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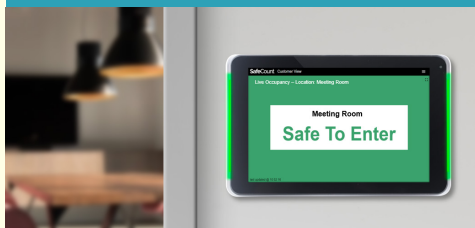
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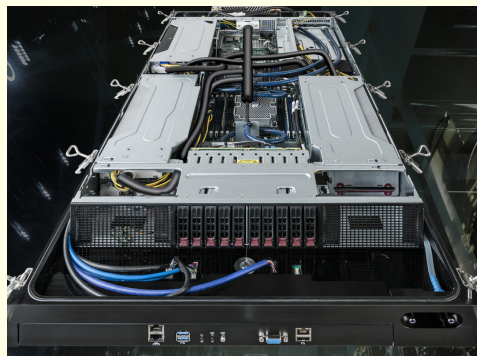
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The Global Digital Infrastructure Education Framework Designed and Delivered by CNet Training

Designed for those wishing to demonstrate the highest levels of knowledge, skills and expertise in the data centre and network infrastructure sectors.

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Guiding light

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Thanks to those of you who contacted me about last month's Question Time on the subject of the industry skills shortage and what needs to be done to address it. It's clear that this is a cause for real concern, so we'll keep you posted about any developments.

This month, we're focusing on something quite different – namely whether there are any benefits to using white enclosures and cabinets over traditional black variants in data centres. Advocates suggest that they reduce lighting costs, improve visibility and are more energy efficient. Others, however, are more dismissive and fall into two camps. There are those that disagree with the belief that they can save money full stop, while others acknowledge that even if they do save money, the amount is negligible compared to other measures that could be carried out. You can read what our panel of experts had to say on the subject by [CLICKING HERE](#).

We also take a look at light of a different kind in the shape of optical fibre cabling. There's been a great deal happening in this area over the last few years and we have two excellent articles on the subject. In the first, Gary Bernstein of Leviton explains how and why singlemode optical fibre continues to gain market momentum. In the second Martin Ashton of Draka/Prysmian and his colleagues offer their views on what's ahead for optical fibre. [CLICK HERE](#) to read Gary's article and [CLICK HERE](#) to read Martin's.

We also have a special feature dedicated to cooling and climate management. David Craig of Iceotope explains how to cool things down at the edge, while Chris Wellfair of Secure IT Environments talks about how remote monitoring systems play a key role in micro-modular and edge data centres throughout the summer months and beyond. You can [CLICK HERE](#) to read David's article and [CLICK HERE](#) to read Chris's.

I hope you enjoy this issue of Inside_ Networks and if you'd like to comment on any of these subjects, or anything else to do with enterprise and data centre network infrastructures, I'd be delighted to hear from you.

Rob Shepherd

Editor



Inside_Networks
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Construction workers left depressed and suicidal after contractual issues

Half of all small to medium sized enterprises (SMEs) in the construction sector say that their employees have suffered health issues due to late or unfair payment issues, according to a YouGov survey commissioned by ECA and BESA.

The construction sector fared badly compared to 11 other sectors of the economy surveyed including manufacturing, real estate and healthcare. Overall, construction was the second worst for health issues caused by payment and contractual issues, after the legal sector. Decision makers at SMEs reported the following mental health issues:

- 40 per cent said employees suffered from stress
- 18 per cent said employees suffered from depression
- 17 per cent said employees suffered anxiety and/or panic attacks
- Three per cent said employees had suicidal thoughts
- One per cent said employees had attempted suicide



Rob Driscoll, ECA director of legal and business, said, 'These findings are a shocking,

if unsurprising, reflection of the widespread mental health issues across the construction industry caused by poor contractual and payment practices.'

Businesses say coronavirus has sped up their digital transformation efforts

The results of a survey from Twilio measuring the impact and outlook of the coronavirus pandemic on businesses' digital engagement strategies has found that it has had a dramatic effect. The company surveyed over 2,500 enterprise decision makers globally and 95 per cent of respondents said they are seeking new ways of engaging customers, with 92 per cent stating that transforming digital communications is extremely or very critical to address

current business challenges.

'Over the last few months we've



seen years-long digital transformation roadmaps compressed into weeks,' said Glenn Weinstein, chief customer officer at Twilio. 'Our customers in nearly every industry have had to identify new ways to communicate with their customers and stakeholders. Cloud scale, speed and agility are enabling organisations to innovate faster than ever. We

believe the solutions being built today will be the standard for digital engagement in the future.'

Report questions SD-WAN's relevance in post coronavirus remote workplace

According to a report assessing the current software defined wide area network (SD-WAN) marketplace from Accelerate Technologies, organisations have changed their opinions of the technology following the coronavirus pandemic.

The report – The Future of SD-WAN in a UK Economy – is based on the views of 800 IT leaders. The data found that a third of organisations have no plans to deploy SD-WAN, with 55 per cent favouring the emerging single cloud service model of secure access service edge (SASE), which converges SD-WAN features with cloud



based security services for remote workers and devices. Nearly half said WAN optimisation already gave them the required performance or preferred the centralised security and single point of public entry offered by traditional multi-protocol label switching (MPLS) WAN architectures.

