaders have faced huge challenges in adapting to the pandemic, so it is promising to see the majority of companies have successfully adopted new digital tools.'

Economic upturn masks mental health crisis in construction

The economic recovery is concealing a growing mental health epidemic among construction based small to medium sized enterprises (SMEs). This is according to a new survey commissioned by the Building Engineering Services Association (BESA) and the Electrical Contractors' Association (ECA).


Steve Bratt

It revealed a strong link between late payment practices and serious mental health issues, and that extreme responses such as suicidal thoughts, depression and panic attacks are now six per cent higher than in sectors experiencing a slower economic recovery. Employees in construction SMEs are more than twice as likely to have suicidal thoughts as people employed in other sectors. Displays of extreme anger resulting from late payment are also 50 per cent more likely.

Steve Bratt, chief executive officer at the ECA, said, 'We must start treating mental health as we would treat a physical illness. The health of our people is the basis of a resilient, innovative and buoyant economy.'

Schneider Electric claims IT sector related electricity demand to increase by nearly 50 per cent by 2030

Schneider Electric's Digital Economy and Climate Impact report predicts IT sector related electricity demand is expected to increase by nearly 50 per cent by 2030. Yet, as the electricity system decarbonises, emissions would not increase by more than 26 per cent by that time.

The Schneider Electric Sustainability Research Institute is recommending continued efforts to achieve efficiencies on the IT and energy sides at both component and system levels. The report highlights how the rise in edge computing requires a specific focus, as these systems are expected to be less efficient than hyperscale data centres from a Power Usage Effectiveness (PUE) standpoint.


Pankaj Sharma

Pankaj Sharma, executive vice president (EVP) secure power at Schneider Electric, said, 'It's misleading to assume that digital activity will inevitably result in a deeply problematic increase in CO2 emissions. The analysis from the Schneider Electric Sustainability Institute puts to rest many of the worst case scenario claims predicting IT related electricity use will double every five years. That said, as an industry we must remain vigilant in finding new sources of sustainability gains, while ensuring resiliency as digital keeps life moving forward.'

Global IoT market will surpass the $1tn mark by 2024

The global internet of things (IoT) market by revenue will be worth $1.1tn by 2024, with much of the growth coming from wearables, according GlobalData.

A coronavirus pandemic driven digital transformation wave will fuel higher growth across all IoT markets.

The global IoT market was worth $622bn in 2020, up from $586bn in 2019, and will grow to reach $1,077bn by 2024, with a compound annual growth rate (CAGR) of 13 per cent over the period. The enterprise IoT dominates the overall IoT market, generating 76 per cent of total revenue in 2020.

Jasaswini Biswal, associate project manager for thematic research at GlobalData, commented, 'The next phase of the IoT has the potential to transform how we live and work. As IoT penetration extends to the point of being pervasive, entirely new business models will emerge. IoT networks will even do business with one another – providing services resulting from autonomous or near autonomous collaboration.'

NEWS IN BRIEF

Equinix has committed to reduce its Scope 1 and 2 emissions by 50 per cent by 2030 against a 2019 baseline, and will reach 100 per cent renewable energy by 2030, fulfilling its commitment to RE100.

The latest Business Distress Index from RealBusinessRescue.co.uk has revealed the number of IT SMEs in significant financial distress now stands at 47,000 – a 15 per cent increase in the first quarter of 2021 and placing 185,000 jobs under threat.

Xena Networks' 800 Gigabit Ethernet test modules – known as Freya – will ship in June to early adopters as the company prepares to roll-out its new range of high speed Ethernet test modules over the coming months.

Nausheen Wadood has been appointed by EPI Pakistan as country manager.

Bridewell Consulting is opening five new regional offices in the UK and plans to double headcount over the next 12 months.

Intel Silicon Photonics has completed the successful interoperability validation of its 800 Gigabit Ethernet optical transceiver using the Spirent 800G Solution.

Less than half (49 per cent) of UK local authorities currently employ a chief digital officer, digital director or equivalent responsible for overseeing the organisation's digital transformation, according to new research from Citrix.

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The time is now

Hi Rob

The coronavirus pandemic has accelerated cloud computing adoption for many enterprises. The Forrester Consulting 2021 Cloud Connectivity Buyer's Guide, commissioned by Megaport, found that the pandemic 'reinforced the substantial value and necessity of cloud technology. Senior level decision makers have realised that networks are the central nervous system of their businesses'.

Organisations must now focus on optimising their investments in the cloud – and to do that, they must consider the importance of cloud connectivity. IT leaders must ensure they can easily connect to the cloud, while managing multiple clouds together in a secure and reliable way.

For this reason, many businesses are looking to network as a service (NaaS) providers to provide expertise on cloud connectivity. NaaS providers offer network connectivity services to companies that can't, or don't want to, build their own infrastructures. NaaS can include services such as wide area networking connectivity, data centre connectivity, bandwidth on demand and security services.

According to Forrester's Business Technographics Networks and Telecom Survey from 2020, the majority of businesses in the UK have already recognised the importance of NaaS – 62 per cent of telecommunications technology decision makers have deployed NaaS solutions and a further 16 per cent said they were planning to do so in the next 12 months. IT leaders say they are already reaping the benefits of NaaS by simplifying their IT networks (42 per cent), creating a more flexible approach to IT (39 per cent) and mitigating risks of technology changes (34 per cent).

Businesses that use traditional connectivity methods such as virtual private networks (VPN) tunnelling over the internet to the public cloud will struggle with bandwidth constraints and reliability

from best effort internet connectivity – slowing development and time to market. If businesses decide to connect to the cloud with private lines from their ISP or telco, they'll struggle with scaling bandwidth up and down based on their day to day needs because provisioning times with ISPs and telcos can range from 30-120 days. Also, this option doesn't give them the flexibility to change or add additional service providers in real time as and when required.

Framestore, the creative studio behind The Avengers and Harry Potter movies, experienced exactly this problem. It used VPN tunnels to get its creative team's visual effects work into the cloud, only to find that they needed to manage over 100 tunnels 24/7 to keep those cloud connections up and running. With a NaaS solution, they were able to establish private, direct cloud connectivity on demand and in a point and click manner, provisioning reliable bandwidth in minutes instead of months. They were also able to select and move to a diverse spectrum of cloud providers to follow a best of breed technology approach.

Network connectivity will play a pivotal role in driving value from the cloud. As Forrester argues in its 2021 Cloud Connectivity Buyer's Guide, 'the network matters more than ever. No longer just a commodity, it has become the fabric of digital business'.

Eric Troyer
Megaport

Editor's comment

NaaS has certainly been a major talking point over the last couple of years with companies such as Cisco and Hewlett Packard Enterprise promoting its benefits. As Eric points out, the coronavirus pandemic has accelerated its adoption and it will continue to appeal to those who want to avoid major capital expenditure and recognise the need to future proof.

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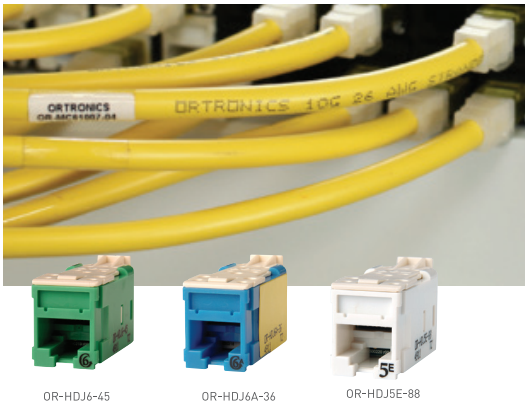

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Single minded

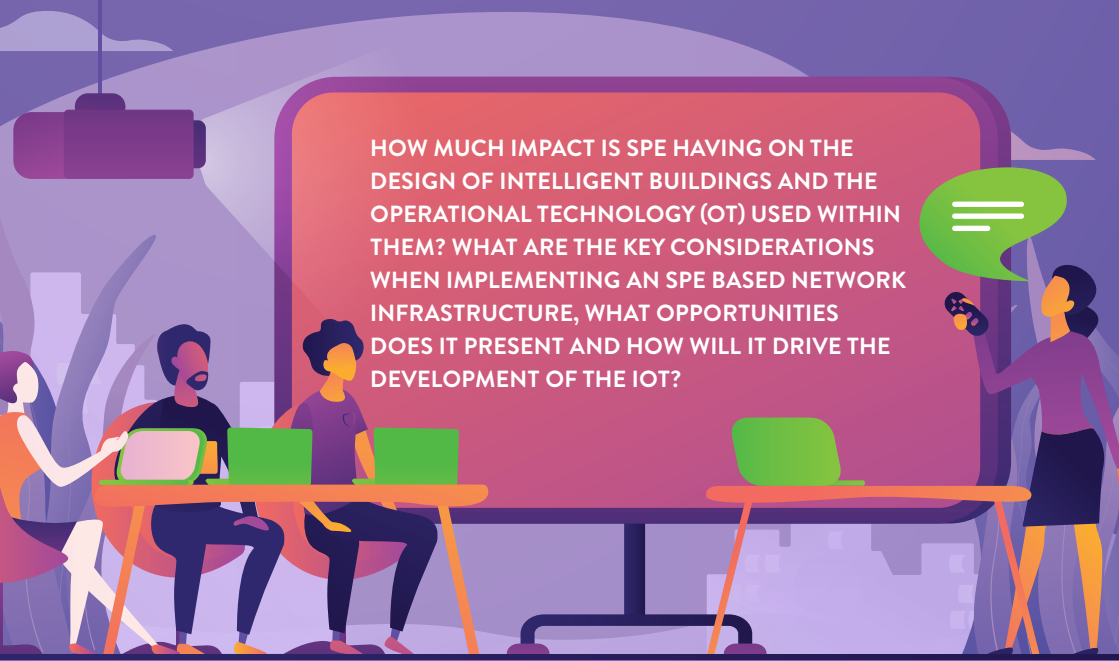
Single Pair Ethernet (SPE) has already proven popular in the industrial and automotive sectors, and is being touted as a game changer in the configuration of intelligent buildings. Inside_Networks has assembled a panel of industry experts to explain its potential impact and the opportunities it presents

Enabling the transmission of power and data over a single pair of twisted copper wires, SPE is now widely considered an enabler of Industry 4.0 and the industrial internet of things (IIoT). Due to its simple design, light weight, reduced space requirements and installation costs, it is an economical and non-proprietary solution that is beginning to turn the heads of those developing intelligent buildings.

It has the potential to enable a whole new wave of connected sensors and controls that will make buildings even smarter and the IoT more beneficial, while offering an alternative to legacy systems like BACnet and proprietary cabling. However, when deploying SPE there are issues to consider. For example, although thinner SPE cables permit a tighter bend radius during installation and a higher cabling density, the issue of heat rise is still present, just as for any cable where power can be delivered.

With growing momentum behind SPE, Inside_Networks has assembled a panel of experts to offer their thoughts on what its impact will be, what to consider when implementing it and the opportunities it presents within intelligent buildings.

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



OWEN WILLIAMS

HEAD OF INTELLIGENT BUILDING SOLUTIONS AT LMG

IEEE 802.3cg SPE or, more importantly, 10BASE-T1L power over SPE (PoSPE), has only recently been standardised. This means, to date, that it has had minimal impact on smart building design.

Traditionally, OT systems have been based on protocols such as RS485, Modbus and BACnet, and are required to operate over long distances, often in harsh environments, to power and control OT devices. Bandwidth has never been an issue, so 4-pair Ethernet has failed to penetrate OT environments. The downside is that expensive gateways are required to integrate these OT protocols together or, more importantly, to the enterprise network. Consequently, data and management information is siloed and its use restricted, limiting the value available to an organisation.

PoSPE provides the opportunity to replace the plethora of OT protocols with a fully integrated Ethernet network, from edge to edge, breaking down the OT/IT boundary in one fell swoop. Not only does this offer unlimited opportunities for seamless data analytics and unparalleled levels of integration and control, it also removes the need for expensive gateways required for protocol conversion and enables enterprise grade cybersecurity policies to be implemented across an entire network. PoSPE has the power to bring the OT and IT worlds together and oil the wheels of further convergence and artificial intelligence (AI) innovation.

