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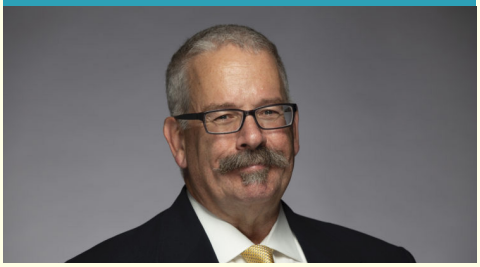

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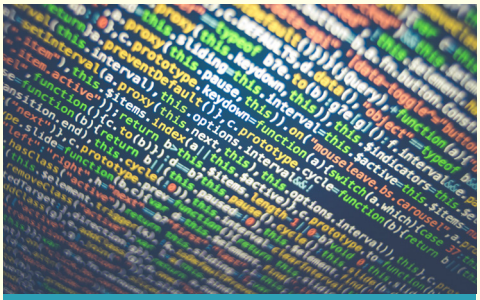

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NCI® Apprenticeship in a Box

Network Cable Installer (NCI®) Apprenticeship in a Box

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Funding Value: £9,000
Delivery Method: Flexible block release
Content: Timetable is available

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Onwards and upwards

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CHALK HILL MEDIA

Although the coronavirus pandemic continues to dominate the news headlines I'm pleased to have had a number of positive and, indeed, optimistic conversations with some of those providing products and services in this industry. This 'can do' attitude has been inspiring and will go a long way in ensuring a speedy recovery.

In this issue's Question Time we return to a subject that has been a cause for concern for as long as I can remember. The skills shortage and lack of people choosing to build a career in this sector is an ongoing problem, and one that is clearly not being successfully addressed.

Although some organisations – take a bow CNet Training – are doing a huge amount to try to rectify the problem, clearly more needs to be done. To find out what, we've asked a panel of experts to identify how to attract high calibre people and, just as importantly, whose responsibility it is to raise awareness of the opportunities on offer. You can read their responses by **CLICKING HERE.**

The current climate, along with the growth in online streaming, the internet of things and the huge amount of data being produced means that edge data centres are on the rise. We have two articles on this subject and, in the first, Manfred Berger of Western Digital explains how demands on bandwidth, latency and storage mean that the traditional data centre is being challenged. In the second and old friend of Inside_Networks, Alberto Zucchinali of Siemon, takes a look at the IT infrastructure required to best support edge data centres. **CLICK HERE** to read Manfred's article and **CLICK HERE** to read Alberto's.

We also have a special feature dedicated to security and access control. Mark Campion of NGD explains why there's much more to data centre security than meets the eye, while Iain Moran of ATG Access looks at the importance of physical data centre security in protecting information and assets. You can **CLICK HERE** to read Mark's article and **CLICK HERE** to read Iain's.

With much more besides I hope you enjoy this issue of Inside_Networks. Stay safe and look after each other.

Rob Shepherd
Editor

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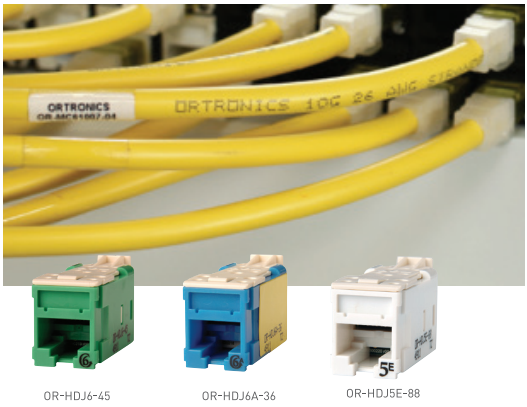

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5G outlook remains positive despite pandemic

The long-term outlook for 5G adoption remains bright and the market will experience little lasting damage from the coronavirus pandemic, according to a forecast by CCS Insight. Although the projections for 2020 and 2021 are lower than before the pandemic struck, an increase in the long-range forecast now means that global 5G connections are expected to pass one billion in 2022, before surging to 3.2 billion by the end of 2025. This will be equivalent to nearly one mobile connection in every four throughout the world in 2025.

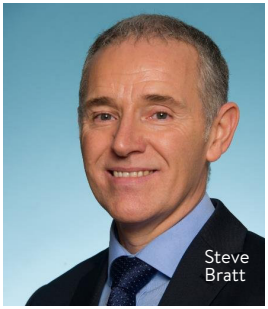

Marina Koytcheva

The current crisis will have only a moderate effect on adoption, caused by relatively minor delays in the rollout of 5G networks. These trends will be partially offset by widespread availability of 5G smartphones and accelerating momentum for 5G in China. An important assumption in CCS Insight's forecast is that the global mobile phone market will make a full recovery by 2022, with shipments exceeding those in 2019.

'The arrival of new chipsets and fierce competition in the shrinking global mobile phone market will lead to a quick introduction of 5G in more moderately priced smartphones in 2020,' remarked Marina Koytcheva, CCS Insight's vice president of forecasting. 'We're going to see prices of supporting devices tumble below $400 faster than previously expected, a trend that will be instrumental in 5G becoming more accessible to a much wider demographic.'

Businesses look to 'hold on' through coronavirus storm

An engineering services sector survey from the ECA, BESA, SNIPEF and SELECT shows that 73 per cent of businesses expect their turnover to fall in the second quarter of 2020, compared to the first quarter. Looking further ahead to the third quarter of 2020, a similar number of businesses expect turnover to fall. Of these, 23 per cent expect a fall in turnover of 50 per cent or more.


Steve Bratt

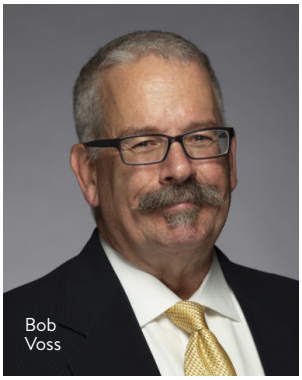
Five per cent reported that by the end of Q3 this year, their business 'may not be viable', while a further 10 per cent said they were unsure about viability. In the current circumstances, many potential survey respondents may have been on furlough, restricted from working or not trading. However, 15 per cent of respondents said they expect their businesses to grow by the end of Q3, with a further 70 per cent expecting their businesses to be viable, with turnover either reducing or holding on.

ECA CEO, Steve Bratt, said, 'Although construction has continued to operate through the crisis, at least in part, it is no surprise to see the reductions in turnover and the challenges to business in remaining viable. However, the figures also demonstrate our sector's resilience and importance, and we shouldn't forget that in many of the challenges we face will provide growth opportunities.'

Bob Voss appointed chair of the Ethernet Alliance's SPE subcommittee

Bob Voss, senior principal engineer at Panduit, has been appointed by the Ethernet Alliance as chair of the Single Pair Ethernet (SPE) subcommittee.

The SPE subcommittee's role is to drive the development of a coherent roadmap for BASE-T1 Ethernet, as the preferred network implementation in a single network infrastructure incorporating industrial networks into the Ethernet environment. This development will significantly increase network security and replace vulnerable older protocols with robust IP networks offering higher data speed, transmission distance and data security benefits.


Bob Voss

Commenting on his appointment, Voss stated, 'I am honoured to be appointed chair of the SPE subcommittee of the Ethernet Alliance. The past five years have seen gains in capability for SPE and demonstrated its ability to support proven operations technology topologies used in industry and manufacturing environments, bringing real value to organisations.'

Getting caught out unaware is the number one bugbear for IT professionals

According to research from Paessler, 61 per cent of IT personnel consider networks suddenly failing without warning their biggest irritation. This is closely followed by 55 per cent who find it frustrating when users report problems before they themselves are aware there is an issue. Others are upset when they get a call from their boss to say there's a problem (29 per cent).

The research also finds that IT teams aim to please. More than half (55 per cent) report that helping users is an important benchmark for success. However, many IT teams feel unappreciated in the workplace – 33 per cent say they feel frustrated by the lack of understanding amongst users who have little appreciation for what they do.


Martin Hodgson

Martin Hodgson, country manager UK and Ireland at Paessler, said, 'It can be a thankless job working in IT. Few give praise when things go right but many complain when things go wrong. What we must remember is that IT teams are just as likely to get frustrated as the users themselves when networks fail. IT teams can't see into the future but when it comes to the network the best approach to take is a proactive one – spotting early signs of potential issues so they can be fixed fast before they escalate and impact the user.'

Nokia reveals biggest 5G drivers for enterprise IT and OT

Nokia has published research highlighting 5G plans, expectations and the biggest 5G WAN and LAN drivers for businesses across key industries in the US and UK. The study, which surveyed over 1,000 IT decision makers, covered key enterprise segments including energy, manufacturing, government/public safety and automotive/transportation.

Results reveal that 65 per cent of participants surveyed are familiar with 5G, and 34 per cent report they are already using 5G and highly satisfied with the service. 47 per cent of IT decision makers say their organisations have already started planning for 5G, 54 per cent are waiting for more widespread 5G availability and 30 per cent reported they would also like to better understand the value of 5G before developing a strategy to use it in their organisations. The research also identified video as the 'killer app' for 5G across verticals and different business sizes, with 83 per cent finding it compelling and 48 per cent citing 5G enhanced video monitoring as a near-term (0-4 years) opportunity.

Josh Aroner, vice president marketing for Nokia's service provider business, said, 'We anticipate requirements born out of the coronavirus pandemic will accelerate longer-term 5G plans with a focus on digitisation, automation and analytics, which perfectly lend themselves to physical distancing, monitoring and remote working.'

IT professionals report an increase in security issues

Ivanti has announced findings from a survey studying the impact of working from home in response to the coronavirus pandemic. The findings show IT workloads, security issues and communication challenges have all seen significant increases in this new remote working era.

For 63 per cent of IT professionals, IT workloads have increased 37 per cent since going remote. Top incidents and requests impacting their amount of work include VPN issues (74 per cent), video conferencing (56 per cent), bandwidth constraints (48 per cent), password resets (47 per cent) and messaging issues (47 per cent).

Compounding the challenge is the sheer volume of employees now working remotely. 43 per cent of IT professionals report three quarters of their employees now work remotely and more than a third said 100 per cent of their employees are doing so. According to survey respondents, this is an increase of 93 per cent in the last few months, showing a dramatic and rapid shift following the coronavirus outbreak.


Phil Richards

Phil Richards, chief security officer at Ivanti, said, 'Responding to the pandemic has indeed placed an unprecedented demand on IT teams as they work to balance security and user productivity for the new remote workforce.'

RWL Group acquires Mulder-Hardenberg

RWL Group has announced its acquisition of Dutch data centre connectivity and industrial automation specialist, Mulder-Hardenberg, in a move that is intended to better serve the European market for data centres and telecom facilities.

RWL Group has built many large data centres and telecom facilities in Europe in recent years. Robert Walsh, the company's managing director, said, 'With our experience and expertise we are also very capable of building medium-sized and smaller facilities. That is precisely why I am so excited about the acquisition of Mulder-Hardenberg. Together we can realise all types of data centre and telecom projects – from hyperscalers and other large facilities to modest server rooms to solutions for the edge. And now all these facilities can be based on either standard and off-the-shelf products and services or on specially designed tailor-made solutions.'

NEWS IN BRIEF

Specops Software has surveyed 1,342 businesses from 11 sectors across the UK and found that 41 per cent of employees across all sectors have not been provided with adequate cybersecurity training.

DigitalEurope has announced the election of Nokia's Hillary Mine as president. Mine is DigitalEurope's first female president and the second time its president has been chosen from Nokia, as she takes over the role from Markus Borchert.

Fastly's network has reached 100Tb/s of connected edge capacity, representing an important milestone as demand for modern digital experiences rises.

Colt Data Centre Services (DCS) has appointed Hiroshige Sugihara as vice president, head of Asia-Pacific. This announcement comes as Colt DCS continues its commitment to hyperscale builds and expansion within the region including the scheduled completion of Tokyo's Inzai 3 data centre later this year.