Darran Clare, director of technologies at Accelerate, said, 'The remote worker challenges introduced by coronavirus have naturally shifted peoples' focus from site-to-site WANs to the needs of a more flexible workplace. We also see concrete proof that WAN optimisation is far from dead and such services can play a key part in improving the performance of cloud hosted applications where latency is the underlying issue.'

Vantage Data Centers acquires Next Generation Data (NGD)

Vantage Data Centers has closed its acquisition of Next Generation Data (NGD) in the Cardiff Capital Region of South Wales from InfraVia, along with the two founders of NGD. Cardiff marks Vantage's sixth European market following its acquisition of Etix Everywhere and entrance into Berlin, Frankfurt, Milan, Warsaw and Zurich in February 2020.

'The acceleration of digital transformation that continues to be at the forefront of our global economy emphasises the need for reliable data centre capacity that can scale quickly to meet skyrocketing

demand,' said Sureel Choksi, president and CEO at Vantage Data Centers. 'Vantage is excited to enter the UK market and is

committed to growing around the world in locations that are most critical to our hyperscale and cloud customers.'

Joining Vantage is the NGD team, including former CEO Justin Jenkins, who will serve as chief operating officer of Vantage Europe and president of Vantage UK. He said, 'The NGD team and I are elated to join Vantage. Together, we will accelerate our shared vision to



become the preeminent hyperscale data centre provider globally.'

82 per cent of business leaders intend to allow remote working some of the time

Following Gartner's recent research, which found that 82 per cent of respondents intend to allow employees to work remotely for some of the time, Silver Peak has highlighted the need for infrastructure to support a company's operations and solve remote user application and network challenges.

Simon Pamplin, Silver Peak's technical director, said, 'Gartner's new survey exhibits the need for organisations to remain adaptable to the changing working conditions the coronavirus pandemic has



facilitated. Organisations must also look to the infrastructures that support company operations, which will be under pressure to support a distributed workforce.'

Pamplin added, 'The primary challenge is in connecting this workforce to business enabling applications and services residing in the data centre and the cloud. For example, a company that had 50 branch offices before lockdown must now grapple with the idea that every user, and their home network, is a new branch they have to support, representing an exponential increase in the number of sites.'

European companies show newfound cloud maturity

For the third consecutive year, Mitel has carried out research into European companies' adoption of cloud-based communications. The survey, conducted by Spoking Polls with 1,108 European IT decision makers, highlights a rising adoption rate among businesses and a newfound maturity when it comes to migrating towards an as-a-service model.

The coronavirus pandemic has bolstered this trend by underlining just how much companies need solutions that allow them to be agile and remain productive regardless of the circumstances. UK businesses are more likely than their European counterparts to use a public cloud architecture for communications. 33 per cent of UK businesses said they

would prefer a public cloud approach, with private cloud coming in second at 20 per cent. However, across Europe variations of private cloud, with apps hosted in owned data centres and a dedicated access network, are the most popular choice (31 per cent). This is likely an indication of cloud computing being more widely adopted in the UK than in other European markets.



'Businesses across Europe have turned a corner in the last two years,' commented Rami Houbby, vice president international cloud sales at Mitel.

'Companies are choosing the cloud for its flexible economics and access to the latest innovations, which bring increased productivity and customer intimacy. IT leaders must deliver on their organisations' objectives for agility and competitiveness.'

F-Secure highlights the challenges facing organisations that discover counterfeit components in their IT infrastructures

F-Secure has published a report detailing its investigation into a pair of counterfeit network switches. The investigation, which concluded that the counterfeits were designed to bypass processes that authenticate system components, illustrates the security challenges posed by counterfeit hardware.

F-Secure investigated two different counterfeit versions of Cisco Catalyst 2960-X series switches. The counterfeits were discovered by an IT company after a software update stopped them from working, which is a common reaction of forged/modified hardware to new software. At the company's request, F-Secure Consulting performed a thorough analysis of the counterfeits to determine the security implications.

The counterfeits were physically and operationally similar to an authentic Cisco switch. One of the unit's engineering suggests that the counterfeiters either invested heavily in replicating Cisco's original design or had access to proprietary engineering documentation

to help them create a convincing copy. Investigators found that while the counterfeits did not have any backdoor-like functionality, they did employ various measures to fool security controls. For example, one of the units exploited what the research team believes to be a previously undiscovered software vulnerability to undermine secure boot processes that provide protection against firmware tampering.

F-Secure's head of hardware security, Andrea Barisani, said, 'Security departments can't afford to ignore hardware that's been tampered with or modified, which is why they need to investigate any counterfeits that they've been tricked into using. Without tearing down the hardware and examining it from the ground up, organisations can't know if a modified device had a larger security impact. And depending on the case, the impact can be major enough to completely undermine security measures intended to protect an organisation's security, processes and infrastructure.'

NEWS IN BRIEF

The 2020 ISG Provider Lens Next-Gen Private/Hybrid Cloud – Data Center Services & Solutions Report for the Nordics finds hybrid and multi-cloud set-ups becoming the new normal in the Nordic region, with more than half of all companies planning to migrate their applications to a multi-cloud model.