What's the catch? Although it's still early days, PoSPE's Achilles heel will be the 18AWG single pair cable. With European Construction Products Regulation (CPR) requiring Cca grade fire performance and the current price of copper, I can see this being an expensive solution, especially in comparison to wireless OT devices.

For me, it's very much a case of horses for courses. Use PoSPE to support OT applications in environments that are inaccessible or where wireless is unsuitable due to noise, power consumption or security concerns. But, for the vast majority of smart building sensor deployments, I'd advise using wireless multi-sensors that have a battery life of over three years, supported by low cost, PoE wireless IoT gateways.

'POSPE PROVIDES THE OPPORTUNITY TO REPLACE THE PLETHORA OF OT PROTOCOLS WITH A FULLY INTEGRATED ETHERNET NETWORK, FROM EDGE TO EDGE, BREAKING DOWN THE OT/IT BOUNDARY IN ONE FELL SWOOP.'

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TODD HARPEL

SENIOR DIRECTOR GLOBAL COPPER CABLE AT LEVITON

The 2020 publication of the IEEE 802.3cg SPE standard has created a lot of interest in this technology for use cases beyond the automotive and transit environments targeted by the two previous SPE standards. The more recent use cases are focused on two primary areas – industrial environments and intelligent buildings. The specific functions that SPE networks will be supporting in both applications are somewhat related since they will likely replace legacy fieldbus networks.

Looking at the intelligent buildings space, there are numerous industry associations and network infrastructure manufacturers actively promoting the potential of SPE technology to supplant existing networks such as heating, ventilation and air conditioning (HVAC) and lighting control, as well as building automation systems (BAS). Much of the focus has been on the use of SPE cabling to connect the sensors, actuators and controls that are used to manage a building's functions or OT.

SPE will facilitate the connection of a significant number of edge devices to Ethernet based networks operating intelligent building control software and applications – an advancement often referred to as the building internet of things (BIoT). SPE will provide power to these devices as well, via PoE. It is expected that this new network technology will drive the introduction of many new IoT devices specifically for the intelligent building space.

While the final cable and connectivity standards for SPE are still in development by ISO/IEC and TIA standards committees, we do know that for intelligent buildings there will be a single pair cable design that has a reach of 400m using a familiar 23AWG conductor. This will give cabling infrastructure designers the flexibility to use longer runs, which could allow for the consolidation of BIoT network equipment into fewer, centralised locations.

It's likely, however, that SPE cabling and network functions will not replace existing 4-pair Ethernet based devices such as wireless access points or IP cameras, but will provide supplemental Ethernet based connections to systems and devices that were previously isolated or standalone. Similarly, it will create a much easier and cost effective direct connection into non-traditional Ethernet enabled BAS devices, which currently require extensive software integration projects and more costly cabling systems. This makes SPE an exciting new technology, as it gives the intelligent building infrastructure designer new ways to add intelligent devices into a network.

'SPE WILL FACILITATE THE CONNECTION OF A SIGNIFICANT NUMBER OF EDGE DEVICES TO ETHERNET BASED NETWORKS OPERATING INTELLIGENT BUILDING CONTROL SOFTWARE AND APPLICATIONS.'

VALERIE MAGUIRE
DISTINGUISHED ENGINEER AT SIEMON

With the global IIoT market poised to reach nearly $1tn by 2025, there is no doubt that 10BASE-T1L SPE will dramatically change how future IT and intelligent building networks are designed. Building automation platforms and IIoT devices have traditionally operated over a wide range of legacy media and fieldbus systems. The result has been a messy and disparate mix of application specific cables and connectors that have various installation requirements, utilise different communication protocols and often don't easily integrate with each other or the IT network.

10BASE-T1L aims to change all that. This new Ethernet convergence application alters the paradigm by supporting a wide range of OT device connections operating at speeds up to 10Mb/s with one familiar, non-proprietary, and generic (vendor interoperability is assured) balanced cabling infrastructure. SPE adoption will reduce deployment costs and complexity, while also providing a much needed path to coalesce OT and IT systems.

While 10BASE-T1L switch and device availability is still only on the near horizon, cabling solutions capable of supporting both 4-pair IT applications over distances of up to 100m and 1-pair OT applications over distances of up to 400m are offered today. These solutions feature individually shielded twisted pair cables and connectors delivering superior noise immunity, virtually zero emissions, and sufficient transmission headroom to support evolving standards based SPE applications and equipment, as well as traditional IT communications.

There are many benefits to specifying one common cabling infrastructure to support OT and IT networks. The biggest advantage for building owners and network managers is the ability to plan for broad integration of a wide range of traditionally siloed building automation platforms, without the headache of having to identify cable and connectivity and installation requirements for each system. The ability to install a generic infrastructure that is IT/OT ready today and offers retrofit flexibility to support future needs tomorrow opens the door to rapid 10BASE-T1L SPE adoption.

'WHILE 10BASE-T1L SWITCH AND DEVICE AVAILABILITY IS STILL ONLY ON THE NEAR HORIZON, CABLING SOLUTIONS CAPABLE OF SUPPORTING BOTH 4-PAIR IT APPLICATIONS OVER DISTANCES OF UP TO 100M AND 1-PAIR OT APPLICATIONS OVER DISTANCES OF UP TO 400M ARE OFFERED TODAY.'

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CHRIS FRAZER

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The impact of SPE is currently low, as there is little product available for the enterprise space. However, it is important to think about how SPE can be accommodated in future designs. This can be as simple as ensuring that there are sufficient spare fibres in backbone cabling to allow future installation of SPE switches in comms rooms. These switches can then be on the same network as the 'smart' network.

Various other design factors, such as core sizes and cable lengths, will allow SPE to be delivered up to 1000m with power levels up to 52W. It can also be configured on a star or bus topology, so a cabling designer must be knowledgeable about SPE in order to obtain the most benefits for the user. Other design factors such as space, power and cooling for SPE switches in comms rooms should also feature in a design.

When implementing SPE, a key factor is to cable routes from comms rooms to device locations, especially because future device locations may be currently unknown. A useful approach could be having a cable basket 'ring' on each floor for current and future IT cabling, including SPE.

I believe the opportunities offered by SPE to be immense. Most mechanical and electrical (M&E) devices can now be connected cheaply to a simple network, along with a plethora of sensors. However, there is no point gathering lots of information if nothing meaningful is done with it. Historically, intelligent buildings were limited by the lack of software to bring that intelligence to life, but now there are many packages that can do just that.

The only limitation to how smart a building can be is the vision of the designer. SPE will only enhance this and the opportunity to further develop smart infrastructures is vast. Buildings that not only operate efficiently but, equally importantly, provide users of the building with the ability to interface with the environment using a simple smartphone app, are here and now. SPE will drive this forward, adding many more devices to a smart network that can provide operators and users with really useful management tools and information.

'I BELIEVE THE OPPORTUNITIES OFFERED BY SPE TO BE IMMENSE. MOST M&E DEVICES CAN NOW BE CONNECTED CHEAPLY TO A SIMPLE NETWORK, ALONG WITH A PLETHORA OF SENSORS. HOWEVER, THERE IS NO POINT GATHERING LOTS OF INFORMATION IF NOTHING MEANINGFUL IS DONE WITH IT.'

MATTHIAS GERBER

MARKET MANAGER LAN CABLING AT R&M

Interest in SPE is growing as more people see the wide range of possible uses in buildings and industrial applications. The application standard IEEE 802.3cg has opened the door to the wide use of SPE in building automation, and it will become a key technology in smart buildings, allowing connection of devices to sensors and actuators via standard internet protocol (IP). It also has the potential to replace existing fieldbus systems in buildings or the IIoT in smart factories.

The option to use uniform, manufacturer independent connectivity and transmission protocols simplifies installation and maintenance, increases the number of possible connection points, and reduces material and operation costs. Smart, converged networks support energy saving technologies and applications such as the intelligent management of building space, resources and lighting. PoE can power and address building automation devices via individual IP addresses throughout buildings, while infrastructure companies can integrate more devices in their systems. And the IP protocol increases the cybersecurity of the entire building.

After SPE cleared the decisive hurdle of standardisation in 2020, the broad market launch of SPE solutions is now starting. However, when specifying an SPE solution, it's important to make informed choices regarding connectors and factor in distances.

We've seen that LC-Cu, according IEC 63171-1, appears to be the connector system of choice for structured cabling systems and building automation. In the industrial environment, companies may prefer the Microsoft Project (MSP) connector system, according to IEC 63171-2, with its more compact, robust design.

When choosing products it's important to look for features that enhance the overall system. By ensuring LC-Cu and MSP duplex sockets correspond to the RJ-45 cut-out, it is possible, for example, to create daisy-chain connections for using the 10BASE-T1S protocol. On the installation cable side, a 22AWG type can be part of the basic equipment of a SPE system. Operated with the 10BASE-T1L protocol, it can reach transmission distances of up to 600m but the range depends on whether a remote power supply is used and at what performance level.

'THE OPTION TO USE UNIFORM, MANUFACTURER INDEPENDENT CONNECTIVITY AND TRANSMISSION PROTOCOLS SIMPLIFIES INSTALLATION AND MAINTENANCE, INCREASES THE NUMBER OF POSSIBLE CONNECTION POINTS, AND REDUCES MATERIAL AND OPERATION COSTS.'

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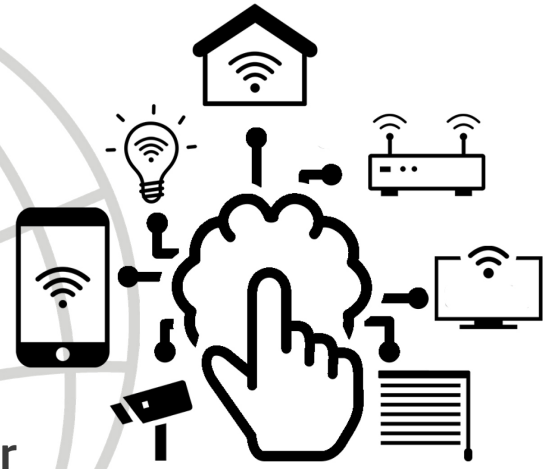


Read more on mms.drakauk.com

Draka UC

Universal Cabling System

ROB KELLY
HEAD OF TECHNOLOGY AT SUDLOWS

As the demand to connect more and more devices to the network increases in support of intelligent building requirements and Industry 4.0, there is an ever growing need to connect high quantities and different types of devices to the OT network. SPE offers infrastructure designers another powerful tool in their design arsenal to accommodate these systems.

While we have the traditional IT network leveraging 4-pair Ethernet cabling at the access layer providing, in some cases, up to 10Gb/s of connectivity, there are occasions where this level of connectivity isn't necessarily ideal when stepping into the OT space. There are a number of reasons for this.

Many of the sensors, controllers, relays and so on that we would desire to connect to our OT network are often low throughput devices requiring relatively low levels of power support. SPE supports the 10BASE-T1L application and can therefore provide 10Mb/s throughput up to a distance of 1km, meeting the throughput requirement of IIoT devices but at much greater distances than conventional 4-pair Ethernet cabling. Add in the fact that SPE supports power over data line (PoDL) with enough DC output wattage to support many of the IIoT devices deployed, SPE becomes a credible design choice where SPE capable devices are deployed.

Another key benefit when thinking about utilising SPE is cost. SPE offers a much more cost effective solution to systems based on 4-pair cable construction. Space efficiency can also quickly become a key consideration, with high device densities such as automated industrial lines. The smaller construction of the SPE solution also has the benefit of improved bend radii.

Many IIoT devices are still based round 4-pair Ethernet connectivity. However, as more devices become SPE capable, SPE will begin to provide infrastructure designers with a seriously credible solution to meet IIoT application requirements in a cost effective and spatially efficient manner, and with the same standardisation around a single open network protocol.