CityFibre has announced a three-year recruitment and training programme to provide up to 10,000 people with jobs upgrading the UK's digital infrastructure to full fibre.

Schneider Electric has become a Partner of Infrastructure Masons (iMasons). The company will provide iMasons with access to resources for its educational, networking and donation programs, as well as supporting the next generation of professionals through career workshops, internships and scholarships.

Equinix has announced the expansion of its Dallas Infomart Data Center campus with the opening of a new $142m International Business Exchange (IBX) data centre and the launch of its 5G and Edge Proof of Concept Center (POCC).

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Keeping sustainab

Hi Rob

During recent times the focus for the business community – including the data centre sector – has, quite rightly, been on operational resiliency. However, as businesses start to get back to work, many believe that the economic recovery should have a focus on sustainability, with any taxpayer support only going to companies that are committed to decarbonisation.

As a business critical industry, the data centre sector has had to remain operational during the pandemic. However, it is also energy intensive, so with an increased focus to ensure sustainability is at the heart of the recovery, what technologies are available to help it decarbonise?

Net zero has become a common part of language in the energy and sustainability world since the UK government legislated to hit net zero carbon emissions by 2050. However, since then, many businesses have had to put sustainability plans and investments on hold as they attempt to assess the impact coronavirus will have on their future plans.

That said, our own insight shows that despite the upheaval caused by the coronavirus crisis, sustainability and net zero remains a priority for many organisations. As we emerge into a 'new normal' way of working, the opportunity to increase business resiliency through implementing an effective net zero strategy has come to the fore.

So, what steps can organisations take to ensure sustainability stays on track post-pandemic? The good news is that there are many practical and reliable ways to reduce energy consumption:

• Measurement and monitoring. Meters can measure almost every utility, so it makes sense for a business to use the available meters and assess the data for any gaps. Where gaps do exist, installing sub-meters or data loggers will enable a company to get a complete view of energy consumption across the business. However, data is only as good as the analysis behind it. Online dashboards are available to help gather and present data in an accessible way, and having an expert view to analyse it means a business can turn the data into meaningful actions.

• Consumption and reduction. There are various ways a building's envelope can be made more energy efficient. Each data centre will have different requirements, so an expert analysis can help identify the best solutions for a business. With plant and equipment a full audit will determine the best options for the business in question.

• Renewable utilities. Much has been said about the opportunities for renewables, and installing on-site generation can make sound business sense. This can be beneficial both in terms of using clean energy and allowing a business to be more self-reliant – particularly important in a business critical sector such as data centres. In short, the road to net zero should be starting now. With businesses now demanding that our economic recovery goes hand in hand

ility on track

with serious climate action, adopting a more sustainable approach to business can help build greater resiliency in the longer-term.

Matthew Dowdeswell
Inspired Energy

Editor's comment

As Matthew points out, there is an interesting debate going on at the moment surrounding the idea that the coronavirus pandemic provides an opportunity to reset the clock and rebuild the global economy on more environmentally friendly foundations. Whether this will amount to little more than wishful thinking or actually gain momentum as we emerge from this crisis is, at this stage, anyone's guess but it's certainly something that we should all be seriously considering.

Next steps

Hi Rob

The coronavirus pandemic has brought a large number of challenges over a short, intense period as businesses grapple to maintain productivity. While working from home has become the norm for many, now is the time for organisations to redefine what remote working means for the long-term.

Lockdown forced the majority of office based businesses into a makeshift fully remote working arrangement. While this has worked very well for many, the need to get things up and running rapidly has meant that companies have essentially papered over the cracks when it comes to properly connecting employees to resources, wherever they happen to be working.

Remote working is likely to be a fixture of the office environment even after the pandemic subsides. Despite the adaptability that many businesses have shown in implementing it at short notice, I would argue that most are nowhere near being able to properly maximise its potential.

Most of this boils down to employees not being able to access information fluidly, which is crucial when fostering innovation and independent thinking within a business. Virtual private networks (VPNs) and having basic access to an office server might be fine for helping keep the lights on, but do they connect workers to data in a way that enables them to find, interpret and draw insights from information?

A vital next step for businesses to take in their remote working journey is to push beyond the status quo and work out how they can truly empower their employees to come up with new ways of solving problems and meeting challenges. To facilitate this, organisations need to ensure they have the digital platforms in place that not only grant a basic level of connectivity to information, but give workers a unique user experience that grants the ability to truly unlock the power of company data.

The businesses that have thrived during lockdown – and will continue to thrive once restrictions are lifted – are the ones that give their employees the tools to think outside the box and figure out things for themselves. Leaders now need to give their employees this capability, by adopting technologies and structures that make information management an enlightening experience, rather than a chore.

Lockdown has been incredibly tough, but we now have an unprecedented opportunity to make systemic changes that will leave us better off in the long run. Remote working is here to stay, so we have a duty to make it better.

Steve Salvin
Aiimi

Editor's comment

Steve provides an interesting overview of what's needed to make remote working a more viable long-term option. Many organisations will be thinking about the best way to go about this and it will be fascinating to see how this plays out over the coming months.

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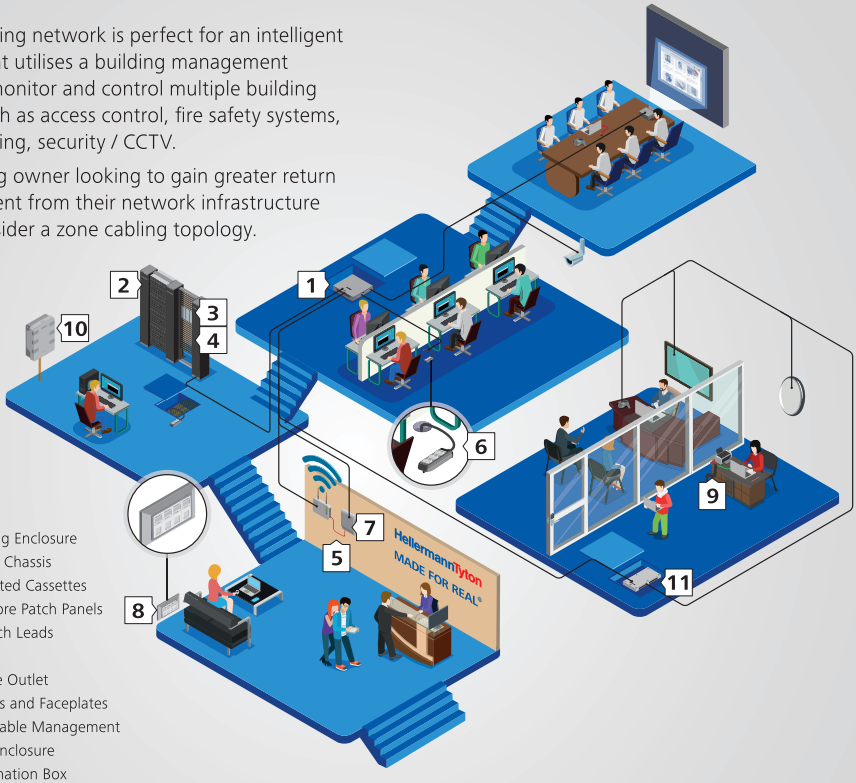

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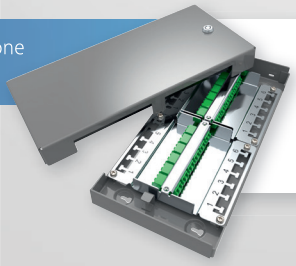

This modular version of the ZTB allows for the use of keystone jacks and fibre adaptors, making it easier to configure each box to your bespoke requirements giving even greater flexibility.

Rules of attraction

The lack of people choosing to build a career in the data centre and enterprise network infrastructure sector remains a problem. Inside_Networks has assembled a panel of industry experts to discuss the seriousness of the skills shortage and what can – and should – be done to address it

While other industries have struggled to survive, let alone grow, demand for IT related services are higher than ever before. The problem is that this sector tends to operate under the radar of the public at large – most of us who've worked in this area for any length of time will have had to explain what a data centre or network infrastructure is to friends and relatives.

As such, engaging with and recruiting people is proving to be an ongoing problem and when suitably qualified high calibre people are looking for a career, this sector isn't often on their list of options. This is a massive cause for concern and the skills shortage means that where the next generation of technicians, installers, owners and operators is going to come from is unclear. However, one way or another the issue needs to be addressed if the sector is to deliver the level of service that end users have come to expect.

To find out what needs to be done, Inside_Networks has assembled a panel of experts to discuss this issue, examine how serious the skills shortage is and, just as importantly, outline the measures needed to get people into the sector.

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

ANDREW STEVENS
CEO AT CNET TRAINING

The answer is relatively simple – we, as an industry, spectacularly failed to act in a coordinated and non-competitive manner when the issue was staring us in the face. We talked a lot, but acted very little. Does that sound familiar at this time?

Between 2011 and 2015, the UKCES Employer Skills Survey estimated that the number of vacancies due to skills shortages had more than doubled from 91,000 to 209,000. Now five years further on the situation is much worse.

In 2015 I started to speak about how university technical colleges (UTCs) could help us create a tremendous flow of future science, technology, engineering and mathematics (STEM) based talent. We had the chance to shape our talent pipeline in partnership with universities, schools, employers and government. If we had acted then, we would now be benefiting from our actions. Sadly we didn't, and now we still have at least another five years to wait if we act now, although I doubt we will.

Each UTC is supported by a group of industry partners related to their specialism, and a local university. Nationally, there are over 400 employers and universities working with UTCs but apart from a few exceptions our industry has not yet engaged. Of course, the idea of creating a UTC in your area is only part of the solution and to solve the ongoing issue we need a suite of measures and initiatives. However, the key message is that we must act now as employers to engage with schools, further education colleges and universities to shape the future talent pipeline.

Everybody is fishing in the same pond and looking for the same people. There are simply not enough people with the right skills and that will not change in the short-term. As such, smaller employers may simply lose out when it comes to attracting people because the larger employers can, and often do, just buy the skills they need at inflated rates.

Other industry sectors are represented by effective industry associations who have the skills issue at the heart of their activities. They work as the conduits and lobbyists and, whilst never perfect, they do a much better job than in our sector.

While I welcome this subject being raised by Inside_Networks, I suspect that the same question will be posed again in 2025.

'OTHER INDUSTRY SECTORS ARE REPRESENTED BY EFFECTIVE INDUSTRY ASSOCIATIONS WHO HAVE THE SKILLS ISSUE AT THE HEART OF THEIR ACTIVITIES. THEY WORK AS THE CONDUITS AND LOBBYISTS AND, WHILST NEVER PERFECT, THEY DO A MUCH BETTER JOB THAN IN OUR SECTOR.'

TIM CLOGG

DATA CENTRE SERVICES MANAGER AT PHOENIXTRESCRAY

There is a skills shortage in the industry and we are just using an ever smaller pool of labour on the merry-go-round. This is unsustainable, so rates must improve to enable us to recruit and train potential new engineers from allied industries. As ever, there is always someone who will provide a service for less but customers should review a like-for-like proposal to enable development and continued training to be included as part of any service provision. It is difficult to attract new talent into our industry when costs are constantly been driven down.

Likewise, our industry has been virtually invisible to young people, although they spend most of their lives using the digital services based in data centres such as gaming, social media and the internet. Bizarrely, it has been coronavirus and forced lockdown that have drawn attention to data centres. They were basically unknown in the career market, yet are now viewed as critical to the recovery and continued success of businesses and digital media – not quite sexy yet but at least more interesting.

At last there is now an official apprenticeship scheme available to bring young people into the industry but I'm not aware of any college or universities offering courses in data centre infrastructure. If there was a defined career path for engineers, with a development programme to raise the awareness of the skills needed, it would be a great start.

To attract new raw talent owners, operators and service providers – not just the hyperscalers – need to go out to schools and colleges to present and show youngsters what it is like to work in a data centre and highlight the opportunities and potential to develop. Another area to focus on for talent is the military. In the US an organisation called Salute, Inc recruits ex-military personnel and trains them in all areas – from the basics to being qualified data centre engineers. Maybe this is something that can be emulated elsewhere.