Paul Finch, interim CEO and COO at Kao Data, has joined the iMasons Advisory Council, contributing his insight and experience in data centre cooling, energy efficiency and sustainability.

ABB has again been selected as a member of the FTSE4Good Index Series, marking the 20th consecutive year of recognition for its sustainability performance. With an overall score of 4.1 on a scale of 0-5, ABB is among the best performers in the index and a leader among its peers.



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Why are we still wary of AI?

Hi Rob

Artificial intelligence (AI) is being used to power many aspects of our day-to-day lives. Whether we're seeking directions or film recommendations, life would be far more complicated if we could not rely on our trusted, AI powered digital assistants. And yet, the public remains distrustful of this technology.

Fountech.ai recently polled over 2,000 UK adults to uncover their concerns about AI. It revealed that 61 per cent of respondents are concerned by the idea of AI systems being able to function without human assistance – a figure which rises to 70 per cent among over-55s.

This should serve as a red flag as we continue to integrate AI more deeply into society and develop novel solutions that support the greater good. Take autonomous vehicles, for instance, which have the potential to significantly reduce the number of fatal road traffic accidents and save countless lives by eliminating the risk of human error. The medical field,

too, stands to benefit from AI tools which are increasingly becoming more adept at spotting and diagnosing diseases.

The main question that we should be seeking to answer is this should we be trying to make AI more human to get people on board with the technology? Indeed, the evidence suggests that the lack of a distinctly 'human' element in AI puts people off fully trusting machines with routine tasks or decision making.

According to the Fountech.ai research, 57 per cent of respondents think that AI is fundamentally flawed, as it cannot apply the same emotional intelligence or intuition that humans can when making decisions. As a result, 69 per cent believe a human should always be monitoring and checking decisions that are made by AI.

The research confirms that we are fixated on humanising AI. Due to advances in natural language processing (NLP), our conversations with chatbots, for instance, are increasingly becoming more natural and

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we are coming to expect the same level of customer service from virtual assistants. But are we going far enough – and what challenges stand in our way?

Artificial general intelligence (AGI) has long been hailed the gold standard for AI. If AI advances to this point, it will be able to express inherently human qualities like consciousness and self-awareness. That said, it is still unclear if we will ever achieve true AGI in our lifetime. We still have very little understanding of how the human brain actually works, let alone how we can translate complicated and elusive cognitive features like consciousness into machines through the medium of algorithms and code.

In theory, adding these characteristics to AI will be groundbreaking. It will enable humans to empathise with machines and will likely accelerate the adoption of this technology. In all likelihood, we will be more willing to trust AI to drive decision making if it can display empathy towards the user. It is difficult to gauge how long it might be until this breakthrough arrives, but in the meantime we must focus on enhancing our comprehension of the human brain and

finding ways to help AI better integrate with human culture.

The reality is that most people are relying on and actively using AI without even realising it, yet there is still a significant knowledge gap when it comes to people's general awareness and understanding of AI. As a result, many people are naturally apprehensive about giving up certain decision making powers to machines. That's why we must work harder to plug these gaps and demonstrate the many benefits that AI can offer.

Nikolas Kairinos
Soffos

Editor's comment

Now that AI is around us on some level every day, attention is being given to how much further we want to integrate it into our lives. The research findings that Nikolas quotes make it clear that there is a great deal of concern surrounding its ability to replace humans in decision making. It's fascinating stuff though and we are only at the beginning of what's possible.

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Light relief

The marketing of white cabinets and enclosures focuses on their ability to reduce lighting requirements, improve visibility and offer a more energy efficient alternative to their black and grey counterparts. [Inside_Networks](#) has assembled a panel of industry experts to separate fact from fiction

▶ When they were first introduced, they were viewed as little more than a gimmick. However, white cabinets have slowly but steadily become more popular – and not just for aesthetic reasons.

With white reflecting around 80 per cent of light and black only five per cent, white cabinets can, it is claimed, reduce lighting energy consumption. As this is an instant saving on the overall operating expenditure of a facility, it shouldn't be sniffed at.

So why isn't everyone using them as a matter of course? The simple answer is that some disagree that white cabinets offer any significant benefits and that

their proponents use bogus scientific arguments. Even those who concur that white cabinets can offer some energy reduction benefits believe the savings are insignificant compared to other measures that could be undertaken to make a data centre more efficient.

In order to get to the bottom of the issue of whether black or white cabinets should be used in data centres, [Inside_Networks](#) has assembled a panel of experts to examine the issue.

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

DO THE CLAIMS MADE ABOUT THE ABILITY OF WHITE CABINETS AND ENCLOSURES TO SAVE ENERGY, REDUCE LIGHTING REQUIREMENTS AND IMPROVE VISIBILITY IN DATA CENTRES STACK UP? IF THEIR ADVANTAGES ARE SO EXTENSIVE, WHY AREN'T THEY MORE COMMONLY SPECIFIED AS STANDARD INSTEAD OF BLACK AND GREY VARIANTS?