> 'SPE SUPPORTS THE 10BASE-T1L APPLICATION AND CAN THEREFORE PROVIDE 10MB/S THROUGHPUT UP TO A DISTANCE OF 1KM, MEETING THE THROUGHPUT REQUIREMENT OF IIOT DEVICES BUT AT MUCH GREATER DISTANCES THAN CONVENTIONAL 4-PAIR ETHERNET CABLING.'

Secnor from Norden – new and innovative access control solutions

Norden Communication is a one of a kind manufacturer and supplier of extra low voltage (ELV) and optical solutions of all kinds. The company caters to a wide spectrum of environments and applications such as telecommunications, buildings, utilities industries, surveillance systems and public address systems.

CMW and Norden

Established in 2003, Cable Management Warehouse (CMW) is a leading distributor within the network, data and telecoms industries. It offers a wide range of quality products from some of the industry's leading names and continues to add new brands to its product portfolio.

It recently introduced Secnor access control solutions from Norden Communication. The Secnor access control system is an innovative entry to the UK market that offers:

- High quality hardware
- Efficient functionality
- Easy installation
- Comprehensive, easy to program software
- Lower cost enabling higher margins

Secnor is also well established in the Middle East, with high profile installs such as Hilton Hotels and Al Hilal Bank in Abu Dhabi, UAE. The company aims to re-energise the UK market with a fresh perspective and offer a more profitable option for installers, without compromising the quality or features they are accustomed to.

Its range includes the Secnor NAC-5003SA, a standalone or PC based biometric access control fingerprint, keypad, and proximity card reader. **CLICK HERE** to watch a video about it.

Find out more

Norden and CMW will be showcasing the Secnor range of access control products at The Security Event, which will take place at the NEC in Birmingham on the 7th-9th September.

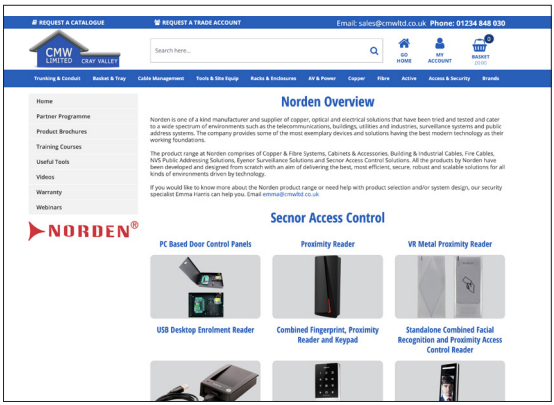
Visitors to stand A/340 will be in with a chance of winning a Secnor access control starter kit worth £150 every day for the duration of the show. The kit consists of a single door access control system panel, a proximity card reader, a desktop proximity card or fob USB enrolment reader and two read/write single fobs.

You can **CLICK HERE** to visit CMW and Norden at The Security Event.

CMW offices

CMW has its headquarters in Bedford. In July 2021 the company will open a second office in Farnborough. CMW's directors have a history of operating in this area prior to the setting up its headquarters at the Arkwright Industrial Estate in Bedford. The move back to this location gives CMW the opportunity to support installers working on projects in the City of London, Thames Valley and surrounding areas.

A demo suite for customers to visit, will showcase the range of Secnor access control products in a full working environment, along with a trade counter and office facility.



CMW website

The CMW website provides customers with an online ordering facility, which makes it easy to place orders whenever required. It is also possible to review accounts and earn reward points, which are awarded for leaving product reviews. It's quick and easy to create an online account – simply **CLICK HERE** to email Dave Dann.

CMW offers its customers:

- Dedicated account management
- A knowledgeable, friendly sales team
- Technical support
- A complete range of stock available next day to UK mainland and 2-3 days to Ireland
- European and worldwide delivery
- No minimum order values
- A comprehensive, complementary product range

For more information on the Norden Secnor access control product range, speak to Emma Harris, CMW's access control and security specialist, on 07584 089399 or **CLICK HERE** to send her an email.

www.cmwltd.co.uk

Prevention is better than cure

Rob Kelly of Sudlows identifies the key considerations for maximising security in data centres and explains why no stone should be left unturned when it comes to protecting these buildings and the information housed within them

The security of critical infrastructure and the information that resides within is vital when designing a data centre or, for a customer, choosing a facility. Traditional security has evolved over the years from disparate standalone systems with limited external connectivity and integration to platforms that blend hardware, software and application programmable interfaces (APIs) to drive integration between individual elements that comprise a 'total security solution'.

RISKY BUSINESS

Prior to the deployment of any security solution, the building(s) to be secured must be risk assessed against relevant standards and industry best practices. While many elements are reviewed during risk assessments, at the heart of the matter are three key questions:

- What is the value of that which you are looking to protect?
- What is the likelihood of an attack on it?
- What are the capabilities and resources of the parties looking to attack it?

If we apply these questions to data centre or critical infrastructure environments, it is fair to say that a robust security system would be expected. But what does robust look like?

FIRST THINGS FIRST

The boundary level provides the first and best opportunity to prevent breaches through a combination of detection and deterrence. Detection solutions range from thermal imaging to perimeter intrusion detection systems (PIDS) that can integrate with video surveillance systems (VSS) and trigger rapid alerts to on-site security or monitoring stations. Deterrent solutions range from signage and lighting to audible warnings and crash barriers, and are key tools in thwarting attackers.

Moving past the physical boundary, consideration should be given to layering security systems so that the grading matches the risk for each space. For example, low risk canteen areas may be provisioned with general access restrictions with staff afforded access via a token or personal identification number (PIN), while data halls and critical plant areas require higher access rights with dual factor recognition including biometrics such as a fingerprint scan.

Biometrics offer a much more secure method of recognition and are significantly harder to share or replicate than conventional solutions. Further security features could also include airlocks with facial recognition cameras to further secure critical parts of the building. Recognition methods that are not unique,

such as codes, should not be considered for facilities such as data centres or critical environments.

ON THE CARDS

Close attention should be given to the types of card technologies used. DESFire EV2 offers a secure option, as information is securely stored on a card using 128-bit AES or 3DES encryption, thus preventing the ability to clone it. Another recognition technology of note is Bluetooth Low Energy (BLE), which allows credentialing on employees' smartphones, tablets, wearable technology etc.

Whether a data hall is provisioned for a single tenant, a colocation environment with separate pods, or even individual racks for different tenants, there will most likely be a requirement to control and monitor

‘Whether a data hall is provisioned for a single tenant, a colocation environment with separate pods, or even individual racks for different tenants, there will most likely be a requirement to control and monitor access at rack level.’

OPEN UP

A security system design should ensure that open and compatible vendors are used to ensure integration and maximise performance. In a high security environment, security systems should feed into a physical security information management (PSIM) platform to enable real time data collection, analysis and verification. This also supports rapid situational awareness and provides user tools such as threat management and workflows, as well as standard operation procedures and reporting tools. This ensures suitable situation resolution, investigative analysis and organisational compliance.

Security systems have evolved over the years and the industry has embraced access at rack level. Locks with recognition hardware can be fitted in lieu of standard cabinet handles to integrate cabinets with security systems. This allows individuals to be restricted to specific cabinets only, providing peace of mind for tenants of colocation environments that their racks are securely segregated from others.

There’s also the benefit of a timestamped audit trail as to who accessed a cabinet and when. In addition, cameras can be provisioned within a cabinet, taking a snapshot of the person accessing the rack by recording on motion or on card swipe. Information gathered from the security system can be combined into a data centre infrastructure management (DCIM) solution, providing valuable information across multiple platforms.

both Ethernet and the TCP/IP stack as communications media. This has led to security systems becoming firmly planted within information and operational technology (IT/OT) networks. While this has no doubt helped enhance integration and interoperability, it has also injected other considerations that must be designed around including additional throughput on the network and technologies using multicast traffic or streaming traffic from VSS cameras.

POINTS OF ORDER

Another key factor that must be considered is the network security aspect. Many devices that make up a security system sit at the outer layers of a solution, which provides increased potential for cyber intrusion. For example, VSS cameras at the boundary provide would-be attackers a point of connectivity to the network. To mitigate this threat, best design and deployment practices must be followed. It is at the design stage where the most ground can be gained in ensuring a cyber-hardened system is deployed. Good examples of this include:

- Choosing enterprise class products with strong penetration testing results
- Selecting products that encrypt traffic between devices and nodes
- Using encrypted card technologies such as DESFire EV2
- Using strong, unique passwords on all devices
- Ensuring physically secure network end points
- Leveraging network based tools including threat defence software to secure and monitor network end points and device access
- Ensuring segregation of the security/ OT network from the production IT environment
- Making sure that robust penetration testing is built into the commissioning process

FORM AND FUNCTION

Security systems form a critical part of a data centre's infrastructure, ensuring that people, assets and data are protected. When designed and deployed correctly, these systems work together as a multi-layered, robust security solution that not only provides the required level of protection but also acts as a powerful tool for monitoring an environment and rapidly responding to situations as they develop. ■

ROB KELLY

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

Mayflex

Mayflex is the trusted partner for security solutions. We supply IP security and access control products from leading brands including Axis, Avigilon, Hikvision, Milestone, Mobotix, Paxton and Suprema – all backed-up by excellent service.

We hold large stocks for next day free delivery to the UK mainland and our experienced team is always on hand to assist customers to choose the right products for each requirement. Our Specialist Support Services also provide IP configuration and camera spraying if required.

For installers that are new to security, we regularly run the Intro to IP CCTV and the Intro to Access Control free online courses. These provide the perfect foundation training before delegates embark on more specific vendor courses. **CLICK HERE** to find out about the latest course dates available.

CLICK HERE to find out more about why you can trust in Mayflex for all your security and access control requirements.

www.mayflex.com

Chatsworth Products (CPI)

Data security is not just a top concern, it's a requirement for businesses. And as ICT systems and equipment continue to be placed in colocation facilities or remote sites, the need for enhanced security will continue to increase.

In a networked world, securing personal and business data from theft has become an issue of paramount importance.

CPI's eConnect Electronic Access Control (EAC) solution enables enhanced security through features that ensure access to ICT equipment within cabinets and the power distribution unit (PDU) itself, including patented technology that integrates the functions of an intelligent rack PDU with electronic locking and environmental monitoring.

CPI's eConnect EAC removes the need to power and network these devices separately, offering significant deployment savings thanks to the technology's ability to link up to 32 PDUs (16 cabinets with front and rear locks) under one IP address. With a feature-set that allows users to program, monitor and control every cabinet access attempt remotely while keeping an electronic log entry for security and regulatory compliance purposes, it's easy to see why eConnect EAC has been recognised as award winning.

To find out more **CLICK HERE.**

www.chatsworth.com

EDP Europe

Maintaining visibility and control of activity in racks housed in third-party colocation data centres can be challenging, with many operators simply offering key or combination lock management. EDP Europe offers a better solution through its iAccess modular cabinet door access control system, which can be easily installed into new or existing cabinets to provide access control of front and rear doors, and even side panels.

iAccess can be used as a standalone system or linked into BMS, DCIM, NMS and other systems, facilitating centralised management of multiple cabinets across multiple sites. iAccess provides full visibility and an audit trail of access to cabinets, with notification of activity, door lock status and door access being provided via email or SNMP.

Doors are accessed via built-in card or separate readers and can be remotely triggered through SNMP or via the on-board web interface. iAccess can also provide temperature/humidity monitoring and, if required, CCTV cameras can be attached.

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

www.edpeurope.com

Trend Networks

With a rise in digital IP CCTV systems alongside other bandwidth hungry products and services, Ethernet networks are becoming strained. IP security cameras are usually installed to an existing network that is in place to support computers, phones and/or internet of things (IoT) based devices.

Therefore, sufficient bandwidth is key for ensuring that IP CCTV cameras deliver the performance and picture quality a customer needs. This is where SignalTEK 10G from Trend Networks can help.