To put it simply, everyone in the industry has their part to play in bringing in new talent and developing their skills through education, training and raising awareness.

'OUR INDUSTRY HAS BEEN VIRTUALLY INVISIBLE TO YOUNG PEOPLE, ALTHOUGH THEY SPEND MOST OF THEIR LIVES USING THE DIGITAL SERVICES BASED IN DATA CENTRES SUCH AS GAMING, SOCIAL MEDIA AND THE INTERNET.'

MIKE HOOK
EXECUTIVE DIRECTOR AT LMG

I was at an industry event last year. Gazing around the room it was apparent what the biggest challenge facing our industry is – an aging male, pale and stale demographic. Evidently, we have a problem.

The original pioneers who created the network infrastructure sector had largely started their careers as apprentices. Although formidably bright and fiercely self-reliant, these early players were not men – and yes, they were exclusively men – who had a great deal of time for formal qualifications and subsequently recruited those with a similar outlook to their own. Consequently, our industry has never professionalised and anyone with a formal education is viewed with suspicion.

This cultural issue has led to a lack of investment in training and skills development. Of course, there are beacons of hope and CNet Training has made a significant contribution and shown leadership in trying to professionalise the network infrastructure industry. However, it's the cultural challenge that must be addressed if we are going to attract new talent.

So how can we make our industry more appealing? We must restart apprenticeships, including those aimed at graduates, and actively promote increased diversity, embrace inclusivity and thoroughly rethink our industry.

The digitisation of the built environment provides us with a great opportunity to recalibrate, rescope and professionalise the network infrastructure industry. Digitisation of the design, delivery and operation of buildings will become increasingly common and emerging as-a-service delivery models, data analytics and UX apps will drive demand for business graduates and engineers, as well as financial, commercial, human resources and legal experts.

All this will only be possible if we work together to change the culture of our industry. The key to this is educating all stakeholders to ensure that everyone understands and is always mindful to address those behaviours that undermine desired outcomes. We can best do this by supporting CNet Training's activities, encouraging consultants to ensure that all service providers are sufficiently trained and qualified, and make sure end users are aware of the true cost of ownership of their technology decisions.

At present, championing our industry as a bastion of inspiration for those looking for a bright and fulfilling career is hard to justify. It's time to act, and I intend to lead from the front.

'IT'S THE CULTURAL CHALLENGE THAT MUST BE ADDRESSED IF WE ARE GOING TO ATTRACT NEW TALENT.'

EMMA FRYER
ASSOCIATE DIRECTOR AT TECHUK

We are failing for two reasons. Firstly, there are not enough people to go around because STEM skills are in very short supply. Secondly, our sector is not seen as a career destination of choice – we aren't competing successfully against higher profile industries like aerospace.

There is little we can do about the former, as it is the result of flawed education policy over four decades, which has left a chasm in technical skills supply (among other shortcomings). So we have to import much of our talent. In the UK that will become increasingly difficult as Brexit restricts access to skills from elsewhere within Europe.

Developing domestic talent to fill the gap is proving problematic. STEM courses should be no-brainers when students know they lead to secure jobs. However, analysts like Education and Employers identify a worrying disconnect between the career aspirations of young people and the jobs available. This is a systemic issue that will take years, perhaps a generation, to resolve.

So we have to do better at competing for available talent and retaining and developing it. Why are we failing? The sector has a low profile – most teenagers have no idea what a data centre is. You cannot aspire to work in an industry you have never heard of. Furthermore, the opportunities for career progression may not be evident, despite being something we should be proud of.

In addition, we aren't recruiting enough women, despite diversity being high on the agenda, and there is a perception that data centres only employ people with computing degrees. In reality we are surprisingly openminded in terms of employee qualifications – senior operations staff interviewed last year revealed backgrounds ranging from geology to figure skating.

Collectively, we must ultimately do more to address the skills gap issue and part of the solution to this is better coordination across the sector and with government. I work on policy, trying to persuade government to add data centre roles to the Shortage Occupation List, presenting the sector as career destination and explaining how students can keep their options open. Others offer world class training, some do outreach. We now need to join the dots.

'WHY ARE WE FAILING? THE SECTOR HAS A LOW PROFILE – MOST TEENAGERS HAVE NO IDEA WHAT A DATA CENTRE IS. YOU CANNOT ASPIRE TO WORK IN AN INDUSTRY YOU HAVE NEVER HEARD OF.'

ALAN DERRY

MANAGING DIRECTOR AT TECHNICAL RESOURCES

It isn't just this sector that has a problem – technology as a whole is suffering from years of under investment. The death of the original apprenticeship programme is what I believe has got us to this point. Although the Network Cable Installer (NCI) Apprenticeship, driven by CNet Training, is a positive move that is doing a lot to address this particular situation, there's still more to do.

On a broader level, the best way to tackle the skills shortage is for organisations from all areas to adopt an integrated approach. Ultimately, the responsibility for raising awareness of the opportunities falls to each and every firm connected to the sector including operators, consultancies and suppliers at every level. This won't happen overnight though – we need a roadmap and a desire to work together.

It's safe to assume all businesses in the sector want to increase revenue and profit through having the best possible people on their teams. However, if the message being projected is out of sync, it won't encourage enough relevant candidates and high calibre people to consider it as a career option.

The sector needs to attract people at all levels, so in addition to apprentices, it is essential to target graduates. Companies should therefore be looking to introduce graduate programmes – providing attractive career paths that can compete with other industries. Equally, attracting and re-training individuals from other closely related industries such as mechanical and electrical (M&E), the military and security is another way to help plug the skills gap. Many successful firms have looked outside of their traditional talent pool by employing people who possess the correct attitude and potential and then training them up to the required skill level.

As a candidate, access to information is better than it's ever been. Anyone looking to find a new job will be connected to a number of resources – recruitment agencies, job boards, LinkedIn and executive search firms. That said, the skill set people need to work within the data centre space is often in demand by other sectors within the general IT technology market. Therefore, as well as being seen as a rewarding and dynamic place to build a career, any salary and progression opportunities on offer need to be attractive and competitive.

'AS WELL AS BEING SEEN AS A REWARDING AND DYNAMIC PLACE TO BUILD A CAREER, ANY SALARY AND PROGRESSION OPPORTUNITIES ON OFFER NEED TO BE ATTRACTIVE AND COMPETITIVE.'

CARRIE GOETZ

PRINCIPAL AND CHIEF TECHNOLOGY OFFICER AT STRATEGITCOM

As many Inside_Networks readers will know, I have a podcast dedicated to women, trades and veterans in technology. All three of these categories are ripe for filling jobs. The podcast series premise is twofold – one, to bring awareness of diversity and inclusion within the industry and, second, to highlight various careers within the industry for new talent, so that they know those jobs exist. Throughout the course of these interviews, a few things continuously rise to the top.

First, not all of our jobs require a college degree – in fact, college curriculum has not kept up with the skills required. At some point we stopped valuing experience over a degree and we have placed a greater value on the paper over the person. Skills based hiring is key and while companies like Apple have caught on, others are very slow to follow. Often, candidates are sent for certifications to fill skills gaps. In addition, students in schools aren't being exposed to careers through curriculum and there is a misnomer that you have to write code to be in IT, which we all know to be false. Exposure to alternative careers matters.

Once in IT, the attrition rate for women is 67 per cent, which is a deplorable number. In recent months, we have proven that remote office is viable and can help solve some of the problems women in particular, as caregivers, face. Diversity of thought is imperative and human resources (HR) departments need to step-up and stop relying on applicant tracking systems (ATS). 85 per cent of jobs are filled through networking – we network with who we know, which clearly isn't solving anything.

HR needs to lead the way in finding talent, as if it doesn't understand the skills, then it will be difficult to fill a job. I think we need to see more technical recruiters and managers to help identify parallel/complementary skills and people. Outreach from professionals to young people will help bridge the gap from the other side and smart companies will invest in employees. Lastly, be what you want to hire – candidates look at diversity on boards and in management to determine fit. In short, we need to be investing in people, not paper.

'THE ATTRITION RATE FOR WOMEN IS 67 PER CENT, WHICH IS A DEPLORABLE NUMBER. IN RECENT MONTHS, WE HAVE PROVEN THAT REMOTE OFFICE IS VIABLE AND CAN HELP SOLVE SOME OF THE PROBLEMS WOMEN IN PARTICULAR, AS CAREGIVERS, FACE.'

Local authority

With the rise of edge computing, Alberto Zucchinali of Siemon takes a closer look at the IT infrastructure required to best support edge data centres

Throughout the next decade the number of IP connected devices found in home and business environments, as well as machine-to-machine (M2M) devices, will continue to grow at an unprecedented rate. New technologies including 5G mobile networks, self-driving cars, smart cities and smart factories will transform and automate everyday life.

GENERATION GAME

The increase in data driven traffic generated by these devices and technologies requires even higher data throughput at the local level to ensure both performance and resiliency across time critical applications. Edge computing and the local, or edge, based data centre is the answer for better support of the internet of things (IoT), industrial IoT and other next generation technologies.

Edge computing uses self-functioning edge data centres that take the form of modular, containerised, micro or office based facilities deployed at the outer edges of an IP network. These environments hold localised IT deployments for cloud services with compute, storage, and analytical resources for data caching and application processing.

Although much smaller in scale, they require the same power, cooling, connectivity and security demands that can be found in a centralised data centre. However, some of the essential IT infrastructure elements and physical locations require special consideration.

SUPPORT STRUCTURE

Since edge computing offers multiple geographically distributed data centres, deploying these edge facilities requires a modular approach using configurations that can easily be replicated from one site to the next. This allows for rapid deployment and local demand based growth as needed. From a cabling perspective, edge data centres need to be supported by high-speed copper and fibre optic cabling and connectivity, with options including Category 6A copper cabling to support 10Gb/s and Category 8 to support 25Gb/s and 40Gb/s.

To support large data volumes, high-speed interconnect solutions (HSIs) are becoming a more frequent choice in edge data centres, with short point-to-point cables providing direct connections – for example, in switch-to-switch, switch-to-compute or switch-to-storage applications – in the same rack or in adjacent racks. HSIs are typically available as direct attach copper cables (DAC) or active optical cables (AOC), supporting transmission

speeds from 10Gb/s to 100Gb/s, and help to reduce the costs associated with transceiver assemblies and the potential areas of failure through multiple connection points.

SIZE MATTERS

Edge computing also requires management of a large number of physical copper connections within a much smaller space. High-density Category 6A/Class EA cabling solutions are perfectly aligned to meet these data requirements.

For high-capacity fibre designs,144 LC fibres or 864 MTP fibres are available within a 1U enclosure, offering superior port density, whilst also providing easy access to fibre ports and cable management. Fibre based backbones are the best option for connecting edge data centres back to cloud/colocation facilities, hyperscale data centres and central offices to achieve speeds of 400Gb/s and beyond.

MANAGEMENT DECISION

In high-density environments, proper cable management is more critical than ever in supporting airflow for appropriate cooling. Excess cable should be avoided and cable bundles neatly dressed within the racks. This can easily be achieved with HSI cables that come in shorter increments. Many HSI cords are often only available in standard 5m lengths but having the ability to select

cable length options from 0.5m to 5m avoids excessive cable slack inside the rack for improved cable management and better airflow.

Airflow in these high-density patching areas can be further enhanced by deploying patch cords with reduced diameters. These cords also offer a significantly tighter bend radius for easier cable routing and better cable management to facilitate moves, adds and changes (MACs) in tighter spaces. Different colour options of HSI cords can either identify resilient connections and/or different services and applications supported in an edge environment.

SPEED TEST

Deploying smaller and geographically distributed data centres to support IoT infrastructures requires a fast and easy to manage process with pre-configured and pre-assembled solutions.

Pre-configured data centre cabinets, for example, are preloaded with components including fibre and copper connectivity, power distribution units (PDUs), cable management and accessories. They are pre-assembled, pre-packaged and delivered to site to connect cabling and install active equipment. Compared to installing individual components into cabinets, these pre-configured solutions save up to 30 per cent on time and labour.