JOHN BOOTH

MANAGING DIRECTOR AT CARBON3IT

The EU Code of Conduct for Data Centres (Energy Efficiency) best practice 7.1.3 states, 'Use pale/light colours on walls, floor fixtures and fittings including cabinets etc to reduce the amount of lighting required to illuminate a data hall and therefore the energy consumed in lighting. This will also ensure good levels of visibility both throughout the hall and within cabinets.' I couldn't find any reference to lighting, or the colour of cabinets in the EN 50600 series, but it may be included in subsequent revisions.

I recently read an article which indicated that luminescence could be increased by 180 per cent and energy use reduced by 35 per cent by switching from black to white cabinets. This was based on reducing from 500 lux to 350 lux in the white space and the test appeared to have been carried out using 20 rows and 90 cabinets, comparing white and black cabinets in hot/cold aisle configurations.

This makes absolute sense to me, so I did some research. The Materials Research Laboratory at UC Santa Barbara Science Line website states that 'A black object absorbs all wavelengths of light and converts them into heat, so the object gets warm. A white object reflects all wavelengths of light, so the light is not

converted into heat and the temperature of the object does not increase noticeably.'

Another article also supported a move to white (pale) cabinets and highlighted energy savings, a better working environment and heat energy considerations. It also mentioned that using white cabinets would comply with Leadership in Energy and Environmental Design (LEED) requirements. That said, lighting only accounts for around one per cent of data centre energy, so it's a marginal call at best, although I have seen plenty of LED replacement projects in data centres where there is an 80 per cent saving to be made by using them.

As for cabinet specification, that's in the eye of the specifier and the paint options available. Perhaps it's time for manufacturers to take a slightly altered leaf from Henry Ford's book and offer any colour, as long as its white.



'I RECENTLY READ AN ARTICLE WHICH INDICATED THAT LUMINESCENCE COULD BE INCREASED BY 180 PER CENT AND ENERGY USE REDUCED BY 35 PER CENT BY SWITCHING FROM BLACK TO WHITE CABINETS.'



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LEE FUNNELL

TECHNICAL SERVICES GROUP MANAGER AT SIEMON

There has been an ongoing belief that the use of lighter coloured cabinets, as opposed to black variants, will lead to lighting and associated cost savings for data centres. Many have adopted this without really going into the detail of the subject.

When it comes to creating an effective design for white space that supports energy reduction while improving visibility, the colour and positioning of cabinets is only part of the equation. Another key factor in any modern data centre design is understanding the lighting system being deployed.

Traditionally, lighting systems have been designed by lighting designers rather than those who are involved in the design and use of the white space. Lighting designers work on reflected light plans, which focus on the light level of the walls and factor in the distance from the ceiling slab to the floor level. Typically, they don't take into account the positioning of cabinets and other infrastructure.

We must remember that not every data centre environment is the same. Some, for example, will have VED based systems, which through the use of lighter coloured chimneys will reflect light and perhaps improve or even reduce the overall effectiveness of the lighting system deployed. Others might use containment systems or other optical fibre routing conduits that could affect how lighting interacts with space.

The majority of lighting installed has been based on conventional systems available such as T-style fluorescent products and

not based on the benefits in terms of cost and performance management. LEDs, for example, will automatically reduce lighting costs in excess of 70 per cent.

It is essential that the white space, cabinet layout and lighting system are managed as one during the design process. This will ensure optimal performance in terms of the required light levels and cost savings when comparing older

lighting systems to LED based alternatives.

The continued offering by vendors of a range of colours to suit client needs, despite the long promoted 'benefits' of white cabinets, combined with wider considerations regarding lighting and other more effective sources of efficiency and savings, suggest that this is more of a preference than a necessity.



'WHEN IT COMES TO CREATING AN EFFECTIVE DESIGN FOR WHITE SPACE THAT SUPPORTS ENERGY REDUCTION WHILE IMPROVING VISIBILITY, THE COLOUR AND POSITIONING OF CABINETS IS ONLY PART OF THE EQUATION.'

CHARLIE HANMAN

REGIONAL SALES MANAGER AT CHATSWORTH PRODUCTS (CPI)

First, it is important to understand light reflectance value (LRV). Stay with me here!

LRV is the total quantity of visible and

useable light reflected by a surface in all directions and at all wavelengths when illuminated by a light source. Essentially, it tells you how much light a colour reflects and/or absorbs. The LRV scale runs from 0-100 per cent, assuming there exists a perfectly reflective white and an absolute black. In practice, the average blackest black has an LRV of five per cent and the whitest

white 85 per cent. So above the mid-point of 50 per cent more light is reflected into the room than absorbed.

RAL 9300 has an LRV of approximately 83 per cent so, in theory, the increase in reflected light should mean that a data centre can be lit with fewer lighting fixtures. However, the advent of occupancy sensors that turn off lighting when not needed, and the trend toward efficient light sources such as LEDs, reduces the cost and energy saving impact of white cabinets. There is also the reflectivity of other surfaces within the data centre to consider, with the cabinets and containment being only a part of one element of an overall ecosystem.