SignalTEK 10G is a handheld bandwidth tester from Trend Networks that can be used to determine maximum bandwidth up to 10Gb/s and identify areas with bottlenecks. It can help users find ways to increase network bandwidth for customers in order to accommodate new security camera installations – without the need to invest in replacing expensive cabling infrastructure. It can also quickly troubleshoot intermittent network connectivity issues post installation using diagnostic tools such as the 72-hour event log.

To find out more **CLICK HERE.**
www.trend-networks.com

Patch Solutions

The Patch Solutions range of RJ-45 Lockdown devices provides a simple, low cost solution to preventing network downtime and disruption. The Category 6 Locking Patch Cables provide security port locking at each end of the cable to improve compliance and protect assets.

Patch Solutions' Category 6 Locking Cables and RJ-45 Locks have proven to be a popular choice, especially across the healthcare, education, finance, transportation, hospitality and manufacturing industries. They offer a low cost security solution for unsecured network cabinets or communal areas such as meeting rooms, hot-desking or for critical remote office connections.

Critical care, training centres, colocation data centres, wireless installations and retail point of sale locations often have existing cables and open ports that need to be secured. RJ-45 Lockdown Patch Cable Locks can be quickly fitted to existing patch cables and installed with either Allen or torque keys. Jack Locks are simply pushed into position within seconds, then removed and redeployed elsewhere.

For more information **CLICK HERE** or request a free sample by calling the team on 01442 890890.
www.patchsolutions.com

Austin Hughes

Improve rack level security with Austin Hughes' InfraSolution S-700 Dual Security SmartCard and NumPad for two factor authentication to verify user ID. A rigid and durable alloy swing handle maintains reliable physical security and is combined with a sophisticated control panel with 2.8-inch touchscreen that has a keypad function.

The built-in smartcard sensor is compatible with MIFARE or proximity smartcards. LED colour modes on the smartcard handle indicate lock status, for example, locked, authorised unlock and unauthorised rack access. By connecting to InfraPower W3 version intelligent rack power distribution units (PDUs) with temperature and humidity sensors, the controller can also provide local monitoring on amp, plus temperature and humidity status.

The InfraSolution S-700 provides a solution that can be used to upgrade a myriad of third-party racks to create a reliable access control system. Supplied with free software (ISU-01), clients can change admin/user passcodes and assign smartcards with up to 50 user authentications per control panel.

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

Helping security installers ov their biggest challenges

A new generation of handheld tools means security installers can benefit from signi

The biggest trend affecting the security industry in recent years has been the switch from analogue to digital technologies. Installers now have to fit rapidly evolving equipment and obtain new knowledge to keep up with customer demand.

Productivity boost

There are numerous types of CCTV cameras, plus many different configurations and connection methods. 'Installing and troubleshooting IP security cameras using laptops is time-consuming and ineffective,' commented Tim Widdershoven, marketing director at TREND Networks. 'However, tackling challenges on the job is possible through a new approach to test equipment.'

The handheld TREND Networks SecuriTEST IP CCTV tester supports installers with features such as QuickIP, which enables novice technicians to connect and configure IP cameras quickly and easily. Even on complex installations, users may only need to use one tester, helping remove the need for in-depth training.

Where security installations use power over Ethernet (PoE), technicians need to verify that a camera has enough power to function. The compact PoE Pro tester from TREND Networks eliminates guesswork and installers can easily verify pass/fail – even without a full understanding of the various testing standards, device power outputs and cable lengths required for a device to operate successfully.

Network integration

Installers need to understand how network integration works in order to carry out an installation correctly and/or troubleshoot issues. It's important to verify that a network has the bandwidth to support cameras and prevent poor image quality.

The TREND Networks SignalTEK 10G tester can determine maximum bandwidth up to 10Gb/s and identify bottlenecks. Post installation, it can also troubleshoot Ethernet connectivity issues using diagnostic tools such as the 72-hour event log, which helps diagnose intermittent connectivity issues. During commissioning and maintenance, SecuriTEST IP can also be used for network troubleshooting and advanced testing requirements including cable tracing, length, wiremap and quality testing – removing the need for multiple instruments.

Changing use of cameras

Cameras are increasingly used for a wide range

ercome

TREND NETWORKS

ificant time and cost savings, says TREND Networks

of purposes such as numberplate recognition, access control and fire monitoring. Camera installations also aid compliance with Covid-19 policies such as social distancing.

'With outdoor cameras, installation can be especially complex when installers don't have the correct tools,' explained Widdershoven. 'Time is spent travelling up and down a ladder to check the angle on a laptop. In the case of a new network installation, or where building construction is in progress, set-up can often only be completed at a later date. This means returning to site when the IT infrastructure and computer room are in place to allow performance to be checked.'

Using a SecuriTEST IP tester, the whole installation can be completed, tested and documented, and it removes the need to return to site later. It is small, lightweight, doesn't require external power adaptors and injectors, has a 10-hour battery life and is operable with one hand.

Residential security boom

The global smart home security camera market size was valued at $3.71bn in 2019 and is expected to grow at a compound annual growth rate (CAGR) of 15.7 per cent to 2027, according to Grand View Research. However, residential customers do not always have the same understanding of how security systems work as commercial users, making it important to be able to clearly document an installation to prove performance and prevent unpaid call-backs.

SecuriTEST IP enables installers to document performance on-site, rather than filling in Excel documents to create reports. When an issue arises, proof of performance reports can demonstrate both camera images and network configuration, making return visits to site billable, especially in the case that the customer has changed the network parameters.

The right result

'With SecuriTEST IP, users have a simple, handheld tool that can replace an Ethernet cable tester, laptop, PoE injector, PoE tester, and reporting tool,' concluded Widdershoven. 'Plus, it connects first time without the need to change complex settings and delivers reliable test results. Supported by our suite of complementary test solutions, security installers can save huge amounts of time on every job and keep their customers happy.'

For more information and to buy TREND Networks' handheld testers now **CLICK HERE.**
www.trend-networks.com

Joining the dots

Steven Kenny of Axis Communications looks at the benefits of physical access control systems within smart environments, and how knowledge gaps and outdated methods can inhibit adoption

Physical security is becoming more dynamic and more interconnected as it evolves. Today's modern access control solutions are about so much more than simply opening doors, with digitalisation bringing multiple business benefits which would simply not be possible using traditional models. The transformation of physical security from a standalone, isolated circuit to a network enabled, intelligent security solution brings many benefits to the smart environment.

TO THE MAX

With more organisations now looking to bring their physical security provision up to date, there are many considerations that must be addressed to maximise the potential of access control and video surveillance. Not least of which is that connecting physical security devices to a network presents risk, so it is increasingly important for IT teams to play a role in helping to facilitate the secure integration of physical and network technologies.

$189bn is anticipated to be spent on smart city related initiatives globally by 2023.

These urban constructs are capable of reducing waste, driving efficiencies, optimising resources and increasing citizen engagement. Technology that is increasingly being incorporated to protect access points within the smart environment can take many forms. These range from simple card readers to two factor authentication systems, using video surveillance as a secondary means of identification, right through to complex networks of thermal cameras, audio speakers and sensors.

During the coronavirus pandemic, frictionless access control has provided an effective hands-free means of accessing premises, using methods such as QR code readers and facial recognition as credentials to prove identity. Frictionless access control brings health and safety into the equation, as well as the security of entrances and exits, minimising the risk of infection by removing the need to touch shared surfaces. Such systems can be customised and scaled to meet precise requirements. Yet, increasing integration with open technologies and platforms requires a collaboration between the worlds of physical security and IT in order to be successful.

BARRIERS TO ADOPTION

Traditional suppliers and installers of physical security systems have built up a strong business model around their expertise, service and knowledge. Network connectivity and the internet of things (IoT) present a constantly shifting landscape, requiring the traditional physical security vendor to learn the language of IT. Knowledge of open platforms, IP connectivity and software integration is vital in order to adapt to market changes and remain relevant.

Those who cannot adapt risk being left behind as the physical security landscape continues to shift and demand continues to increase. With end users and buyers looking for smarter, more integrated and more business focused solutions from their suppliers, it is clear that only those who are prepared will succeed in this space. Time will not stand still, and many are now beginning to realise that connected network enabled solutions are here to stay, particularly within smart constructs that rely on such technology by their very nature.

'The future of access control, and of physical security as a whole, will be dependent on the willingness of suppliers to implement new designs and new ways of thinking, based around high quality products, and to encourage installers and others in their supply chains to embrace this new world.'

CYBER HYGIENE

Connecting any device to a network has a degree of risk and it is therefore imperative that any provider not only understands modern connected technologies, but also the steps necessary to protect corporate networks. Cameras, access control systems and IP audio devices left unprotected can potentially become backdoors into a network and used as access points by hackers. These vulnerabilities can be further compromised by the proliferation of connected devices within the IoT. While the connection of devices to a network brings many advantages, there is greater potential for these devices to be used against the very business or industry they have been employed to protect when vulnerabilities are exploited.

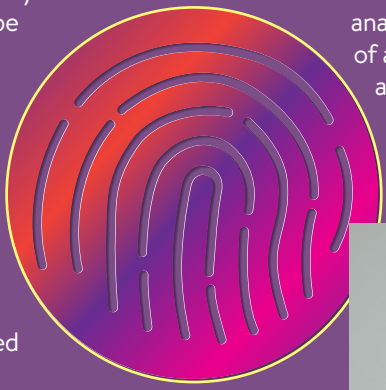
Cybersecurity considerations should therefore be a key factor in the development and deployment of new security systems. Access control technologies should be manufactured according to recognised cybersecurity principles, incident reporting and best practices. It is important to acknowledge that the cyber integrity of a system is only as strong as its weakest link and that any potential source of cyber exposure will ultimately impact negatively on a device's ability to provide the necessary high levels of physical security.

LOOKING AHEAD

There is a natural dispensation towards purchasing low cost solutions that are perceived as offering the same value as their more expensive equivalents. While some have taken the decision to implement such solutions in an attempt to unlock the required benefits while saving their bottom lines, the limited lifespan of these technologies puts a heavier cost and reputational burden on to organisations by their

association.

The future of access control, and of physical security as a whole, will be dependent on the willingness of suppliers to implement new designs and new ways of thinking, based around high quality products, and to encourage installers and others in their supply chains to embrace this new world. In addition, cybersecurity considerations are absolutely vital for keeping businesses safe. The integration of cyber secure technologies from trusted providers provides peace of mind around the safety of corporate networks and integrity of any deployed technologies.



SMART AND SAFE

As we move forward, access control systems will become data collection points and door controllers will become intelligent I/O devices. QR codes for visitor management and biometric facial recognition for frictionless access control will increasingly be managed at the edge as analytics in a camera or sensor. The future of access control presents an exciting and challenging time for those ready to accept it, to secure it and to help shape it – a true opportunity to innovate for a smarter, safer world. ■

STEVEN KENNY

Steven Kenny has spent 15 years in the security sector, taking responsibility for key elements of mission critical, high profile projects across a number of different vertical markets. For the last five years, he has focused his attention on how technology can best complement day to day business operations. Kenny is the director of systems, information and cybersecurity for ASIS International – UK Chapter, and is the UK technology advisor for TINYg Global Terrorist Information Network.

Living with your U

Aaron Oddy, sales engineer at Centiel UK, explains the benefits of working with a U partner that is hands-on, flexible and prepared to solve any challenges

Most new build uninterruptible power supply (UPS) installations are fairly straightforward, as they are often in data centres or large offices where space is not generally an issue. However, challenges tend to crop up when it comes to replacing legacy systems in older style buildings. Perhaps the critical load that needs protecting has grown, and the room that houses the UPS is small, with access restrictions.

Our survey says...

In these situations, an on-site survey is essential. As sales engineers, we assess the space to solve logistical challenges due to access, and these can be many and varied! For example, we've recently worked on a project where a telehandler was needed to deliver a UPS through a small hole in a wall at a secure facility, and another where the solution needed to be craned on to the seventh floor of a high-rise building. An upfront on-site survey can ensure all access challenges are solved well in advance, so the actual installation goes as smoothly as possible.