> 'Whilst edge environments do not differ too much from traditional centralised data centres in terms of essential infrastructure components, they have their own unique challenges.'

Also, when pre-terminated copper and fibre cabling systems are chosen, installation time can be reduced by up to 90 per cent compared to individual field terminated fibre connections. These systems also benefit from being factory terminated and tested, providing guaranteed performance levels out of the box.

REMOTE CONTROL

Many edge data centres are unmanned or have extremely limited access, and service providers require active infrastructure management tools to remotely manage them. This often includes remote management and monitoring of copper and fibre connections and security locks, as well as real time alerts of events such

as cable connects/disconnects or the opening of a cabinet door, to help prevent downtime or unauthorised access.

Deployment of intelligent PDUs is also highly recommended in edge data centres. Monitoring energy consumption right down to each individual connected device to control performance and energy efficiency is one important feature, but intelligent PDUs also provide remote monitoring and control features that are useful for unmanned facilities. Switched PDUs, for example, offer remote outlet control by enabling data centre managers to remotely restart or shutdown a piece of equipment.

Fully managed intelligent PDUs offer the highest level of control and monitoring, with outlet level monitoring and outlet level switching to enable users to remotely monitor and control individual receptacles. In addition, they feature sensors for cabinet level environmental monitoring and intuitive web interfaces that enable remote management and monitoring of PDUs in edge facilities from a centralised cloud location.

CUTTING EDGE

Whilst edge environments do not differ too much from traditional centralised data centres in terms of essential infrastructure components, they have their own unique challenges. Careful choice of IT infrastructure remains critical, with high-density cabling options, pre-assembled cabinets and infrastructure management tools key to ensuring reliable operation in support of growing and more demanding networks. ■

ALBERTO ZUCCHINALI

Alberto Zucchinali is data centre solutions and services manager at Siemon. With 20 years' experience in structured cabling, he has authored and presented a number of papers at worldwide industry conferences on various specialist subjects concerning premises cabling, data centre design, intelligent patching, and copper and optical fibre technologies. Today he applies this learning to data centre infrastructure and designs network architecture for sites around the world.

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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. This 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 for building 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 micro data centre solutions into a range of applications in numerous countries around the world.

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

Corning Optical Communications

Organisations across the globe – from hyperscalers to conventional cloud providers – are establishing edge data centres to ensure high quality service combined with low latency for their users.

These facilities can vary hugely in size and function. To support customers with a full suite of products catering for every edge data centre need, Corning Optical Communications not only provides pre-terminated Base-12 EDGE and Base-8 EDGE8 solutions, but also medium-low fibre count options with our LAN1 housings, for quick and easy deployment. Our range of LAN1 housings and pre-terminated multi-fibre assemblies ensure that setting up new connections is as cost effective as possible.

Finally, with high fibre counts critical to achieve the capacity that hyperscale grade data centre interconnections require, our Data Centre Interconnect Solutions with RocketRibbon cable and high density enclosures provide industry leading density for the connection from the cloud to the edge.

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

Austin Hughes

Austin Hughes' intelligent rack power distribution units (PDUs) allow remote access via network IP from anywhere – allowing you to stay in control without a physical on-site presence.

It is possible to remotely manage the intelligent PDUs and associated sensors via InfraPower IPM-04 free software.

- Complete PDU monitoring, control and reporting functions
- Free graphical user interface (GUI) software
- Integration into third-party DCIM via SNMP
- An IP dongle that enables IP remote access to the PDUs by a single network IP

Employees with suitable access levels can obtain and use data from intelligent PDUs to improve energy efficiency within a data centre and make more informed decisions. Integrating environmental sensors with PDUs allows parameters to be set to monitor temperature/humidity fluctuations, as well as power.

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

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

Secure IT Environments

Secure IT Environments is a leading UK-based international data centre design and build specialist.

We provide edge, micro-modular and containerised secure designs and implementations, as well as a range of services for existing data centres including maintenance and consulting. These are all carried out by our in-house experts and we have a history of delivering high quality, energy efficient innovative solutions for the NHS, commercial, education, hosting, Ministry of Defence and retail sectors with professionalism, expertise and excellence.

Our new build services cover the design, build, equipment specification and procurement for any data centre project from greenfield development to micro-modular room and containerised data centre. For existing data centres, we offer services covering all areas of refurbishment from legacy upgrades to equipment refresh and complete facility optimisation. This improves existing environments to ensure energy efficient performance gains, cost savings and total business benefits.

Our professional services cover all aspects of the data centre including site surveys and capacity planning through to implementation and commissioning.

CLICK HERE to visit the Secure IT Environments website, call 01983 885182 or to send an email **CLICK HERE.**

www.siteltd.co.uk

Huber+Suhner

Edge data centres are located close to the populations they serve, delivering cloud computing resources and cached content to end users. They typically connect to a larger central data centre or multiple data centres. In order to achieve this, a compact cable management system is required to protect, route and manage cables, enabling ultra-high density, maximum network capacity and performance.

Huber+Suhner's LISA Access and IANOS fibre management solutions enable high packing density in very limited spaces. This provides ultra-high density connectivity without restricting handling and management capabilities.

With software defined network (SDN) enabled optical switches, xWDM solutions, splitter and tap modules, these modular solutions ensure safe, reliable, high quality performance, allowing edge data centres to offer customers maximum flexibility. This means they can easily adapt and provide optimum network performance with future trends.

Huber+Suhner's high density optical solutions are now on display at the company's new Data Centre Customer Demonstration facility in Bicester, Oxfordshire. To learn more **CLICK HERE** or to send an email to Simon Money, sales manager - data centres, **CLICK HERE.**

www.hubersuhner.com

Sunbird Software

Maximise uptime and get 'at-a-glance' views of data centre health with Sunbird's data centre infrastructure management (DCIM) software.

With the latest release of Power IQ 7.1, Sunbird introduces an extreme level of granularity to data centre power monitoring by allowing users to set and monitor thresholds for single and 3-phase power in equipment such as rack power distribution units (PDUs), rack PDU outlet breakers, panels, floor PDUs, and uninterruptible power supplies (UPS). Customers are notified when thresholds are crossed, alerting them before there is an issue and enabling them to react quickly to prevent costly unplanned downtime.

Additional new features include graphical user interface (GUI) enhancements like dark mode; new dashboard layout options and folders to save and share dashboards; new location levels for easier reporting; data rollups at region, country, territory and city levels; a new active directory and LDAP groups module and much more.

CLICK HERE to schedule a demo.
www.sunbirddcim.com

Long-term view

Manfred Berger of Western Digital examines the importance of data beyond big cities in an era of online streaming

Recent circumstances have led to many people spending more time at home, using online streaming to help pass the time. In the UK alone, as many as six million people have signed up for subscription streaming services since the lockdown began – an event that lots of data centre professionals would not have planned for. The impact of this is that networks and data infrastructures are under increasing pressure to deliver high-quality content that is accessible anytime and anywhere. These intense demands create potential issues with bandwidth, latency and storage, which could compromise the end user experience.

WHAT'S IN STORE?

5G is expected to bring an unforeseen level of network abilities and data transfer rates. This will set the stage for even more advanced and novel applications to have everything more connected in real time, all the time. It's therefore safe to conclude that, as 5G becomes an industry standard, content streaming will only increase. In fact, estimates from Cisco predicted back in 2017 that there would be 422 million 5G connected devices by 2022.

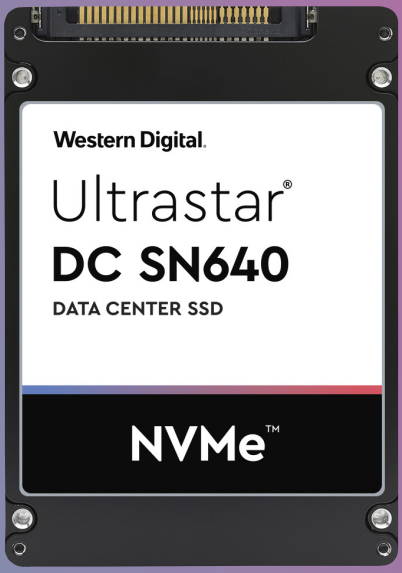
With online streaming set to increase over the coming years, edge computing will

be more relied upon than ever to ensure quality service. But why is storing data at the edge the best solution for enabling this?

SENSE CHECK

Historically, data centres have been housed in major cities and up until fairly recently that made practical sense – locate large data centres in heavily populated areas where the data demand is greatest. But increasingly this approach is not fit for purpose.

Bandwidth hungry consumers have become accustomed to data intensive habits such as content streaming. This is not just happening in the households of major cities – it's happening on the commute, in the queue at the shop, even at the beach. Content is not consumed in the same way as before and so data can't be stored in the same way it was before. The data centre industry has had to react to this trend.



Edge data centres offer a world of possibilities to mid-size markets. Cities which are smaller than major areas but increasingly data dependant are perfect targets. Edge data centres are smaller scale facilities that businesses can own to extend their network. In the past, the capabilities of general purpose storage greatly exceeded the requirements of networks, data and applications. Now, with the insurgence of endpoints, edge computing and cloud computing, storage has to meet advanced use cases and environment demands that general purpose storage is not suited for.

PERFORMANCE ART

The main advantage of edge data centres is their performance benefits – specifically latency and bandwidth. Since these data centres cache content locally, the content has less distance to travel. This helps reduce latency and deliver content faster to streamers, at the resolution they would expect.

To rely solely on larger 'core' data centres runs the risk of compromising quality. What's more, as demands change for streaming and cloud applications, edge data centres can use data analysis to predict workloads and load balance ahead of time. This agility and capacity to prepare and adapt will ensure that, as circumstances change, the service end users receive will remain consistent.

RELIABLE SERVICE

Across the world, people access the cloud throughout all times of the day and the underlying infrastructure must be strong enough to meet that demand. For edge data centres used by content heavy media providers, reliability is even more critical.

These types of data storage facilities address reliability through built-in

redundancy. In this way, data can be automatically rerouted to avoid costly single points of failure. This is made possible when edge data centres link together to form mini-networks, where data is exchanged and cached to improve response times. Doing so creates a 'virtual data centre' that has a higher overall capacity, smaller chance of failure and distributed workloads.

The concept of data at the edge itself is based on reliability. By spreading the data demand across multiple data centres, rather than through a large one, the capacity is greater and the chances of overloading a server to the point of malfunction can greatly decrease. This is of great importance for media and streaming companies, whose brand will suffer a reputation hit should they be unable to provide content as usual.

'The main advantage of edge data centres is their performance benefits – specifically latency and bandwidth. Since these data centres cache content locally, the content has less distance to travel. This helps reduce latency and deliver content faster to streamers, at the resolution they would expect.'

GETTING IT RIGHT

With edge data centres, content can be delivered with lower latency, thanks to local caching, and data at the edge continues to become decentralised – using smaller, distributed centres to deliver content and services locally. For a number of years now edge data centres have been an asset for load management and improving the speed of data transmission.

The value of this has been demonstrated in recent months, with many people housebound and turning to their content platforms and games consoles to keep themselves entertained. While there have been challenges along the way, the quality of online streaming has largely held up, whether in a large city or not. And that is in no small part due to edge data centres.

In order to ensure optimum performance

for edge data centres, data storage needs to be front of mind. Today's challenges with data are diverse. Data can be scattered and unstructured in mixed storage and computing environments. It is also worth noting that data is accessible across different architectures, which raises the issue of duplication and conflicts of data. 5G is set to add to these challenges, with more data being generated from endpoints and internet of things (IoT) based devices.

UNDER PRESSURE

Each use case and application is unique and has different storage requirements and challenges – whether that's performance,

integrity of data or environmental restrictions. The way we access data and watch content has changed indefinitely. The volume of data is considerable and has moved beyond the remit of core data centres. It's important that data centre professionals take this into account when assessing their storage infrastructure at a time where 5G is set to enable online streaming anywhere, anytime – putting further pressure on networks. ■

MANFRED BERGER

Manfred Berger is senior business development manager at Western Digital. He is a recognised expert in memory technology, with 39 years of experience in testing, customer support, marketing, business unit management and product strategy, as well as business development.