Where RAL 9300 cabinets have a distinct advantage is within the cabinet itself. Here

the increased LRV should certainly make for an improved working environment for a technician, who should be able to see more clearly inside the cabinet.

Considerations around the aesthetics and working environment aside, the ability of a white cabinet over a black cabinet to reduce costs and drive efficiencies in the data centre are indeed real but negligible when compared to the savings offered by an effective airflow management (containment) strategy. This allows

a data centre cabinet to support high density equipment whilst driving energy efficiency and lowering cooling costs.

That said, perhaps the market has spoken already with CPI seeing sales of its RAL 9300 cabinets outstrip those of the classic black cabinet by 72 per cent to 28 per cent.



'THE ABILITY OF A WHITE CABINET OVER A BLACK CABINET TO REDUCE COSTS AND DRIVE EFFICIENCIES IN THE DATA CENTRE ARE INDEED REAL BUT NEGLIGIBLE WHEN COMPARED TO THE SAVINGS OFFERED BY AN EFFECTIVE AIRFLOW MANAGEMENT (CONTAINMENT) STRATEGY.'

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An aerial photograph of London, England, featuring the Gherkin building (30 St Mary Axe) in the foreground on the right. The city's dense urban landscape, including the River Thames and various buildings, is visible in the background under a cloudy sky.

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PRECISION
CABLES

JOHN LABAN

RESET CATALYST AT THE OCP FOUNDATION & OPENUK BOARD MEMBER

Take a look at a photo of any data centre white space and the chances are that it will be filled with black enclosures, racks and cabinets. This is one of the great anomalies within this sector – I mean, what brainless idiot would use black racks in a data centre white space?

When thinking about this subject I was reminded about the West African black rhinoceros, which tragically was officially declared extinct in 2011, the same year that the Open Compute Project (OCP) came into existence. Since this time the OCP has caused a revolution in traditional Tier III enterprise data centres by promoting the use of vanity free open source technology driven by prosumers.

However, nearly 10 years on from the demise of the West African black rhinoceros, many homo-sapiens operating in the data centre sector are still refusing to maximise the sustainability of their facilities. Put simply, it is time to rethink how data centre equipment is specified and, based on the idea that every little bit helps, I look forward to the extinction of black racks in data centre white spaces.



Not only does the use of white racks makes it easier to carry out work within them, the associated reduction in CO2 emissions from using a light coloured rack will make a contribution to saving more species in Africa from extinction. Take, for example, the northern white rhino. In 2018 the world's last male northern white rhino died at a wildlife preserve in Kenya and there are only two females left.

I hope to see the extinction of black enclosures, racks and cabinets in data centre white spaces before the last northern white rhinos. However, I could be of course be wrong about campaigning for the extinction of black racks in data centre white spaces – what do you think?

'IT IS TIME TO RETHINK HOW DATA CENTRE EQUIPMENT IS SPECIFIED AND, BASED ON THE IDEA THAT EVERY LITTLE BIT HELPS, I LOOK FORWARD TO THE EXTINCTION OF BLACK RACKS IN DATA CENTRE WHITE SPACES.'

MICHAEL AKINLA

SENIOR MANAGER NORTH EUROPE AT PANDUIT EMEA

This is an interesting topic. The more prosaic reason why more cabinets are in dark colours is due to manufacturer choice – possibly fashion or influenced personal preference.

Interestingly, for the past few years the leading colour choice for cars has been dark grey or black. In an increasingly safety conscious world, why do drivers choose a colour that is more difficult to see in the dark? Is there a Batman or Darth Vader subtext? Do rows of shiny black cabinets with flickering lights bring to mind the sleek efficiency of a Star Destroyer, against the ragbag white of the rebellion control facility?

It is time data centres and other technical spaces reviewed the actual information available, which indicates that white cabinets and containment systems do have a positive effect on the efficiency of lighting in technology suites. In fact, any closed environment where cabinets are to be installed or old systems upgraded needs to be assessed for the most effective and efficient cabinet and lighting layout.

White is right is not a modern touchstone. For 10 years HPC has used white server cabinets at its data centres, claiming energy savings via the white reflective surfaces that allow less-intensive lights to be used.

Panduit extended its range of white infrastructure products after it investigated the topic and produced a white paper

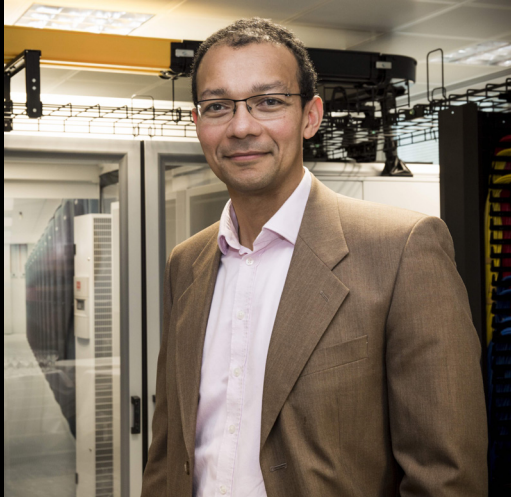
on the subject. The paper reviewed not only basic cabinet configuration, but also variables using aisle containment systems and vertical exhaust ducts (VED) and the impact they have on lighting design.