An on-site survey is also important when it comes to the room layout, as this needs careful consideration and advance planning. Although UPS occupy a relatively small footprint these days, their associated batteries do need sufficient space. For example, a string of batteries could weigh more than a tonne, so we need to ensure that the floor is going to be strong enough for this added weight. Bespoke battery racks can be developed and steel plinths installed under the floor to act as a weight bearing base.

Smart thinking

Intelligent room layouts are also critical for future ease of maintenance. Most UPS

JPS

PS

centiel
continuous power availability

solutions require front access for essential servicing, so engineers will always need enough room to work. This means it's not only about solving the installation challenges but also living with and maintaining the equipment over the long-term too!

We believe that also goes for your choice of manufacturer. Choosing a supplier who is hands-on, flexible, and prepared to solve any challenges and maintain equipment on an ongoing basis is essential.

We recently worked with a new client where a previous UPS reseller had provided a poor service. After it refused to return to site to inspect faulty equipment that had failed within just 18 months, we were brought in and asked to replace the entire system and maintain it for future resilience. It was key that this client had a reliable solution in place that offered maximum availability with the correct level of resilience.

For us, it's about working in partnership with our clients over the long-term. We make sure they have the best possible solution to meet their needs and protect their critical power now and in the future. We then maintain it for optimal functionality over its entire lifecycle.

Advice line

There is always an answer to every challenge regarding variable load, room layout or access, so we work with our clients as trusted advisors to develop UPS solutions that are tailored to their specific needs. This creates a win-win for us and our clients alike, as we know very well that we all need to live with the UPS solution that is installed for many years to come!

For further information about Centiel's range of UPS solutions **CLICK HERE.**
www.centiel.co.uk

Bluepoint Technologies appoints new business development manager and joins CCS Gigabit Capable Connectivity Framework

Bluepoint Technologies has appointed Chris Moss as its new business development manager. The appointment is the latest step in the company's plans for growth in 2021 and beyond, following significant investments in its digital footprint and marketing capabilities.


Chris Moss

A veteran of the telecommunications industry, Moss will bring over two decades of experience across a wide variety of sectors. This includes 16 years with Neos Networks in roles ranging from managing installations to business development manager and brand ambassador.

Speaking about his appointment, Moss said, 'I eat, sleep and breathe data cabling and the people at Bluepoint Technologies, from the engineers to the managing director, share that passion. I'm proud to have built many excellent relationships throughout the telecommunications industry and am excited to start talking to people about my new role, and how Bluepoint Technologies' portfolio of services can support them.'

Bluepoint Technologies has also been named as a supplier on Crown Commercial Service's (CCS) Gigabit Capable Connectivity Framework. CCS supports the public sector in achieving maximum commercial value when procuring common goods and services.

Trend Networks announces dedicated customer experience manager for Europe

Steve Slyne has been appointed customer experience manager for Europe at Trend Networks. In this newly created role, he will lead the customer service and technical support departments, ensuring distributors and end users have access to the dependable equipment, data and support they need. His key area of focus will be on providing a frictionless point of contact and consistently high level of service for existing and potential customers, regardless of their particular needs.


Steve Slyne

'Since joining the company I have been privileged to spend a great deal of my time with users of Trend Networks' equipment – from frontline technicians working in healthcare, to network engineers making commercial space travel a reality,' said Slyne. 'The applications and technology can be different but what remains constant is that professionals depend on our equipment and our people to support them when it matters most.'

Mark Norton joins CBRE's Data Center Solutions leadership team


Mark Norton

Mark Norton has joined CBRE as managing director of its Data Center Solutions Investor Leasing practice in the Americas. Norton, based in Boston, will work in partnership with CBRE's professionals to provide leasing services to the company's data centre investor and operator clients. He joins CBRE from Vertical Data Centers, where he was a founder and managing partner.

Prior to founding Vertical, he was a founding partner at EdgeCore Internet Real Estate, where he was responsible for fundraising, strategy, site acquisition, tenant engagement and marketing. Before that, he held roles with CoreSite Realty Corporation, Lincoln Property Company and Grubb & Ellis.

'Mark will help us differentiate our Investor Leasing service offering in the rapidly growing data centre sector,' said Pat Lynch, senior managing director data centre solutions at CBRE. 'We look forward to leveraging the expertise and insight he brings from working as a data centre developer, investor and operator to create exceptional outcomes for our clients, as we continue to invest in our data centre platform.'

ECS cardholders reminded of new Occupational Qualification Structure ahead of July renewals


Jay Parmar

The Electrotechnical Certification Scheme (ECS) is reminding ECS cardholders with a network infrastructure occupation that from 1st July 2021 all card renewals need to meet the requirements of the new Occupational Qualification Structure for the network infrastructure industry.

The Occupational Qualification Structure has been developed by a working group comprising the Electrical Contractors' Association (ECA), the Joint Industry Board (JIB), SELECT, CNet Training and a large group of employers. Setting the benchmark for new entrants to the market at Level 3, it crucially addresses the need to recognise professionals currently in the workforce that already benefit from hands-on experience, previous education and training, and industry recognised qualifications.

Jay Parmar, chief executive of the JIB, said, 'The new pathway clarifies the differences in education, training and experience for those already in the industry, and sets out a route for those entering the network cabling infrastructure industry. The JIB is delighted to have been involved in what we believe will mark a significant upturn in professionalism and competency.'

CNet Training continues to invest in installation and test equipment from Fluke Networks

CNet Training has had a professional relationship with Fluke Networks for over 20 years and continues to invest in the latest Versiv test equipment, alongside Fluke Networks' Gold Support. This provides CNet Training's network infrastructure learners in the UK and North America with a high quality, professional and technical learning experience.


Paul Gorman

Fluke Networks calibrates and tests CNet Training's equipment annually to ensure accurate measurements with reduced errors and recalls, giving learners the best experience possible. This also ensures that learners always have a 1:1-1:2 ratio on equipment.

Nigel Hedges, distributor account manager at Fluke Networks, said, 'CNet Training's commitment to training quality people for our industry is unquestionable. Furthermore, its commitment to training technicians and engineers to correctly use up to date installation and test equipment, and to maintain that equipment on a regular cycle to demonstrate the ongoing need for maintenance and calibration, is exemplary.'

Paul Gorman, technical development manager at CNet Training, added, 'National and international industry testing standards aim to ensure that customers are protected from bad installation quality delivered by a poorly trained and equipped workforce. Partnering with Fluke Networks has allowed us to set a benchmark that is respected by industry professionals who aspire to achieving a consistently high level of excellence.'

Networks Centre does the double with new operations in the Netherlands and Scotland

Following a difficult period for the industry in 2020, Networks Centre has come out of the blocks fast in 2021 and expanded its operations into the Netherlands and Scotland. Earlier this year it opened an office in Hilversum near Amsterdam and in July, following a comprehensive fitout, a new office, warehouse and trade counter was opened in Glasgow.


Duncan Lindsay

Duncan Lindsay, managing director at Networks Centre, has Scottish heritage, so this landmark in the company's progression carries extra meaning. He commented, 'Our expansion was planned to happen last year but everything had to go on hold. Now it's full steam ahead! We are delighted to have been joined by two very experienced country managers – Ronald van Ee and Richard Tait.'

Spa Communications boss completes Land's End to John O'Groats charity cycle ride

Long-time colleague of Inside_Networks and managing director of Spa Communications, Damien Wells, has completed the mammoth Land's End to John O'Groats cycle ride to raise money and awareness of deforestation in Malawi.

As well as conquering 960 miles and 44,806ft of ascent in 12 days, Wells has raised over £7,500 for sustainable tree planting in one of the 10 poorest countries in the world. The Mbedza Project Support helps households in rural Malawi plant 20 trees each and his efforts will provide 7,500 trees for around 20 villages to assist with sustainable reforestation. In a five year growing period, those 7,500 trees will remove around 650 tonnes of carbon from the environment.

Wells commented, 'This ride was also to commemorate my father, who was a keen sportsman and cyclist. He would have relished the experience.'

CLICK HERE if you would like to donate.

CHANNEL UPDATE IN BRIEF

Nutanix has launched the Nutanix Elevate Service Provider Program, further extending the benefits of the Elevate Partner Program to include service providers globally.

Riverbed has announced the appointment of Dan Smoot to president and CEO to drive the company's next phase of growth. Smoot, who has more than 30 years of experience holding top leadership roles including at Salesforce, Cisco and VMware, joined Riverbed in June 2018. At Riverbed he has held several executive leadership roles including, most recently, the position of chief operating officer.

Delphix has appointed Steve Barrett as its senior vice president of international operations. Barrett brings more than 20 years of experience in enterprise software and software as a service companies and joins Delphix from PagerDuty.

Sunil Kishore has joined NTT as senior executive vice president (SEVP) of its Managed Network & Collaboration Services division.

Quick clicks

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

Air Cooling Versus Liquid Cooling for Industrial Enclosures is blog from Karl Lycett of **Rittal.** **CLICK HERE** to read it.

How Are Colos Meeting Evolving Customer Requirements an online panel discussion from **Panduit** featuring David H Equinix, Emma Fryer of techUK and Michael Akinla of Pan **CLICK HERE** to watch it.

Leviton has published its latest Standards Report.
CLICK HERE to read it.

How DCIM Helps Utility Companies is a blog by Kavita Manral of **Schneider Electric.**
CLICK HERE to read it.

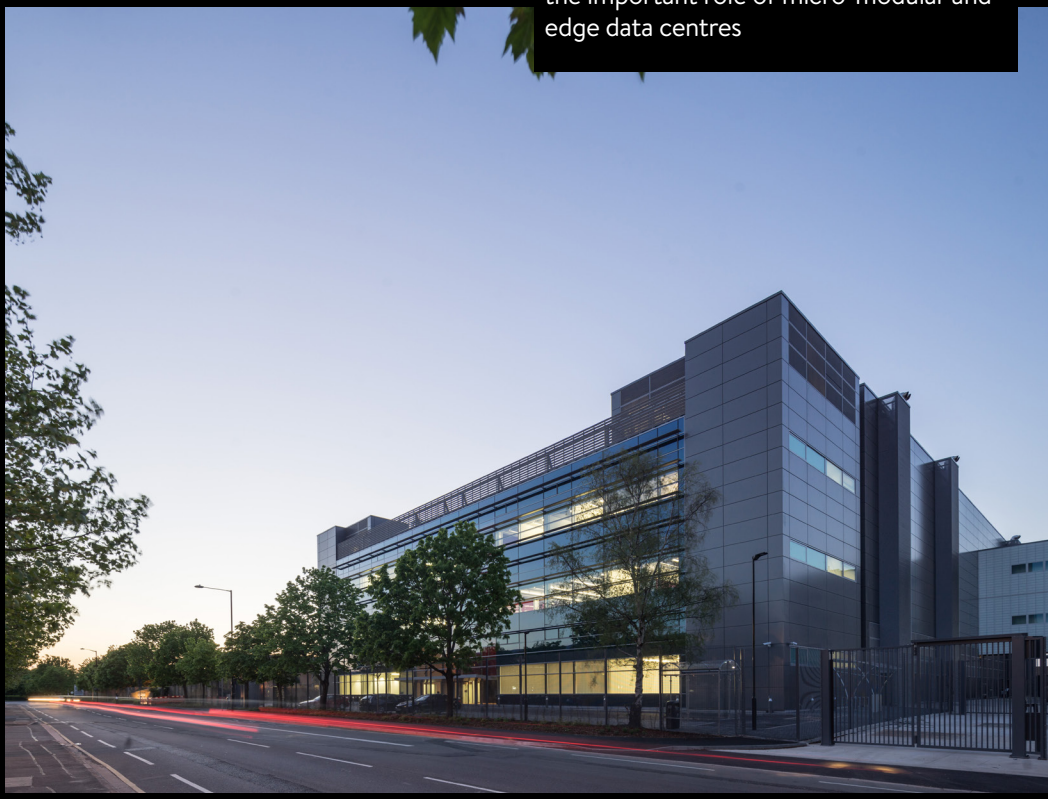
The Edge Outlook is a white paper from **Intel** that identifies edge computing as a critical factor that businesses must harness to both successfully navigate and understand data both now and in the future.
CLICK HERE to download it.