Extreme Networks names Joe Vitalone as its new chief revenue officer

Joe Vitalone has joined Extreme Networks as its chief revenue officer (CRO). Vitalone has more than 35 years of experience in sales, marketing and operations management. He has held senior sales and marketing positions at Mitel, ShoreTel and Arrow Systems, and most recently served as chief sales and marketing officer at Jemez Technology.


Joe Vitalone

As CRO at Extreme Networks, Vitalone will oversee global sales, channel, and sales operations teams and report to Ed Meyercord, the company's president and chief executive officer. Meyercord said, 'Joe is a results oriented leader. His experience managing international teams and route to market transitions, as well as his impressive record in moving organisations from transaction based purchasing to subscription models, will be invaluable as we continue to cloud enable our portfolio and bring the benefits of cloud driven networking to our customers. We're pleased to have him join Extreme Networks and know he will be a key contributor – driving sales productivity and helping to grow market share, revenue and partnerships worldwide.'

Blue Helix takes the lead in keeping people, visitors and businesses safe

Blue Helix has introduced a range of intelligent security solutions including thermal temperature monitoring, access control and customer flow management, to help businesses minimise contact and identify people who may have a raised temperature.


Steve Proctor

These include thermal imaging cameras with temperature monitoring technology that can detect high body temperatures, are accurate to 0.3°C and do need human contact to capture data, so social distancing can be maintained. Also available is contactless temperature monitoring with access control that can identify employees quickly, accurately and safely as they enter a site, without the need for touching any surfaces such as a keypad, fingerprint reader, turnstile or door. Meanwhile, customer flow management can be used to count the number of visitors and analyse the flow of people or shoppers entering and exiting a store or building.

Steve Proctor, UK security sales manager at Blue Helix, said, 'We understand that businesses have a responsibility to keep their people, customers and visitors safe on their return to work. We offer a complete range of solutions to support them in managing social distancing in their public building, commercial offices or retail premises.'

Schneider Electric extends strategic partnerships with Aveva, Lenovo and Stratus to enable IT/OT convergence

Schneider Electric has expanded its partnerships with a number of leading technology companies in order to build integrated industrial edge computing solutions. The expanded partnerships have resulted in the release of three programs including new reference designs co-developed with Aveva and integrating solutions from Lenovo and Stratus, a learning path for system integrators, and a collaborative online community for learning and sharing opportunities within Schneider Electric Exchange.


Philippe Rambach

'Our expanded partnerships and new industrial edge programs empower system integrators to leverage their domain expertise and become IT/OT convergence specialists and meet these needs for their customers,' said Philippe Rambach, senior vice president, industrial automation at Schneider Electric.

He added, 'We know that smart manufacturing is driving an unprecedented wave of IT technologies into industrial spaces. As companies leverage artificial intelligence, robotic processing automation and more, they will require edge computing solutions to reduce latency and enable resiliency, while ensuring privacy and security, and addressing important data and bandwidth requirements.'

CHANNEL UPDATE IN BRIEF

EDP Europe is celebrating 30 years in business. The company would like to thank all of its customers, technology partners and team for contributing to its success, and looks forward to continuing to support clients in the coming years.

IP House has appointed Mark Saunders as sales director for the company.

Robert O'Donovan has joined Cohesity to serve as its chief financial officer (CFO).

LogicMonitor has achieved Cisco Compatible status for its Cisco SD-WAN integration. This certification validates that LogicMonitor's cloud based platform has been fully vetted by Cisco and establishes LogicMonitor as a Cisco preferred monitoring partner for organisations deploying and managing sophisticated networks.

Neural Technologies is working with Microsoft to offer charging applications on Microsoft Azure.

Gigamon has announced the promotion of Doug Woodley to senior vice president of worldwide sales.

Scratching the

Mark Campion of Next Generation Data (NGD) explains why there's much more to data centre security than meets the eye

We can be under no illusion about the absolute necessity of keeping data secure and being alert to all the associated potential risks posed. But such risks are not just about the potential for cyber or physical attack. There are a number of other considerations that also contribute significantly to, and the delivery of, the final product – secure and continuously available IT systems, applications and services.

MIND OVER MATTER

With this in mind and the considerable capital expenditure involved in maintaining up-to-date critical infrastructure, many businesses are increasingly outsourcing their IT operations and data storage to modern specialist data centre operators and cloud providers. Whether your IT is still located in a private data centre facility, colocated off-premise, or perhaps hosted in the cloud at your provider's data centre – or indeed a combination of these – it is prudent to find out all you can about the facilities concerned, where they are actually located, and regularly check on their data security credentials.

Although the level and quality of physical security measures are a top priority, don't overlook the obvious. You can have an apparently very secure looking facility only to find it's built on a floodplain or in a suburban area under a direct flight path into a major international airport, or even located right in the centre of a metro area – not exactly out of harm's way from natural or man-made threats such as flooding, riot and terrorism.

Therefore, a data centre's location is, in reality, just as important as the physical measures in place when mitigating data security risk. At a minimum, physical security should include take a multi-layered approach, starting with high-grade perimeter fencing, obstructions such as anti-

surface

ram bollards, as well as thorough access control procedures for personnel and visitors, CCTV recording, and highly trained (ideally ex-forces) security personnel. Going further, the facility should be set back from its surroundings with a clear view of the 'interstitial' area, which is difficult to achieve in congested cities. Extras include digital tripwires and infrared intruder monitoring technology, and so much the better if the building construction is sufficiently robust to withstand manmade and natural threats.

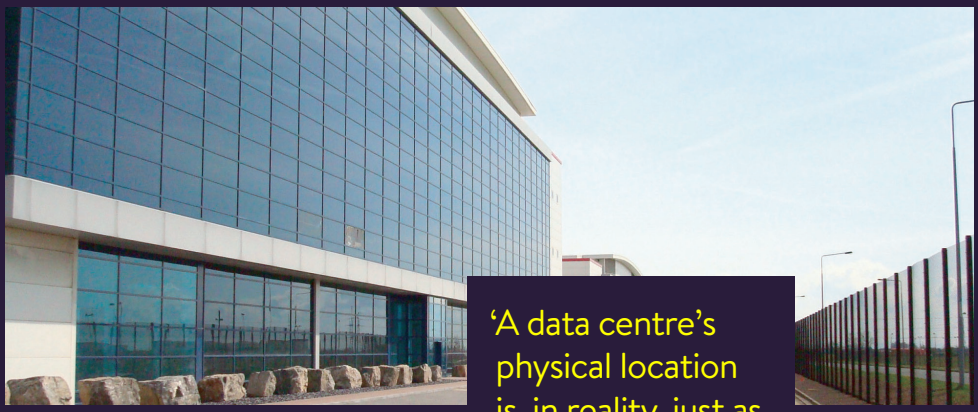
THE BIGGER PICTURE

But there's more to data centre security than this. In the always-on digital economy, taking a 360° approach to ensuring data security and continuity of service is more important than ever. Apart from location and a building's physical security, there are various other key evaluation criteria.

Power is one of these – not only the current and forward capacity available, which is obviously crucial, but also the resilience and stability of supply. More often than not this hinges on the quality of the power distribution cabling network coming into the facility and a thorough and duplicated logical design. Supply cabling is often the weakest link in the chain when it comes to outages, especially in metro areas due to construction work. In fact, some 97 per cent of UK power outages occur in the distribution network, which poses a significant challenge for many facilities. It's also worth noting many don't have any direct control over the local distribution network.

CLIMATE CONTROL

Effective and efficient cooling will also play a part in determining the uptime and availability of your servers and data. With rack densities continually rising to 40, 50 and even 100kWs, the cooling technology deployed needs to be fit for purpose. In recent years there has been a shift from



direct expansion to the latest intelligent cooling solutions that automatically find the optimal mode of operation according to the prevailing external ambient conditions and data hall requirements.

A small proportion of failures can be caused by human mismanagement of functioning equipment, which puts a huge emphasis on engineers being well trained and, critically, having the confidence and experience in knowing when to intervene and when to allow the automated systems to do their job. They must also be skilled in performing concurrent maintenance and minimising the time during which systems are running with limited resilience. Use of predictive diagnostics and carrying of sufficient on-site spares are further prerequisites in this department.

'A data centre's physical location is, in reality, just as important as the physical measures in place when mitigating data security risk.'

TESTING TIMES

Being totally confident of critical infrastructure also requires it to be rigorously tested. Some data centres will have procedures to test their installations

CHECK BOX

Here are the key data centre security considerations:

• SECURITY

How physically secure is your building and IT equipment? Consider how its location may impact your business continuity and data availability – being well away from areas susceptible to flooding, large urban areas and flight paths reduces exposure to potential risks.

• RESILIENCE

Has your data centre or computer room got access to abundant and redundant resilient power and diverse optical fibre connectivity links? Are servers being sufficiently cooled and energy optimised to ensure maximum availability?

• SERVICE PROVIDER CREDENTIALS

If outsourcing data directly to a colocation data centre or via a cloud provider, check all of the above, their uptime record and security

but still rely on simulating total loss of incoming power. This isn't completely fool-proof, as the generators remain on standby and the equipment in front of the uninterruptible power supplies (UPS) stays on. This means that the cooling system and the lighting remain functional during testing. Ultimate proof comes with black testing, where incoming mains power is isolated, allowing the UPS to take the full load before the emergency back-up generators kick-in. This must be done under strictly controlled conditions. See if your provider does this.

Without diverse network connectivity, both the availability and predictability of data and applications is put at risk. Therefore, levels of connectedness are a further priority. In the world of public, private and hybrid clouds, data centres should be able to offer a wide choice of carrier and cloud gateway options. However, connectivity is often overlooked and there is the potential for compromising security between public and private cloud environments and any applications that are outside of the cloud infrastructure.

Finally, look into your data centre operator's financial security and, as part of this, it is advisable to establish what happens with access to your data should it go into administration. Having legal agreements in place at the outset of the relationship will help ensure you can retrieve your data from their premises more easily. Without this, storing mission critical data in the cloud can be risky.

COVER ALL BASES

Taking an integrated and holistic approach to evaluating data centre security will ensure both the security of your data and its continuous availability. For maximum peace of mind, always have the bigger picture in mind. ■

and operational industry accreditations for actual proof – BSI ISO 27001:2013, BSI ISO 9001:2015, PCI DSS, SSAE-16, ISAE-3402 etc. Putting in place a legal agreement will also ensure you have access to retrieving your data in the event of a provider going into administration.

MARK CAMPION
Mark Campion is engineering director at NGD. Prior to joining the company in 2016 he was electrical supervisor at SPIE UK. He has also held various electrical engineering roles at Balfour Beatty Construction, AMEC and JW&E Morris.

Dataracks

Dataracks recognises that the security of clients' IT infrastructures is the primary concern of data centre managers.

Sharing this priority, Datarack's modular IT security cages offer 100 per cent information integrity, whilst providing a highly adaptable and customisable solution suitable for all environments. Dataracks' director, Justin Bewick, explained, 'Made of solid steel and bolted construction, our modular design ensures the cage's scalability and easy assembly, as well as best airflow practices.'

A pioneer in the data centre sector, Dataracks has installed cages in facilities across UK, Europe and the United States. Bewick continued, 'Designed, manufactured and installed by our highly skilled UK-based teams, feedback from clients consistently reiterates the peace of mind our IT cages provide.'

A range of additional options is also offered including integration with hot/cold aisles, roof options, underfloor caging and electronic locks that are matched with existing security systems.

CLICK HERE to discover Dataracks' IT security cages.

www.dataracks.com

Mayflex

Mayflex distributes IP security and access control products from leading brands including Axis, Avigilon, Hikvision, Mobotix, Paxton and Suprema.