The results illustrated that using white

cabinets instead of black cabinets increases illuminance, which means that a data centre can be lit with fewer light fixtures that reduce wattage systems and maintain lux levels. The study indicated that

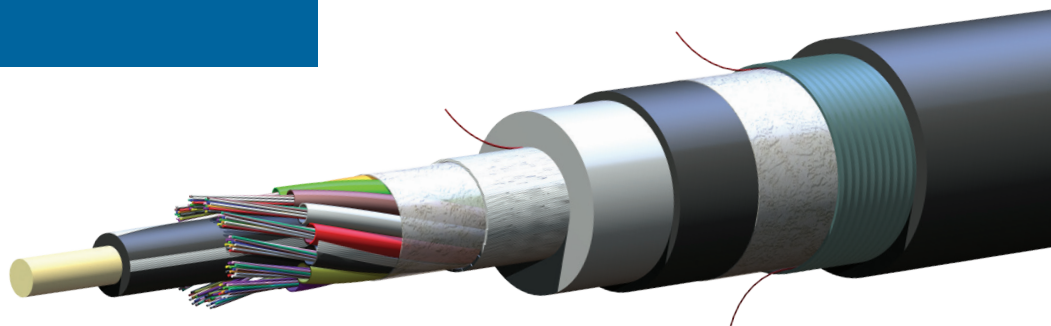
the lighting electrical load, energy cost reduction for the baseline configuration could be as much as 25 per cent, and for VED configuration it could lead to a 35 per cent saving.

For a brighter, safer and energy saving technical space white cabinets must be a serious consideration.



'IT IS TIME DATA CENTRES AND OTHER TECHNICAL SPACES REVIEWED THE ACTUAL INFORMATION AVAILABLE, WHICH INDICATES THAT WHITE CABINETS AND CONTAINMENT SYSTEMS DO HAVE A POSITIVE EFFECT ON THE EFFICIENCY OF LIGHTING IN TECHNOLOGY SUITES.'

CORNING



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CHRIS WELLFAIR

PROJECTS DIRECTOR AT SECURE IT ENVIRONMENTS

We have certainly seen growth in demand for light coloured cabinets in recent times. Previously, they had largely been black, other than the occasional request for own branded colours.

There are a couple of good reasons for choosing lighter cabinets – they provide better visibility when working in them and, believe it or not, reduce overall data centre energy consumption. There is also the minimalist aesthetic, which appeals to some, although to others they can appear too ‘clinical’. Some

people also argue that they get dirty more quickly – though perhaps that says more about their data centre in general than it does about colour!

If light coloured cabinets are used in volume, they may contribute to lowering data centre energy bills. This is because of their LRV – lighter cabinets will reflect up to about 80 per cent of light, while a black cabinet will only reflect around five per cent. This may mean you can use lower wattage lighting, for example.

Also, black cabinets convert any non-reflected light energy into heat. This is much the same argument as having a white or black painted front door that faces the sun all day. A black door will be much hotter

than a white door come 5.00pm. However, in the data centre this probably has a very minimal impact on the total heat load that the mechanical plant needs to dissipate.

So, should you make the move to lighter cabinets? It really is a matter of choice. Other than the aesthetic and possible improved light in the cabinet for maintenance, it is hard to see a strong argument to choose them over black variants. They can look fantastic, and I would specify them for a new project, but I would not start converting an existing data centre from darker colours to lighter options for any other reason.

In most data centres, there will be much better ways to invest in improve energy efficiency and reduce running costs, with a quicker return on investment.



‘SO, SHOULD YOU MAKE THE MOVE TO LIGHTER CABINETS? IT REALLY IS A MATTER OF CHOICE. OTHER THAN THE AESTHETIC AND POSSIBLE IMPROVED LIGHT IN THE CABINET FOR MAINTENANCE, IT IS HARD TO SEE A STRONG ARGUMENT TO CHOOSE THEM OVER BLACK VARIANTS.’

ETC Group acquires Comtec Group

Euro Techno Com Group (ETC Group) has acquired Comtec Group, allowing it to further expand its geographic footprint and customer base. In particular, ETC Group now benefits from a strong foothold in the fast-growing UK market, where all major telecom operators and alternative networks have started a long-term deployment phase of optical fibre across the country to support the ever-increasing demand for high-speed connectivity.

Ambitious targets and the complexity of fibre network deployments are increasingly making ETC's offering critical to operators that seek to maximise operational efficiencies and lower their deployment costs. The acquisition also allows ETC Group to serve the growing

IP infrastructure market for enterprise customers and further expand its offerings and expertise in data centre supply and maintenance.



Cédric Varasteh

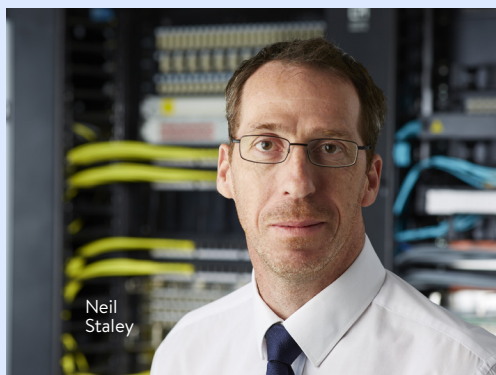
Cédric Varasteh, founder of ETC Group, said, 'The acquisition of Comtec is a milestone in ETC's growth. It allows us to significantly enhance our geographic reach and further expand our range of products and technologies, particularly in the UK market where demand for value-added services of telecom equipment is growing.'