Why Your Cat 6A Has Stood the Test of Time – and Your Mobile Phone Hasn't is blog from **CommScope.**
CLICK HERE to read it.

The **Equinix** Tech Trends and Strategies Survey is available to download by **CLICKING HERE.**

Thinking outside the *box*

Russell Poole of Equinix explains how the internet of things (IoT) and the widespread rollout of 5G are highlighting the important role of micro-modular and edge data centres



Edge computing has been around since the late 1990s, with the advent of content delivery networks that deployed servers closer to users to reduce latency, improve performance and lower network costs. The edge is typically defined as the outside limit or the place where a change of status or control is encountered. From an IT perspective, that means the edge of an organisation's IT architecture where data is exchanged with users, partners and other systems. But it's a moving target.

MOVING WITH THE TIMES

The proliferation of the IoT and the widespread rollout of 5G are just two of the trends driving the need for data centres at edge locations. These technologies are dependent on data being stored, processed and analysed in real time.

The coronavirus pandemic has forced businesses to accelerate their digital transformations and adapt to the demands of dispersed workforces. This, in turn, has further exacerbated the need for edge data centres.

These growing data demands are forcing engineers to think creatively about the ways they design and develop data centres. Traditional IT infrastructures had centralised compute and storage resources that required data to be exchanged at the edge, which was then moved to the centre for processing. Edge computing reverses this process because it distributes compute and storage closer to the location where data is generated and consumed. However, a dramatic increase in data volume means that data centres at the edge will need to evolve to support demand.

POINT OF PRINCIPLE

On the surface, many fundamental design principles and practices have remained consistent as data centres have evolved over the years. Operators are primarily focused on uptime, but they also continually seek to optimise data centre operations and incorporate best practices. The main aim is to deliver improved efficiency, resiliency, flexibility, security and value.

Traditional data centres focus on maximising space and power to support large deployments that need to scale up or down quickly. Edge computing demands a different approach. Emerging technologies, such as artificial intelligence (AI), embody the intersection of latency sensitivity, large data volumes, critical workflows and a level of distribution not previously delivered on a wide scale. Addressing requirements for applications such as these requires a greater level of analysis, operational understanding and practical know how when compared to existing models of support.

THE DETAIL IS IN THE DESIGN

Regardless of purpose, data centre design is moving toward a standardised, modular approach for both big and small buildings. Custom built facilities give significant

control over the overall design but they also entail significant capital investment and require longer provisioning times. Without standard design and operational practices, a custom approach can also lead to operational and maintenance risks. In contrast, proven data centre design principles that work together in a modular manner enable facility owners to quickly provide solutions that are flexible to business needs.

Flexible data centre design uses a standard catalogue of elements that can be adapted to individual site requirements, without compromising on quality. Common parts ensure supply chain and capital cost efficiencies, while also providing long-term maintenance predictability. This means higher uptime/availability and significantly lower operating risk across people, parts and procedures.

Any space on a data centre floor not dedicated to providing IT services is a lost opportunity – it's not making money for the owner and it prevents other tenants from interconnecting their services with partners. Standard designs minimise the whitespace, while ensuring that proven designs and best practices are used regardless of intended use, location or construction contractor. This approach ensures the maximum use of space and increases scalability, predictability and flexibility for every tenant deployment. Maintenance and other data centre services can also easily be incorporated in programmatic blocks of density, while on demand and planned service operations can continue without risk to neighbouring tenants.

'The edge is typically defined as the outside limit or the place where a change of status or control is encountered. From an IT perspective, that means the edge of an organisation's IT architecture where data is exchanged with users, partners and other systems. But it's a moving target.'

PLAN OF ACTION

The significant growth in data intensive applications means that the network and data solutions we have today must evolve or be left behind. As a result, the nature and role of the edge data centre is evolving too. Previously, large hub data centres in major cities were considered to be at the edge. Today, those same facilities are considered to be the regional core. The evolving edge is one that requires an even more finetuned approach and a new set of very small, typically unstaffed facilities that can support these new data and traffic intensive technologies. These are known as modular edge data centres.

Key design principles for these types of facilities include a consistent approach to manufacturing to dramatically reduce variability from site to site. This delivers time to value for tenants and affords operating and maintenance efficiency. The modular design of these sites is flexible, so it can meet local business needs while reserving the ability to contract or expand as operations demand.

It also allows enterprises to deploy core infrastructure where it matters for the application, including edge proximity, which commonly means densely packed, space constrained locations. An interconnection and connectivity forward design will also deliver against the data intensive role the edge plays in demanding modern workloads. These types of data centre also offer an energy solution that delivers resiliency, redundancy and a responsible approach to sustainable operations.

DEMANDS OF THE FUTURE

New and developing data intensive technologies were already paving the way for modular and edge data centres, but the pandemic has exacerbated the need for these models. In order to remain competitive, it's critical for data centre companies to continue to invest in their platforms, to ensure they do not just cater to the data demands of today, but also the significant data demands of the future.■

RUSSELL POOLE

Russell Poole joined Equinix as managing director for the UK in 2007 through the acquisition of IXEurope. He has extensive experience in the UK telecommunications and internet industries and has worked with global financial institutions to enable their electronic trading infrastructures in London and to/from other key markets. Since joining Equinix, he has overseen the growth of the UK company.

Panduit

Panduit's FlexFusion custom configured cabinets meet the specific needs of any environment. With the growth of edge data centres and colocation sites, these arrays must not only be flexible in their design, but also be configured for specific environmental and equipment needs that push the limits for maximum cooling and cooling efficiency.

FlexFusion cabinets provide a single universal platform for all types of data centre and enterprise service needs including hyperscale, edge and multi-tenant facilities. Built with a best in class weight load of 3,500lbs and doors with a maximum airflow of 80 per cent, FlexFusion can accommodate the most complex cabinet installations. Whether it's servers, networks or hybrid applications, FlexFusion enclosures deliver performance that allows optimum operation in any network environment, with sizes from 600-800mm widths, 1070mm and 1200mm depths and a range of heights from 42-51RU.

A configuration tool to select a standard or preconfigured turnkey bay including size, colour, number of luggage racks, and types of locks and handles is available via the Panduit website.

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

Secure IT Environments

Secure IT Environments is a leading UK designer and builder of data centres. Its ModCel and ModCelEdge data centres offer customers a fully bespoke design, delivery and installation service based on an innovative energy efficient and re-deployable design.

Available in containerised, micro and mini formats, the design meets the standard expected of any primary or critical data centre, disaster recovery facility or edge data centre. This includes those that need to be secure in remote unmanned locations and/or are exposed to the elements.

A wide range of mechanical, electrical, security and cooling options means customers can expect the same performance as a traditional build in a self-contained unit, with the benefits of rapid build and deployment times, space efficiency, scalability, cost savings and flexibility. ModCel can comprise external standalone units or be placed inside other structures – even under desks. Containerised models can be stacked up to 9m high.

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

Corning Optical Communications

From mainstream data intensive applications to emerging applications such as artificial intelligence, organisations globally are establishing edge data centres to enable a high quality of service combined with low latency for their users.

Edge computing is a necessary part of a sustainable networking future, a key enabler of future technologies and a driver of cost efficiencies for data centre operators. That's why Corning supports customers with a full suite of products catering to every edge data centre need – from pre-terminated Base-12 EDGE and Base-8 EDGE8 solutions, to our LAN1 housings and pre-terminated multi-fibre assemblies for quick and easy deployment.

Our rugged, pre-terminated cabling solution, Corning EDGE Rapid Connect, saves up to 70 per cent on installation time when installing trunk cables between data centre buildings, while offering industry leading density. Furthermore, CleanAdvantage technology ensures a pristine end face upon first use, preventing the need for consumables to save even more time and money.

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

Siemon

To fully realise the potential of new technologies including 5G mobile networks, telehealth, autonomous vehicles, online learning and business collaboration, we still need to overcome some key technical limitations – primarily latency. Edge data centres have emerged as the best viable option to combat this.

How to Harness the Edge Data Center is a new joint webinar by Siemon and Stulz that explores the evolving edge data centre environment. It looks at how these facilities are mitigating many of the application performance and reliability issues that can be seen today by reducing the distances between end users, their devices and the IT resources that support them.

This deep-dive session examines the cooling and physical layer infrastructure technologies that are available, as well as the key considerations and standards you need to be aware of to successfully implement them into your overall data centre strategy.

To watch the webinar on-demand
CLICK HERE.
www.siemon.com

Secure Power

Micro-modular solutions and the need for even greater flexibility are key priorities for the industry, as businesses look for more 'scale as you grow' options that not only deliver on resilience but also efficiency. Understanding the real benefits of modularity and what can be achieved with modular options is key to meeting power protection strategies.

Secure Power is a long standing partner of Socomec, which offers a three phase rack mountable modular solution that is ideal for micro-modular environments. Offering as little as 25kW N+1 up to 75kW capacity solutions between 9-15U of rack space, the MODULYS GP configurations can significantly reduce mean time to recovery (MTTR).

For more information about Socomec's modular UPS systems and other products and services that Secure Power offers **CLICK HERE** or call 0800 080 3118. **www.securepower.com**

Proximity Data Centres

Proximity Data Centres' UK network of regional edge colocation data centres meets individual customer requirements – from specific regional data centre services to multi-site rollouts. Proximity's edge data centre network serves major conurbations in the North, North West, Midlands and South Wales. These will be joined by sites in the Thames Valley, Surrey and West Midlands over the summer. A total of 20 sites will be available nationwide within the next 12-18 months, reaching 95 per cent of the UK population.

These high capacity, scalable and extremely resilient Tier 3 facilities enable enterprise businesses, cloud and content providers to maximise competitive advantage through reduced latency and data transit costs, enhanced operational efficiency and more responsive customer service. Full on-site support, transition and onboarding is provided, along with server migration services and a straightforward contract with a single set of service level agreements (SLAs) covering one or multiple sites.

ISO 9001, ISO 14001 and ISO 27001 compliant, all of Proximity's data centre grid electricity is sourced from 100 per cent renewable providers.

For more information call 03300 250138, **CLICK HERE** to send an email or to visit the website **CLICK HERE. proximitydatacentres.com**

Chatsworth Products (CPI)

Based on its successful RMR Nema Type 12/IP55 industrial cabinet and enclosure product set, CPI has developed a range of Micro Data Centre (MDC) solutions that provides a purpose built data centre comprising one or multiple IT cabinets with integrated cooling, power monitoring and environmental monitoring. An additional option for fire detection and suppression is also available.

The modular design of CPI's MDC solution allows for expansion and flexible mobility for changing locations, therefore removing the need to build new IT infrastructure facilities. Its custom design also adds to its functionality in supporting traditional internet of things (IoT) and industrial IoT applications, whether tucked away on the floor, wall-mounted to save space or fully branded for exposure in high pedestrian locations.

CPI has worked with numerous technology partners to deliver MDC solutions into a range of applications in numerous countries around the world.