We hold large stocks for next day free delivery to the UK mainland, backed-up by excellent service and support, and a knowledgeable team that can help and assist customers to install the right products for each requirement. Our Specialist Support Services also provide IP configuration and camera spraying if required.

In these current times, IP security products such as thermal cameras and contactless access control can help organisations to work in a safer environment. Together with our vendor partners, we have a range of solutions on offer and our team of experts can assist you to establish the best options for your requirements and accommodate any budgetary restrictions.

CLICK HERE to find out more about how our solutions can help you to deploy systems to assist a safer working environment.

mayflex.com

Blue Helix

Blue Helix is working with Dahua UK & Ireland to provide a portfolio of intelligent security related products including thermal temperature monitoring, access control and customer flow management, as well as IP, HDCVI and PTZ cameras, network recorders, monitors and displays, switches, brackets and accessories.

What does this mean for installers? A much wider product selection, which means you benefit from greater integration of CCTV applications for more cross and upsell opportunities.

Tell us your application and design challenges and we will find the right solution for you. With our application experience and expertise, our team will provide you with the solution that best suits your needs.

Your people protected – find out how we can support you.

Contact Blue Helix today to discuss your requirements and to book a demo. **CLICK HERE** to find out more, call 01293 582613 or to send an email **CLICK HERE.**

www.bluehelix.co.uk

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 can be 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

Let's get physical

Iain Moran of ATG Access looks at the importance of physical data centre security in protecting information and assets

We live in an information age, where data centres are vital to the functionality and continuity of our global economy. The theft of information assets has serious consequences – in the UK alone, according to IBM research, the average cost of a data breach to a business has grown to nearly £2.7m. As well as causing economic loss, a data breach can also cause significant reputational damage due to loss of confidence from customers.

A TOUCH OF CLASS

That's why any security measures being implemented must be proportionate to the tier classification of the data centre site. Depending on the level of classification and sensitivity, a range of internationally recognised third-party verification standards can be applied to determine the level of security required for new and existing sites.

Lower velocity impact test standards such as PAS 170 or Loss Prevention Certification Board (LPCB) attack test standards could be applied to Tier 1 and 2 sites. Higher velocity impact test standards such as ASTM, IWA 14 or PAS 68, as well as high-grade LCPB attack test standards, can be applied to Tier 3 and Tier 4 sites.

DELAY AND DETER

Physical security measures are most effective when they are layered in order to create a delay and deter philosophy in the event of an attack, with all physical components being certified and accredited to approved standards. This pressure to keep data safe and secure is more prevalent today than ever.

The coronavirus pandemic has not only changed the way we live, but drastically altered the way we share and store data. With businesses having to create new tools to allow their employees to work from home, companies are seeing a surge in consumers operating cloud-based services, and with the increased use of social media, gaming and online videos, the data centre model has seen extreme growth and unprecedented demand.

With the economic value at stake for businesses today, the

physical security of data centres must not be ignored. Implementing measures that minimise the chances of any physical attack being successful should be a high priority for data centre operators, due to the vast demand and need for these services.

DEFENCE MECHANISM

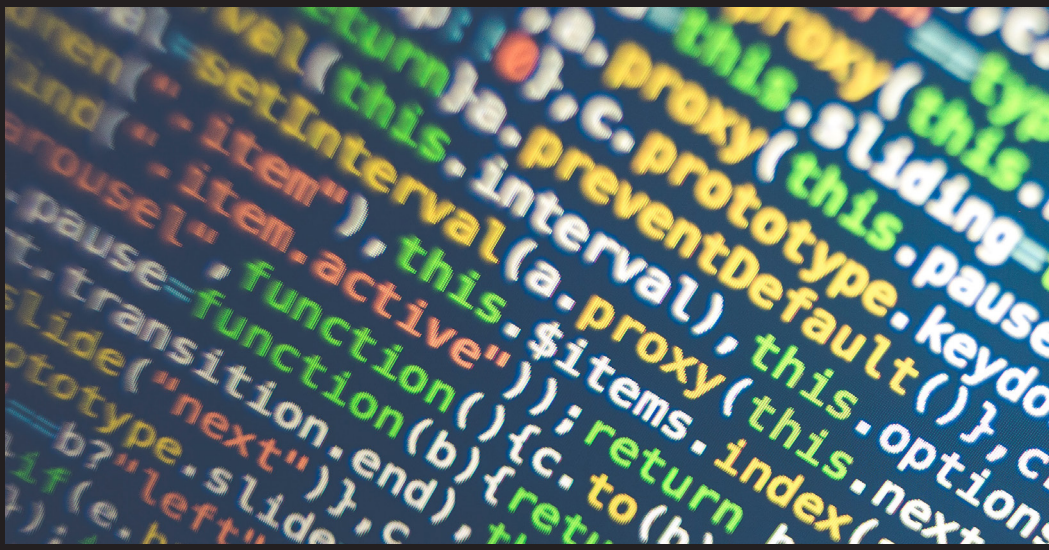
Data centres can be exposed to physical damage and the retrieval of private data when vehicles are used to ram buildings to grant access. Even unintentionally, vehicles can cause extreme damage to a data centre site and the information it holds, causing reputational and service damage to the business that owns it.

This was a problem for a US data centre operator in 2007, when a vehicle was driven into one of the power transformers near the site, cutting the power to the facility and compromising the service the business provided to its customers. Whilst this damage was unintentional, in worst case scenarios, and if the right measures are not in place, a vehicle could permeate the outer security perimeter and advance to damage the data centre building in order to access the information held inside.

MONITOR AND MANAGE

It is extremely important to monitor vehicles when they attempt to access the grounds of a data centre facility. Initially, perimeter fencing and gates provide the first security layer to prevent unauthorised access. Fencing solutions can have anti-climb features incorporated within their design through mesh composition, which prevents unauthorised individuals being able to climb them for access, as well as offering strong visibility for CCTV officers who monitor the site.

Next, to stop the immediate access of vehicles, tested and certified bollards provide the next layer of defence. Dependant on circumstance, retractable bollards can be operated by security personnel where they can be left up to



immediately prevent access or lowered to allow a vehicle to pass. If access is not granted, dynamic bollards that use a tiger-trap function can hold a car in place, where security personnel can carry out a stop and search process for any vehicle that tries to gain access. Using this layered approach of perimeter fencing and vehicle mitigation solutions such as bollards, will ensure the threat of physical damage is reduced.

ENTRY LEVEL

Similarly, installing measures that deal with access within the data centre building is also a priority. This was a problem for a national telecoms provider in 2011 when unauthorised personnel forced access and stole computer equipment and network hardware, causing immediate disruption to the phone provider's customers, who experienced the loss of SMS, internet and phone calling services.

'Depending on the level of classification and sensitivity, a range of internationally recognised third-party verification standards can be applied to determine the level of security required for new and existing sites.'

Installing thorough security at each ingress and egress point will make it difficult for unauthorised individuals to get into the site, but will also increase the amount of time that security operators can have to react to a threat and reduce the consequent risk of damage. This can be approached by firstly installing a visitor buzzer followed by an inner door, which can be used to grant access but also keep visitors separated from the general employee area. This allows for rigorous identification to take place if it is needed and enables security operators to see who works for the data centre facility and who is an external and, potentially

unwarranted, visitor.

Next, implementing a floor to ceiling turnstile door at each entrance point can reduce the chance of an individual tailgating an authenticated user. This can be supported by a mantrap door that is separated by an airlock, where one door can only be opened once the first one is closed. If someone attempts to tailgate one of the facility's workers, these doors allow security operators to prevent the second door from being opened and deal with the threat accordingly.

PLAN OF ACTION

With heightened demand for data centres as more people work from home and operate using cloud based services, every aspect of an infrastructure should be prioritised. Physical attacks can be carefully prepared and hold the hope of obtaining extremely valuable data. Therefore, it is in data centre managers' best interests to utilise a combination of vehicle and individual access measures as an integral part of any security plan. ■

IAIN MORAN

Iain Moran is director at ATG Access and first joined the company over 20 years ago as an electrical engineer. He now leads the commercial UK sales and high security sales teams, whilst also looking after transactions in America, Australia and Canada.

Quick clicks

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

Staying Future Ready With PoE is a blog from Wolfgang Beier of **Nexans.** **CLICK HERE** to read it.

Beyond PUE: Tackling IT's Wasted Terawatts is report from **Uptime Institute.** **CLICK HERE** to download a copy.

Original Architecture Holds Key to True Modularity in UPS Technology is a blog from **Centiel.**
CLICK HERE to read it.

Accelerating Change: From Smart City to Smart Society is a report from **White & Case.**
CLICK HERE to download a copy.

The 2020 Remote Work-From-Home Cybersecurity Report from **Pulse Secure** and **Cybersecurity Insiders**, offers an in-depth perspective on work from home challenges, concerns, strategies and anticipated outcomes.
CLICK HERE to request a copy.

Tech Savvy Millennials: How Many Tech Terms Do They Know? is a report from **Specops Software.**
CLICK HERE to read it.

Strange Bedfellows: Low Voltage and Electrical Contractors is a blog from **Paige Datacom Solutions.**
CLICK HERE to read it.

In the thick of it

For over 25 years John Shuman has operated across various areas of the telecommunications and data centre sectors, and during that time he's witnessed huge changes. Rob Shepherd spoke to him about his life and career so far, and his thoughts on the big issues of the day

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

JS: I have been in the telecommunications and data centre industries since 1994 and worked for companies including Sony Electronics, MetroMedia Fiber Networks, AboveNet, Switch and Data, Google, Amphenol/Telect and now Prysmian Group, where I'm global product manager data centre and telecom for Draka UC Universal Cabling.

It all started with a large office building construction as project manager of the network installation. Over time there was consolidation of legacy cabling systems into UTP systems, starting with Category 3 and the first versions of Category 5. I then moved to designing and project managing the build of first generation internet exchange and colocation meet-me-rooms, which spanned many projects across the US and Canada.

Next was hyperscale data centre global construction project management. I was a key contributor to the optical fibre side of data centre design in this type of application, which was the first to have enormous fibre installations and a continuous need to scale. Over the last five years I've been designing new passive optical fibre distribution platforms that bring high density, with increased operability and novel cable management to rackmount distribution platforms.

RS: What motivated you to join the IT industry and what excites you about it at the moment?

JS: At the start of my career I was fortunate to join a network cable installation team that introduced me to my mentor, collaborator and friend. The company specialised in thinnet and Category 3 UTP installs. I soon realised that I would much rather work on cabling design and project management of the installation team.

This later allowed me to join the project team for Sony Electronics, which spanned seven years. The last four years of my time there was as a contractor managing the IT side for moves, adds and changes and new installation projects, which included the

> 'I'd like to increase the understanding of fibre and how it is a better, more scalable medium than copper. This would not make copper go away, but create better network designs using more fibre to allow longer lifespans.'

need to consolidate all internal business unit computer server satellite rooms into a large, all-encompassing data centre. This was in 1996-97 and it started my interest in data centre design and construction project management.

RS: What challenges do vendors of copper and optical fibre based network infrastructure solutions face at the present time?

JS: There is a growing need for bandwidth for all of the new and emerging technologies we use and expect to use. Supporting 5G rollouts, the internet of things (IoT), artificial intelligence (AI) etc with 40Gb/s, 100Gb/s, 400Gb/s internal networks, and the increasing amounts of cable and fibre needed to support them, is an ongoing manufacturing challenge.

Also, the customer driven needs for more in the same or smaller space has been quite a challenge over the past 10 plus years. This has led to an increase in fibre cable strand counts, as well as a decrease in fibre strand sizes, to allow some of the higher density cables to be the same size or smaller than previous cables. The copper side has had this to deal with as well, with Category 6 and 6A cables needing to be smaller and much easier to deploy to support that side of network growth.

RS: Do end users give enough consideration to physical infrastructure and what could be done to engage with them more effectively?

JS: Historically no. This has always been an issue with it being a case of 'hey it's just cable, plug it in or put connectors on the ends – how hard can that be?'