John Archer, CEO of Comtec Group, added, 'We are delighted to join ETC Group and combine our offering, expertise and scale to further support our customers in accelerating their fibre and IP infrastructure deployments. The acceleration of fibre rollout will create several business opportunities for which the enlarged group is uniquely positioned.'

Mayflex wins Distinguished Partner Award from Edgecore Networks

Mayflex has been awarded the Distinguished Partner Award for 2019 from Edgecore Networks. Mayflex was one of a few worldwide partners recognised by Edgecore Networks for excellent performance, innovation and quality throughout 2019.

Neil Staley, Mayflex's market manager, said, 'I was delighted to accept this award



Neil Staley

on behalf of Mayflex. Edgecore provides an excellent range of wired and wireless networking products and it's a brand that is growing in popularity with our customers due to the build

quality of the products and their reliable performance. We've particularly seen an increase of Edgecore switches being used for IP security installations.'

Schneider Electric named HPE Momentum Edge Partner of the Year 2020

Schneider Electric has been named Hewlett Packard Enterprise (HPE) Momentum Edge Partner of the Year 2020 – the first company to win in this newly-added category. At the HPE Partner Growth Summit Virtual Experience, channel partners from across the partner ecosystem were awarded for their outstanding performance, commitment to customer excellence, focus on growth and innovation, and professional achievements.

Schneider Electric and HPE first announced their partnership in 2016 to produce a joint architecture for micro data centre solutions to power the intelligent

edge. Both companies were aligned in leveraging the opportunity for tremendous benefits by moving computing to the network edge but recognised that there were no offers or supply chain in place.

‘We are proud to be recognised for our collaborative efforts in bringing commercial and industrial edge together with operational technologies for the benefits of our customers,’ said Chris Hanley, senior vice president, commercial operations, global channels

and alliances at Schneider Electric. ‘We look forward to growing this critical relationship with HPE to continue developing innovative new solutions that empower our customers to leverage the edge for their businesses.’



Blue Helix forms new partnership with AMG

Blue Helix has announced a new partnership with AMG. AMG's experience in the manufacture and supply of environmentally robust fibre, analogue, IP/Ethernet, wireless and hybrid communication transmission solutions complement Blue Helix's track record in supplying solutions for the security and networking market.

‘We're delighted to announce this partnership with AMG, which delivers high-quality security solutions,’ said Andy Perrott, general manager at Blue Helix. ‘The addition of AMG to our product portfolio will bring significant value to



installers seeking to provide their customers with best in class security products.’

Steve Clarke, managing director at AMG, added, ‘The partnership made perfect sense. Our security solutions align perfectly with Blue Helix's customer

base, which includes the government, defence, education, utilities, and corporate sectors. We are already working with the Blue Helix team to support these customers throughout the UK.’

NextGen Communications agrees long-term education and development plan with CNet Training

NextGen Communications has committed to upskill and professionally certify its teams with CNet Training. The training and development contract provides NextGen Communications with access to technical education programs from CNet Training's Global Digital Infrastructure Education Framework for all team members to work towards ambitious companywide objectives.

The learning package allows NextGen Communications to pick the technical education programs that are most suitable for its immediate and longer-term needs. As new projects arise, members of the team join and as existing members of staff progress, the company will decide which

skills are needed to enhance competencies, providing team members with the knowledge required for future career progression.

Andrew Stevens, CEO at CNet Training, said, 'We are delighted to be working alongside NextGen Communications to provide technical education and development. This highlights to the industry the company's commitment to build, strengthen and equip its teams with all the technical knowledge and confidence they need to be able to drive growth and development within the business, and continue to deliver their services to the highest level.'



CHANNEL UPDATE IN BRIEF

Resolve Systems has two new senior vice presidents. The appointment of Prashant Ketkar and Abhinay Padhye underscores the company's commitment to bringing innovative new offerings to the market that fuel agile, autonomous IT operations.

Netmore has selected Affirmed Networks as supplier of virtualised core networks that support rapid growth in private 5G networks.

Ivanti has appointed Nayaki Nayyar as executive vice president and chief product officer. Nayyar joins the Ivanti executive team from BMC, having also held leadership roles at SAP, Valero and Shell.

LogicMonitor has seven new channel partner additions to its LogicMonitor Partner Network. These strategic additions span four continents and include Bluemara in Spain, Cloud Creek Systems in the US, ReTune in Scandinavia, Hagrid Solutions in Australia, Qinetics in Malaysia, and Ultima Business Solutions and TransACT Technology Solutions in the UK.

Aryaka and 8x8 have announced a global technology partnership that will extend the 8x8 Open Communications Platform performance across Aryaka's managed SD-WAN service.