For more information **CLICK HERE.**

www.chatsworth.com

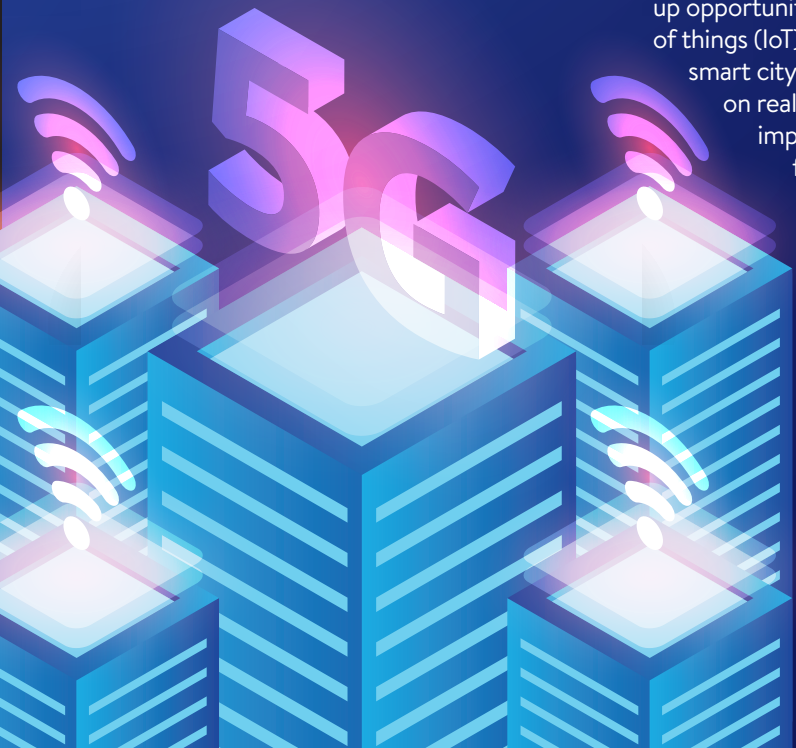
Pillar of strength

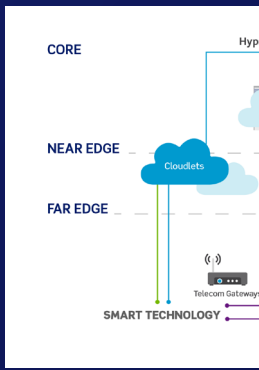
Dave Mullen of Leviton examines the networks that support micro-modular and edge data centres

Looking back 8-10 years ago, the cloud was the big topic when it came to data centres. Today it is the edge that is garnering the hype and press coverage. While it may seem like a buzzword, edge computing is a very important development. As more and more devices around us become connected and require near instant feedback – from traffic sensors to smart watches and beyond – the latency or time delay for data to transfer needs to be much shorter. This simply can't be addressed without bringing computing power to data centres at the edge of the network, closer in proximity to where connected devices are located.

NEAR THING

The biggest catalyst for the growth of edge data centres comes from emerging 5G cellular technology. 5G is opening up opportunities for new internet of things (IoT) applications and smart city technologies that rely on real time data, such as improved automation in factories and buildings, flow of pedestrian traffic in dense urban areas or sporting events,





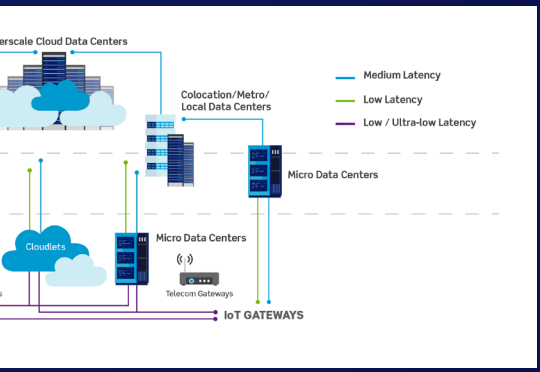
and even responsive autonomous vehicles in the future. 5G is creating a complex digital transformation that will converge telecom and IT networks, and edge data centres will be needed to address the lower latency and higher bandwidth requirements that 5G brings.

In general terms, the medium latency for data transmission from an end device to a centralised or hyperscale cloud data centre can be around 20 milliseconds or longer. When moving data storage and processing to the edge, latency can drop to 10-15 milliseconds. This is considered low latency.

This may seem fast – for reference, our brains need about 13 milliseconds to recognise what our eyes see. However, some emerging IoT applications for on premises networks such as factory assembly lines require ultra-low latencies that drop down to five milliseconds or less. Low and ultra-low latency performance can only be accomplished with an architecture where edge and traditional cloud data centres work together by sharing processing power and reducing latency for when applications require it.

DEFINING MOMENT

The definition of edge can be a little fuzzy, but a good general definition comes from James Stranger, the chief technology evangelist at CompTIA. According to Stranger, the edge is 'the practice of capturing, storing, processing and analysing data near the client, where the data is generated, instead of in a centralised data processing warehouse'. Thus, the data is stored at the edge of the network, rather than always with a traditional hyperscale cloud data centre.



Not all edge data centres look the same. Near edge data centres could take the form of a 'cloudlet' or small scale cloud data centre that moves some resource intensive computing closer to the edge. Similarly, small data centres used by colocation and service providers could serve that edge location role. These dedicated facilities even have the power, cooling and security commonly associated with a traditional data centre and might host 10-100+ cabinets. They might be typically found in second tier or mid-size cities with less than a million people and offer low or medium latency.

Far edge data centres are located in even closer proximity to users and end devices, with the goal of providing low to ultra-low latencies at five milliseconds or less. These tend to take the form of micro data centres or very small data centres ranging in size from a half rack height up to five cabinets. They are versatile solutions that could be located in a warehouse, wiring closet or remote site – anywhere on premises to support workloads that are critical to a business.

DATA RATES

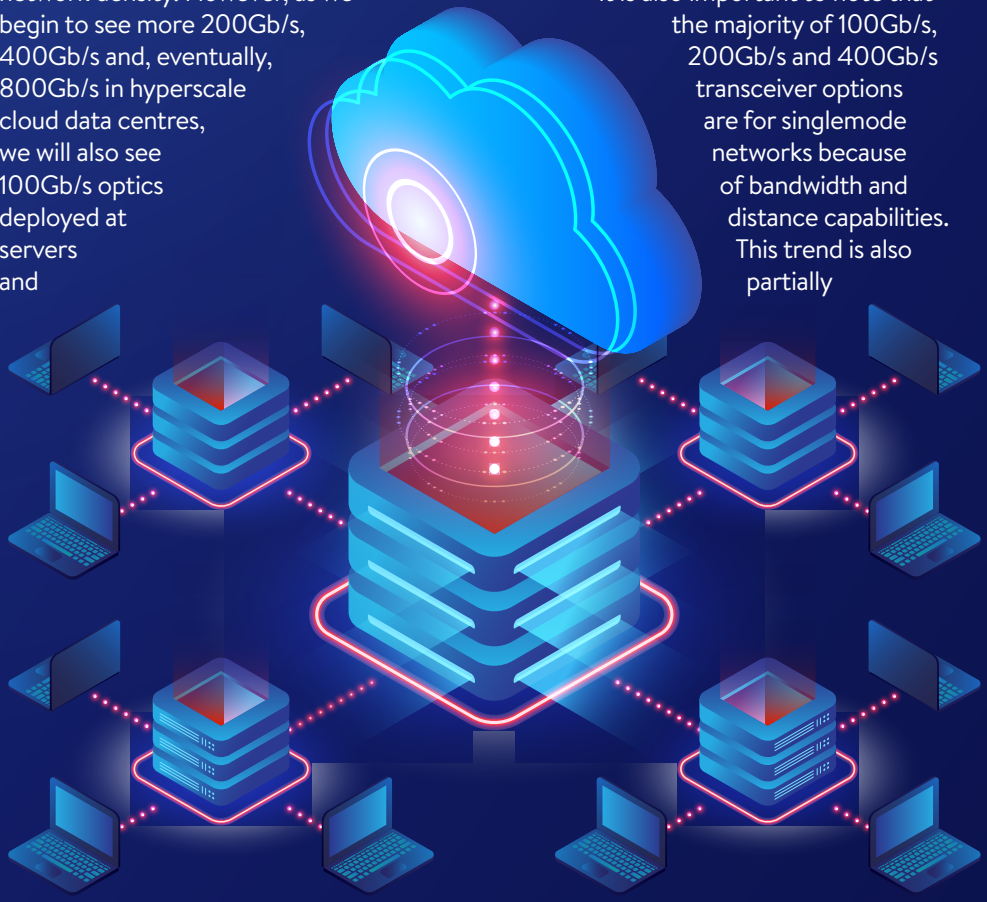
It is important to recognise that the effect of 5G deployments goes beyond adding more edge computing – it also places more strain on the core cloud computing

performed in centralised data centres. Roughly 90 per cent of data is still processed in these facilities and 5G will speed up the introduction of 400Gb/s and 800Gb/s optics and switches in hyperscale and cloud data centres as a way to move data faster.

400Gb/s switch options entered the market fairly recently, introduced by manufacturers in late 2018 and early 2019, and adoption took off in 2020. The new 400Gb/s switches, based on 12.8Tb/s chips, provide much faster speeds and greater network density. However, as we begin to see more 200Gb/s, 400Gb/s and, eventually, 800Gb/s in hyperscale cloud data centres, we will also see 100Gb/s optics deployed at servers and in edge data centres. 100Gb/s is now a fundamental building block in data centres, and there will remain a strong demand for 100Gb/s in the near future. According to the IDC Quarterly Ethernet Switch Tracker, Q3 2020 port shipments for 100 Gigabit Ethernet switches rose 35 per cent year over year.

It is also important to note that the majority of 100Gb/s, 200Gb/s and 400Gb/s transceiver options are for singlemode networks because of bandwidth and distance capabilities. This trend is also partially

'As micro data centres are sometimes located in more exposed or even ruggedised environments, cabling and connectivity should be robust and protected within the rack.'



a result of the decreasing cost of singlemode optics, prompted by their adoption by cloud companies with major purchasing power and recent standards committee activities that specify more singlemode options for higher speeds. As this trend continues, centralised and near edge data centres may find singlemode solutions to be more enticing.

MIX AND MATCH

Networks for micro data centres use a combination of copper and optical fibre cabling, usually with copper connectivity and fibre uplinks. As micro data centres are sometimes located in more exposed or even ruggedised environments, cabling and connectivity should be robust and protected within the rack.

These data centres may not have back-up power or the high levels of security, fire detection or cooling that are all part of a centralised data centre. Secure connectors and assemblies that lock into ports might be a greater priority, along with locking cabinets and additional security. And as micro data centres are often distributed in more remote locations, intelligent port management may be helpful in monitoring networks from a central location.

PHYSICAL ATTRIBUTES

Ultimately, edge and micro data centres can end up having very different requirements than large data centres. These differences include the physical infrastructure and there are numerous considerations. Is there existing structured cabling that you are integrating into? Is it singlemode or multimode? Is trunking required? Guidance from structured cabling manufacturers and consultants can help you navigate this new edge data centre frontier. ■

DAVE MULLEN

Dave Mullen is senior product manager fibre and data centre at Leviton. With nearly 20 years of experience working in fibre optics, and more than 10 years of experience in the electronics sector, he has had a hand in bringing many of Leviton's recent fibre optic solutions to market. Mullen currently supports two TIA fibre optic committees – TR-42.11 Optical System (568) and TR-42.12 Optical Fibers and Cables.

Global Technical Realty and KKR announce development of UK data centre campus

Global Technical Realty (GTR) has reached an agreement with SEGRO to develop a data centre campus in Slough, UK, to meet demand from high growth global technology companies. Upon completion it will be the largest in the area with a total IT load of 40.5MW. This represents GTR's first investment in the UK since the company was launched last year by KKR and Franek Sodzawiczny.

The development will be delivered in two phases and is expected to be fully operational in Q4 2022. The site will comprise three independent data centres capable of operating individually, or as one interlinked campus, designed and developed by SEGRO to GTR's specifications. Each building will accommodate over 5,375m² of net technical area and 13.5MW IT load. It is expected the project will create 200 jobs during construction, plus a further 80 permanent roles on completion.

GTR was launched to design, build and operate bespoke data centres across Europe for large technology clients, meeting growing demand for third-party data centre provision amid ever-increasing growth in data usage and cloud adoption. Franek Sodzawiczny previously founded Zenium Data Centers, which was acquired by Equinix and CyrusOne Inc. In Europe, GTR also has a further capacity of 94MW of power under development across Tier 1 and Tier 2 markets and expects to open its first data centre in Latin America next year, with another location in the Middle East also planned.