With the bandwidth speeds and developments in technologies over the past 10 or more years, and new and emerging product, network cabling has always had a need to be properly designed and installed for flexibility and scalability. To achieve this, proper installation and cleaning of connectors is key to performance and scalability of the network cabling.

RS: Would one set of global cabling standards make life easier for everyone?

JS: Sure, that would be easier for everyone if it was all that would be needed. But building and fire codes, which play a large part in building the space or environment where the network will live, also differ globally. These play a big part in how a network is designed and the required materials selected for installation.

The standards and building codes need to be understood as the first requirement of the design. This then drives space design, materials selection, media use for proper coverage areas, as well as copper or fibre, or both, to support current and emerging network and bandwidth needs

as they evolve, so the cabling system can scale to support.

RS: What will be the next big game changer in the network cabling sector?

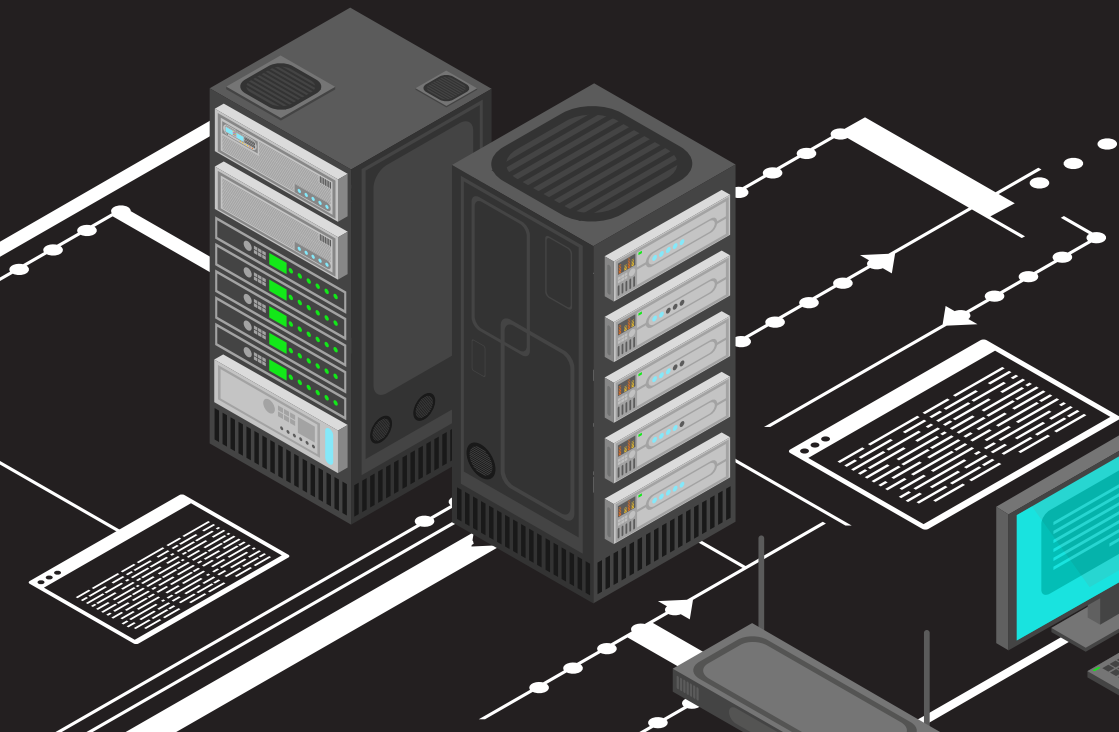
JS: Reduced space needs. Historically, as the network grew, more and more ports to support bandwidth and services were needed. That meant more space for more elements and cabling. That need is still there, and is growing, but it needs to respect the rising cost of space.

We are seeing manufacturers respond to this with changes in materials and components. Fibre has changed from 250u to 200u and now even 180u to increase fibre counts, even though the cable diameters are smaller.

Connectors are getting even smaller with LC, CS, MDC, SN optical connectors. Copper is also following by changing layout connector groupings in panels and active equipment to increase densities by 50-100 per cent in the same space. This has resulted in smaller cable sizes, as well as reduced conductors and new standards for single pair ethernet (SPE).

> 'With the bandwidth speeds and developments in technologies over the past 10 or more years, and new and emerging product, network cabling has always had a need to be properly designed and installed for flexibility and scalability.'

RS What impact will the coronavirus pandemic



have on the network infrastructure sector?

JS: The biggest impact has been on installation and access to construction sites to conduct the projects in full respect of safety measures for teams and customers. This has delayed the installation and construction of many projects.

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

JS: I'd like to increase the understanding of fibre and how it is a better, more scalable medium than copper. This would not make copper go away, but create better network designs using more fibre to allow longer lifespans. No one ever said you need to forklift your fibre network.

'Learn as much as possible about fibre and how to use and install it properly. Fibre that was installed in networks 20 years ago is still being used today and will continue to be used.'

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

JS: Learn as much as possible about fibre and how to use and install it properly. Fibre that was installed in networks 20 years ago is still being used today and will continue to be used. This has been a never-ending learning curve, as technology never sleeps and when you look at very large networks – campus area, metro, long-haul, telco, undersea, hyperscale and cloud – they are all optical. ■

Stratford Girls' Grammar School reaps the rewards of flexible technology investment

Throughout the coronavirus pandemic, schools have worked to find innovative ways to educate and communicate with children and parents. Last year, Stratford Girls' Grammar School (SGGS) upgraded its broadband capacity to 1000Mb/s to allow for faster remote working. Fortinet enterprise grade kit allows teachers to work seamlessly from home, as well as enhancing safeguarding protocols, increasing bandwidth thresholds and providing a wireless network for the school grounds.

By the time the lockdown was made official, systems had already been integrated with Microsoft Teams. SGGS has also created a 'virtual staff room' for teachers, provided PE department fitness videos and ensured lessons interactively give students the ability to collaborate and upload videos as part of their coursework.

Associate staff have been granted remote access so that pastoral and data teams continue to function, working together on documents despite no longer being sat in the same physical office. Further instruction guides have also been created and shared to help teachers record lessons and create assignments they can mark virtually.

GIGA Data Centers begins building new colocation facility in Tennessee

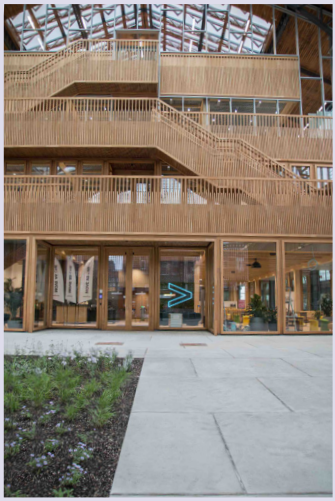
GIGA Data Centers is building its newest data centre in Oak Ridge, Tennessee. The company secured unanimous approval of its PILOT Program application from the Oak Ridge Industrial Development Board, obtaining tax incentives for the next seven years.

The Oak Ridge data centre has access to multiple fibre optic carriers, as well as high-reliability substations with green and renewable electricity. In addition, the facility represents the latest in data centre innovation to cost effectively support the higher power requirements needed for high-performance computing and storage in artificial intelligence (AI), healthcare, manufacturing, and many other industry segments.

The data centre will also provide the closest proximity to the supercomputers and databases operated by Oak Ridge National Laboratory (ORNL), including Summit, the world's fastest supercomputer, and access to the 140 research and commercial networks.

Siemon proves to be the natural choice for Accenture's new sustainable head office

Siemon's technology has been installed throughout Accenture's new 4,500m² head office complex at Gare Maritime in Brussels, Belgium. As part of its defined corporate social responsibility strategy, Accenture only works with partners that share the same focus on sustainable and socially responsible business ethics.



Accenture is located in Building 1 – also known as B1 – and required a network infrastructure that was both reliable and future proof. After consulting with its installation partner, Network Cabling Solutions (NCS), Accenture implemented a system comprising approximately 70,000m of Siemon's Category 7A shielded cable and 800 Category 6A shielded 10 Gigabit Ethernet ready Z-MAX connections across all office floors.

This network infrastructure supports all typical data and voice applications and will be able to handle higher bandwidth next generation technology. Applications currently utilising the cabling network include Wi-Fi and security cameras, as well as other intelligent building services.

The Siemon cabling solution at B1 will have a lifecycle of up to 15 years and support several generations of active equipment, thus reducing the need to remove and re-install cable over time. This limits waste and conserves copper, aluminium and other natural resources, while the shielded cabling used also reduces noise on the cabling channel, resulting in significant power savings for active electronics and lowering CO2.

PROJECTS & CONTRACTS IN BRIEF

Mobotix recently donated a Thermal TR camera to AVIS Milano. It was also installed completely free of charge by its partner, Ideologica.

3W Infra has moved its headquarters to office space in the maincubes AMS01 colocation data centre in Amsterdam Schiphol-Rijk, while deploying a private suite in this data centre for its global network backbone and comprehensive server infrastructure.

telent has been awarded a contract by Sure to upgrade its network and enhance its network security in Guernsey. The major upgrade will see telent install a 100Gb/s Juniper Networks core network to allow Sure to deliver faster, more reliable internet connectivity to its consumer and business customers across the island.

IT services at Milton Keynes University Hospital (MKUH) are now running at speeds of 5Gb/s thanks to a future proofing digital transformation delivered by CityFibre and Boxx Communications.

Panduit

Panduit and its printer technology partner, Epson, have launched the first two jointly developed printers for the industrial, construction and network infrastructure markets.

The MP100 and MP300 portable label printers offer an impressive range of capabilities in compact device formats, including a fast 36mm per second print speed, a wide variety of die-cut and continuous label sizes and materials up to 38mm wide, as well as USB connectivity, direct printing from Easy-Mark Plus software and an integrated automatic cutter with full and half cutting.

The MP300 also offers 360dpi print resolution, whilst the MP100 is fully integrated with Fluke Linkware Live. Both devices offer an operational temperature range of -40°C to 66°C and come complete with printer, one label cassette, AC power adaptor, USB cable and a quick reference guide.

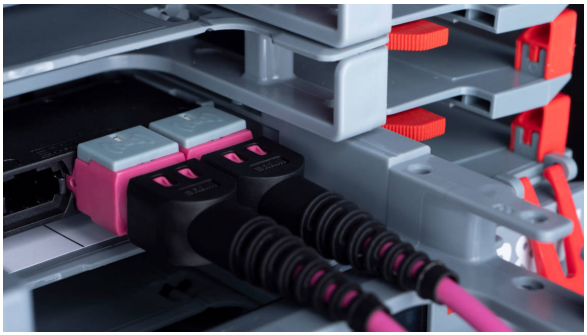
Epson will develop and manufacture new label printers for Panduit, except the own brand LabelWorks PX series. It is anticipated that the partnership will accelerate the development of new technologies and expand the product offering to current and new markets.

To find out more **CLICK HERE**.

www.panduit.com

R&M

R&M's new MPO-QR connector offers maximum packing density with easy locking and unlocking via a boot. This multiple-fibre push-on/pull-off connector is IEC-61754-7 and EIA/TIA-604-5 (FOCIS 5) compliant. The MPO-QR increases packing density by 50 per cent – up to 120 ports per rack unit.



In accordance with ANSI/TIA-568.3-D, the boot is coloured in the same way as MPO adaptors – grey for polarity B and black for polarity A. This allows for instant identification of polarity during installation and documentation.

The MPO-QR has a maximum insertion loss of 0.3dB, with a minimum return loss of 35dB for the multimode fibre solution and a minimum return loss of 55dB for the singlemode solution. It can be utilised in any MPO based infrastructure containing trunk assemblies, interconnect cords and MPO patch cords. The connector can be equipped with an RFID tag to automatically track patching operations.

To find out more **CLICK HERE.**

www.rdm.com

Paige DataCom

Paige DataCom recently introduced its patented GameChanger cable to the UK and European Union. It looks like a Category 6 cable but is the first cable of its kind to perform beyond the 100m channel distance for Ethernet data and power over Ethernet (PoE). It delivers 1Gb/s Ethernet and PoE+ up to 200m and 10Mb/s Ethernet and PoE+ up to 259m.