Magna Carta Island protected by TP-Link's security cameras

Magna Carta, which means The Great Charter, is one of the most important documents in UK history. It established the principle that everyone is subject to the law and guarantees the rights of individuals, the right to justice and the right to a fair trial. Signed by King John at Runnymede, on the River Thames near Windsor, on 15th June 1215, Magna Carta Island sits in the river opposite Runnymede Meadow where, according to historians, the rebellious barons camped ahead of the deal.

TP-Link is set to install state-of-the-art cloud managed business class wireless network from its Omada range at the site. In the main house, home to the unique document, Vigi cameras will be installed as part of the security precautions, to ensure the documents' safety for future generations. These cameras will provide surveillance day and night. Feeds can be monitored in real time via the app, while it is as possible to scroll back through recordings.

Lenovo expands leadership class HPC system at Leibniz Supercomputer Center

Lenovo Infrastructure Solutions Group, Intel and the Leibniz Supercomputing Centre (LRZ) of the Bavarian Academy of Sciences and Humanities, have announced Phase Two of the LRZ's SuperMUC-NG supercomputer. The system will deliver high performance integrated solutions to the LRZ user community, utilising artificial intelligence (AI) to implement advanced simulations, modelling and data analysis that will accelerate research to help solve humanity's greatest challenges.

Since SuperMUC-NG Phase One was launched, practitioners have used the supercomputer not only for traditional simulation and modelling, but also to automate image and pattern recognition in planet observations, climate data from satellites, medical visuals and health records, and data demographics. Given the successful utilisation of SuperMUC-NG in these projects, the demand for high performance data analytics, machine learning and fast memory performance has further increased.

To meet these demands and ensure researchers are supported, SuperMUC-NG will now be enhanced with next generation Intel Xeon Scalable processors and Intel's upcoming high performance computing (HPC) GPUs based on the Xe HPC architecture.

PROJECTS & CONTRACTS IN BRIEF

Hyperoptic has selected network testing technology from Exfo to support its ambitious expansion plan across the UK.

Maintel and Avaya have enabled The Telegraph Media Group (TMG) to transition from an on-premise telephony solution to a cloud based UCaaS system.

Proximity Data Centres is collaborating with Zayo Group to deliver a high capacity low latency fibre network to businesses located in the north west of England, allowing a range of high speed services to be delivered including ultrafast broadband connections.

Neos Networks is unbundling a further 201 exchanges. This is part of a rapid expansion programme to have 550 exchanges on-net by the end of the year, with capacities of up to 10Gb/s and 100Gb/s.

Toyota Motor Corp has adopted the Nutanix cloud platform to build a virtual desktop infrastructure (VDI) environment that can run 3D CAD software.

UtterBerry has developed innovative 5G technology that will transform Welsh farming and tourism thanks to funding and support from the Department for Digital, Culture, Media and Sport and the Welsh Government.

R&M

R&M is launching the first complete Single Pair Ethernet (SPE) system, consisting of connectors and connection modules, installation cables and patch cords. Just two copper wires are required for signal and data transmission, instead of eight, or one wire pair can be used instead of four. SPE cabling can also supply terminal equipment with power.

SPE cables are thinner and the connectors smaller than traditional LAN cabling. Large numbers of small devices and sensors in buildings with data networks and the internet can be connected without any problems using SPE cabling. This opens the door to internet of things (IoT) applications.

The SPE system from R&M offers a transmission range of 600m. R&M offers two connector systems – LC-Cu in compliance with IEC 63171-1 for structured cabling and building automation, and MSP in compliance with IEC 63171-2 for the industrial environment.

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

HellermannTyton

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

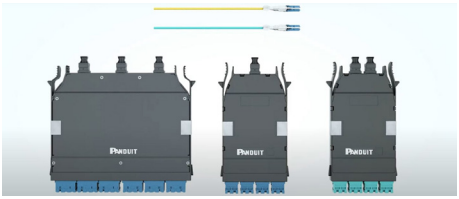
From the moment fibre optic cable enters the building, HellermannTyton's products come into their own. The S5 MDU enclosure will distribute any incoming fibre to the comms room or to multiple zones in the building. From the comms room, HellermannTyton has a number of copper and optical fibre solutions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

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

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

Panduit

High speed optical fibre applications have become omnipresent in today's high performance data centres, requiring enhanced capabilities at the rack level. Panduit's CS Connector is a next generation high density fibre connector solution that optimises the data centre environment.



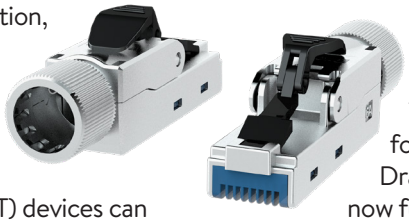
The CS Connector solution provides 50 per cent greater port density per RU, used in Panduit's HD Flex Cabling System, and doubles the density in QSFP-DD and OSFP transceivers compared with LC connector solutions. Using CS Connector based solutions allows up to 216 connections, compared to 144 connections using LC connectors, in the same space. The CS Connector therefore supports the reduction in connectivity footprint within hyperscale, multi-tenant and large data centre environments.

Panduit is a founding member of the CS Consortium – a vendor neutral organisation dedicated to educating end users and design consultants on the technical merits of the CS fibre connector solution. The CS connector is set to become an increasingly popular choice following its adoption within QSFP and the Consortium for On-Board Optics (COBO), as well as its recent progression as a new TIA connector standard – TIA 604-19/ FOCIS-19.

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

Draka

As construction increasingly looks to create smart buildings to offer health, wellbeing and convenience benefits to occupants, upping the intelligence of physical spaces is accelerating. For installers to remain competitive in this rapidly evolving situation, being able to offer an immediately deployable solution is vital.



Crucially, many internet of things (IoT) devices can now be powered within the 72W defined by IEEE 802.3bt – leading to the recent exponential growth in the requirement for stated power over Ethernet (PoE) performance from copper cables. Category 6A is the de-facto PoE cabling infrastructure and core architecture of digital buildings. It carries electrical power to any device on a network, with no telecommunication outlet or patch cord needed, and can power wireless access points, door entry, CCTV, emergency lighting and wellbeing sensors.

Recognising this, Draka has launched the new modular Category 6A STP Field Termination Plug, especially for PoE applications, making the Draka Universal Cabling System now fully PoE++ compliant in all structured cabling designs. It's available through the existing Draka distribution network. By including it within electrical designs, Draka partners will be covered by the 25-year Prysmian Group Warranty.

For more information **CLICK HERE.**
mms.drakauk.com

All you need to know

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Riding the wave

Daniel Cooper of Lolly.Co examines the ways businesses can drive growth through the latest digital solutions

It's a fundamental ambition behind every business – keep up with the bigger, more agile competition. The struggle to overcome disruption is forecasted to accelerate alongside technology's innovations, and only the most profitable firms can adopt the latest digital solutions, leaving those unable to afford them in their wake. But implementing a new piece of tech is not enough to survive the turmoil of disruption. The coronavirus pandemic has reaffirmed the notion that, in order to survive, businesses need to incorporate the latest technologies into their arsenals.

HEART OF THE MATTER

If they want to grow, they need to leverage the most up to date digital solutions and evolve with them. At the heart of this are data centres and network infrastructure. However, the reliance on legacy network architecture and outdated data centres weakens the potential of a business' fundamental tools and technologies.

As more businesses take on the challenge of digital transformation, some will fail to keep their heads above water. This by no means alleges that traditional ways of working are redundant – indeed, private sector businesses will maintain their basic principles and practices, and will simply need to reinvent them with the right technology. The future will not ditch tradition but will instead streamline it and amplify its results. Reinforcing data centres and network infrastructure with flexibility opens up the potential for the latest innovations including cloud computing, cloud data storage, internet of things (IoT) technologies and remote working – to name just a few.

THE MODERN WORLD

Digital transformation requires updated

business models and processes. Finding the capacity for innovative digital solutions and subsequently rescaling them in the future requires a fundamental IT infrastructure to be able to support it. That's why digital transformation must start by updating a business' data centre and network infrastructure.

Data centre facilities that rely on legacy systems, for example, will have growing power and cooling needs. This equates to high costs, operational inefficiencies, fundamental gaps in data security and the inability to keep up with the growth of data volumes.

The other flip of the coin affirms the potential costs of limited network infrastructure – legacy architecture prevents innovative new technology from being adopted. These networks facilitate mobility, cloud computing and IoT technologies. These are key digital solutions leveraged by a vast majority of organisations as a part of their transformation.

> 'Enterprises that fail to meet the new standards of operating will cease to operate at all, while the need to readily adopt the latest technology and maintain the incorporation of new digital solutions on a regular basis will only grow.'

CLOUD COVER

One example of this modernisation process lies in cloud data storage. As online traffic continues its upwards trajectory, the volume of data that is shared, collected and then stored increases. According to Digital Nest, 80 per cent of this data is managed by businesses and is now essential to guiding a business strategy.

This data is chiefly used to navigate marketing projects but it is also harnessed to elevate the quality of customer service and score more conversions. The benefits claimed are vital to growing a business, with lower costs, higher revenue and new areas of profitability expanding the number of opportunities available.

But just as using this data is essential to success, storing it is key to streamlining productivity and facilitating the latest digital innovations. Numerous tech giants have already brought cloud data solutions under their belts, with Google and YouTube reaffirming that this solution is firmly established in mainstream business processes.

OPPORTUNITY KNOCKS

Data cloud storage provides vast opportunities including allowing employees to access data and documents from anywhere in the world, secure data through frequent back-ups and security measures, and even supply collaboration tools. These solutions match the sudden shift to remote working and are being adopted to meet the new demands of working from home.

By readily implementing a modernised

solution like cloud storage, a business can adopt even newer technologies and evolve an entire IT system over time. Beyond providing support for new technologies, the cloud ensures organisations have access to the insights required to compete, grow and then overcome disruption.

REMOTE CONTROL

The pandemic has reinforced the need for cloud based solutions that bring remote teams together. Flexible network infrastructures and cloud data storage has facilitated this shift to tools and technologies that provide instant communication, ease of access to documents and simplified collaboration.

And as remote and hybrid working becomes mainstream, sourcing the latest technologies that push productivity and collaboration forward becomes essential. A whole new realm of possibilities has been unveiled. New digital solutions are being created to maximise the opportunity at lightning speed, echoing the need to stay up to date with them or risk losing out to more efficient competitors.

With a number of benefits further embellishing improved productivity – including the potential of a global team and lower costs due to remote working – this supercharged efficiency can reveal new levels of untapped growth. In fact, a study by PTC found that 40 per cent of executives agree higher operational efficiency is the greatest benefit of digital transformation. And with most small businesses sketching their digital transformation around higher productivity, it is now a necessity as a basic means of survival.

MAKE THE CONNECTION

Network infrastructures are at the root of connected technologies. IoT technology has vast possibilities and can be matched to a number of sectors for different purposes. As much as businesses rely on agile data centres, IoT solutions rely on data regarding internal systems and products to drive higher efficiency. This, in turn, leads to data driven insights that drive change in an organisation and opportunities for growth can be secured

by higher productivity, lower costs and new revenue streams.

Take wearables, for example. By having factory workers wear devices armed with IoT capabilities it is possible to collect real time data regarding individual processes, identify areas of improvement and power decision making with new insights. The IoT provides relevant data into operations and ensures operations evolve over time, meeting the standards set out by disruptive competitors and ensuring a business can adapt, evolve and then grow.

NEW AND IMPROVED

Business leaders have matched the anticipation for new technology displayed by the consumers they chase, deploying digital solutions to ever-evolving trends unleashed by the pandemic. Enterprises that fail to meet the new standards of operating will cease to operate at all, while the need to readily adopt the latest technology and maintain the incorporation of new digital solutions on a regular basis will only grow. In order to meet this growth, fundamental IT systems must match the agility of digital transformation. ■

DANIEL COOPER

Daniel Cooper is a former trader, programmer and serial entrepreneur who streamlines businesses across the globe through the use of technology and automation. With a team of engineers, analysts and consultants working alongside him at Lolly.Co, Cooper is on a mission to help as many business owners as possible ride the wave of technology – turning sluggish companies into fast paced technology backed enterprises.