With its extended reach, GameChanger eliminates intermediate IDF requirements and the need to install repeaters, power supplies and other equipment, which are costly and introduce additional points of failure. It works with most Category 6 connectors and is supported by the field performance testing solutions of leading vendors including AEM, Fluke Networks, Ideal Networks, Netscout, Softing and Viavi.

GameChanger has been subjected to rigorous testing for performance and flammability. It has earned the CE mark,

having been certified for the Construction Product Regulation (CPR) and coded to the highest standard – Cca-s1a, d0, a1.

CLICK HERE to learn more.

paigedatacom.com

Leviton

Network cabling installers and IT managers require the right cable management in racks and cabinets to create and maintain a capable system.

The Leviton Cable Management Clip gives installers neater and more efficient management of their category rated cable. It also secures cables quickly – 40 per cent faster than traditional methods – without the need for user supplied ties or wraps.

The Cable Management Clip is designed for use with the Leviton standard Cable Management Bar. The Cable Management Clip attaches easily on the Leviton standard Cable Management Bar, without any tools, and allows discrete cable retention on the rear of the patch panels.

For more information about the Leviton Cable Management Clip **CLICK HERE.**
www.leviton.com

Draka/Prysmian

Draka, a brand of Prysmian Group, has published a comprehensive new technology guide titled Bend-Insensitive Fibres: A Key Component of Future-Proof Networks. It looks at the evolution of network systems and puts the case for bend-insensitive fibre – in particular G.657.A2 – as being the unique answer to securing future systems, enabling the most potential to be gained from deployed networks.

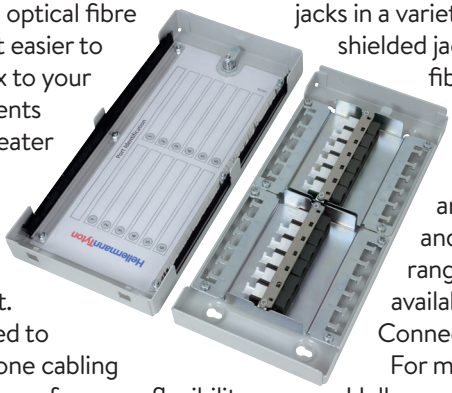
The guide provides a brief explanation of the types of bend-insensitivity. It then moves on to look at the latest developments in fibre coatings that virtually erase problems associated with bending, whilst also significantly reducing cable diameters and achieving high fibre density.

A key focus is on the range of benefits bend-insensitive fibres bring. For manufacturers and their customers, bend-insensitive fibres provide a greater scope for product design and cabling solutions. For installers, installation is easier and smaller connectivity devices can be used to save space. For network owners, using bend-insensitive fibre has considerable financial benefits, with optimised total cost of ownership and operational expenditure as a result of easier installation and robustness. Ultimately, latest generation bend-insensitive fibres help future proof higher capacity networks.

To download a copy of Bend-Insensitive Fibres: A Key Component of Future-Proof Networks **CLICK HERE.**
www.prysmiangroup.com

HellermannTyton

The new modular version of HellermannTyton Connectivity's Zone Termination Box (ZTB) allows for the use of keystone jacks and optical fibre adaptors, making it easier to configure each box to your bespoke requirements and giving even greater flexibility.



The ZTB is a compact and robust internal consolidation point. It has been designed to work as part of a zone cabling topology, which allows for more flexibility in regards to moves, adds and changes (MACs) within a structured cabling network.

Users can choose to have the ZTB loaded with Category 6 UTP keystone jacks in a variety of colours, Category 6A shielded jacks or LC duplex/SC simplex fibre adaptors. This new modular version ZTB has been developed through continuous feedback and design innovation, and complements the wide range of zone cabling solutions available from HellermannTyton Connectivity.

For more information on HellermannTyton Connectivity's range of zone cabling solutions **CLICK HERE.**
www.htdata.co.uk

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Let there be light

Piers Benjamin of Corning Optical Communications examines the importance of connectivity infrastructure in making buildings more intelligent

From offices to retail structures, the most important factors when considering commercial buildings are no longer physical attributes. Instead, advances in technology such as 5G and the internet of things (IoT) have emerged as key barometers of an effective infrastructure. In a digitally driven age, connectivity has become the lifeblood of all modern businesses and individuals across industries are recognising the need for commercial buildings to have holistically equipped network capabilities.

SUPPORT STRUCTURE

Improvements in technology have produced countless services and applications for business mobility, security and performance, but it is not enough to simply possess and utilise digital amenities. Growth amongst myriad industries has necessitated business entities to pursue faster networks to reap the rewards of digital enterprise.

An immediate factor driving network traffic is the transition to cloud but formidable applications such as 5G, IoT and artificial intelligence (AI) have begun to evolve in the network as well. Their development underscores network infrastructure as an important area not only to maintain but to improve steadily within businesses.

Complex infrastructure is necessary to interconnect, provide pathways, power condition and preserve the various requirements that come with disparate networks. Ultimately, the speeds required in the future network will outpace what a traditional network can handle and, as IoT devices are added, there is also a risk that these extensions could block cable paths. With the added hindrances of aging installations, packed telecom rooms, and shortages on above ceiling work, it is critically important to develop a LAN that meets current and future demands – with minimal impact to facilities.

FIBRE PROVIDER

Smart networks need to be reliable, redundant, and resilient. Traditional

'The convergence of passive and active components into an all-in-one solution differentiates POL from legacy LAN topologies. Fundamentally, POL moves the Ethernet edge out of a closet and closer to end user devices.'

copper networks are becoming severely outmoded due to speed, distance and reliability limitations. Conventional structured wiring requires a proliferation of cabling in the horizontal pathway, creating network congestion that is hard to manage over time and makes upgrades challenging to implement.

Fibre infrastructure, however, is future flexible and easily supports multiple services and applications. It provides virtually unlimited capacity and is the ideal media to converge multiple applications and services such as voice, data and video. This approach empowers multiple stakeholders within a building to access a single passive infrastructure to deploy the applications they need or prefer.

To be clear, there is still a place for copper in connected building infrastructures – it remains a compelling media for the last point-to-point connection to a device. However, its limitations mean networks should be designed to push the fibre to copper transition point deeper into the network or to the edge of it.

DEFINING MOMENT

A passive optical network (PON) is a fibre optic network that does not require active components for signal distribution. It replaces the aggregation electronics and associated copper cables in a traditional switch based architecture with passive optical splitters and singlemode fibres (SMF). This creates a longer lasting architecture that is cheaper to purchase, install and maintain than traditional copper architectures.

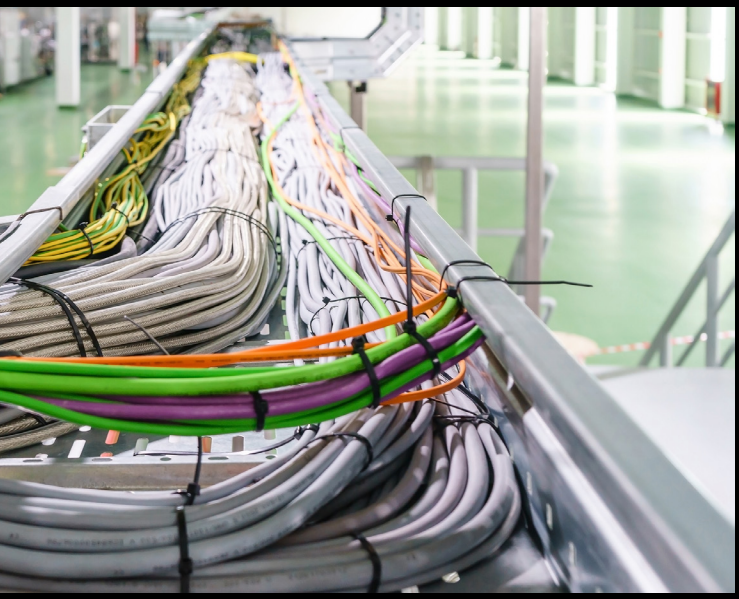
Passive optical LAN (POL) is the application of technology of a PON network in a LAN environment. There are three things to look for in PONs:

- Ensure splitter technology integrates seamlessly into the infrastructure
- Choose optical splitters that are proven to be reliable
- Leverage bend insensitive fibre technology and match a chosen installation method to a building's design requirements.

FULLY FUNCTIONAL

POL was devised to best serve enterprise environments, and recognising its basic design and characteristics is essential to understanding its benefits for businesses. The topology is point-to-multipoint using SMF as the cabling infrastructure – thus delivering the advantages of distance

and density. The central component is an optical line terminal (OLT) that functions as a fibre aggregation switch and provides full Layer 2 functionality. At the other end are the ONTs that convert the optical signals from the SMF fibres to the copper based infrastructure required by end user devices.



SMF cabling is thinner, lighter, more flexible, crush resistant and has a greater tensile strength than copper cabling. Resistance to corrosion and to electromagnetic interference have made fibre optic transmission the preferred resolution in modern networks. There has been a clear progression in the use of SMF as a backhaul infrastructure to building cabling, vertical networking applications and even the horizontal cabling solution. Its single greatest attribute is its bandwidth capability, which has been described as limitless and today's POLs have enough potential bandwidth to support the next five generation of LAN speeds. Today's SMF infrastructure has enough available capacity installed to support those speeds by simply changing network hardware.

The OLT and ONTs make up all active components. POL provides flexible mounting, powering and power over Ethernet (PoE) options. ONT powering can be served with both local and remote powering options, including battery back-up. The passive infrastructure compromises SMF, passive optical splitters and the cable management accessories used to house the splitters and distribute the fibre.

COMING TOGETHER

The convergence of passive and active components into an all-in-one solution differentiates POL from legacy LAN topologies. Fundamentally, POL moves the Ethernet edge out of a closet and closer to end user devices, and creates a large LAN footprint. In contrast to fibre based LAN, traditional copper based LAN has a somewhat restrictive distance limitation of 100m.

There is a stark difference between copper and fibre cabling. The use of SMF in a POL creates a LAN with a possible length of up to 20km and allows multi-storey buildings, multiple buildings, or even an entire campus to function as a LAN on just one OLT. This approach eliminates the

need for aggregated network switches and additional access restrictions, and provides environmental support. POL reduces space requirements, overall cable load, telecom closet expenses such as power and cooling, and simplifies operation by centralising LAN management.

BENEFIT CHECK

In comparison with point-to-point copper based LAN, there are extensive benefits derived from POL:

- The distance advantage of POL reduces or eliminates most of the telecom closets. This frees up valuable space and creates a reduction in power wconsumption.
- The density advantage of POL provides multiple horizontal fibres from a single switch port, multiple ports from a single fibre cable connection, and a 50-70 per cent reduction in structured cabling. This means less stress load on the building and less demand in plenum ceiling space.
- The security advantage of POL comes from SMF being a more secure medium than copper cabling, and ONTs being inherently secure because they are designed with no local management access.
- The future readiness of using SMF as the structured cabling provides a greater return on investment (ROI) on the initial capital investment, as it extends the lifespan of the cable plant from 5-7 years to 25-plus years.

ADAPTING FLEXIBLY

An intelligent building eschews traditional single purpose networks for a converged infrastructure. The benefits of a connected commercial building span from better space utilisation and tenant satisfaction, to improved sustainability and lowered risk of repair, and even reduced capital and operational expenditure. However, it also adapts to meet future challenges and contributes to the extent companies can reap the rewards of their investment decisions. Investing in quality fibre matters – it is the foundation that both sustains and connects modern businesses across the grid and around the world. ■

PIERS BENJAMIN

Piers Benjamin joined Corning Optical Communications in 2018 as EMEA marketing manager for in-building networks. He has over 10 years' experience within the industry, with past marketing roles including working for a UK distributor. At Corning, Benjamin is responsible for marketing activities across traditional LAN and fibre in the horizontal technologies.

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