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One of a kind

Gary Bernstein of Leviton explains how and why singlemode optical fibre continues to gain market momentum



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Over the past several years, Leviton has polled network professionals about the type of fibre they would install today, and we have seen solid growth in singlemode OS2 fibre. In the latest March 2020 poll of 281 network professionals, more than 60 per cent said they would install singlemode (OS2) today over other multimode types, with OM4 coming in second at 28 per cent. This change is likely a result of decreasing cost and recent standards committee activities that continue to promote more singlemode options for higher speeds. As this trend continues, the market in general will find

singlemode a more enticing option, so let's take a closer look at some of the reasons behind its rise.

CHANGE DRIVERS

As with most data centre networking trends, hyperscale and cloud data centre operators tend to be the ones driving change. Whether it be density, termination methods or infrastructure types, market leaders and high-profile companies offer techniques to mimic or avoid. But the sheer size of hyperscale facilities – along with the lightning fast speeds required to serve data centre customers – have made



with MPO connections more than any other fibre type. Also, Facebook has undergone efforts to shorten its data centre cable links to 500m or less, allowing it to deploy singlemode solutions at lower costs. These singlemode installations can support higher data rates and higher cabling densities at distances beyond that of multimode.

REACH FOR THE STARS

Right as these hyperscale operators are deploying 100Gb/s, 200Gb/s and 400Gb/s channels, and large enterprise are moving up to 100Gb/s – even without the longer reach requirements – we begin to see cost parity of multimode and singlemode channels at higher bandwidths.

the bandwidth and reach capabilities of singlemode the infrastructure of choice for new installations.

There was a time when singlemode transceivers were typically up to eight times the cost of multimode. But the purchase volumes of hyperscale and cloud data centre operators have led to a significant reduction in cost for singlemode infrastructure.

In 2016, Microsoft Azure moved the vast majority of its data centre fibre cabling to singlemode. In fact, Microsoft is now 99 per cent singlemode, using parallel singlemode

100 Gb/s Single-Mode	Distance (m)
100GBASE-DR	500
100GBASE-PSM4	500
100GBASE-CWDM4	2,000
100GBASE-LR4	10,000
100GBASE-ER4	40,000

For example, when looking at singlemode 100G-PSM4 and multimode 100G-SR4 – both parallel optic variants for a 100Gb/s channel – the two options have become essentially the same price for optics and cabling. PSM4 transceivers were specifically designed as a lower cost option for at least 500m of reach, using an 8-fibre MPO/MTP connection. Just as importantly, the price for long reach singlemode solutions such as 100G-CWDM4 (2km over duplex fibre) have dropped significantly and will continue to drop over the next several years.

When cost is no longer a factor, singlemode becomes the clear choice over multimode. For this reason, singlemode transceivers are expected to account for 68 per cent of the total market volume by 2022, according to LightCounting.

GENERATION GAME

One major advantage of singlemode is its longevity – there are simply less generations of fibre to deal with. If you installed OS1a or OS2 singlemode years ago, you would be able to support a current generation

speed at the distance specified by standards. For example, OS2 cable installed 10 years ago could support a new 100Gb/s network such as 100GBASE-DR at 500m. The connectors might need replacing, but you would

not need to pull new cable. With multimode, OM1 or OM2 would not be able to support a new 100GBASE-SR4 network, OM3 could only support SR4 at 70m and OM4/OM5 at 100m.

At the same time, singlemode is able to have more ‘hops’, or connections, in a channel. This is because the channel insertion loss budget is much higher with singlemode than multimode – around 6dB versus 1.9dB. This allows data centre operators to have more flexibility in terms of network design.

SUPPORT STRUCTURE

While next generation network standards under development include both multimode and singlemode fibre options, the majority of 100Gb/s, 200Gb/s and 400Gb/s transceiver options recently introduced are for singlemode networks, and recent standards committee activities continue to promote more singlemode options for higher speeds.

Some of the standout standards projects include:

- **IEEE P802.3cn**

Released in December 2019, it specifies distances up to 40km for 50Gb/s, 200Gb/s and 400Gb/s.

- **IEEE P802.3cu**

This refines delivery of 100Gb/s (single wavelength) and 400Gb/s (4 wavelength) operations for distances up to 10km, with a target publication date of December 2020.

‘In 2016, Microsoft Azure moved the vast majority of its data centre fibre cabling to singlemode. In fact, Microsoft is now 99 per cent singlemode, using parallel singlemode with MPO connections more than any other fibre type.’





• IEEE P802.3ct

This defines 100Gb/s on a single wavelength capable of at least 80km over a dense wavelength division multiplexing (DWDM) system. The target publication date is autumn 2021. A similar standard for 400Gb/s will be addressed by the IEEE 802.3cw Task Force.

In addition, there are IEEE projects underway to increase the data rates of Ethernet passive optical networks (EPON) to 25Gb/s and higher, and distances to up to 50km (Super-PON).

RULES OF ATTRACTION

It is important to point out that multimode fibre isn't going anywhere. The majority of enterprise data centres already have multimode cabling installed, and many of them will take advantage of existing infrastructure when upgrading to 25Gb/s, 40Gb/s or 100Gb/s in the future. But with lower transceiver costs along with superior longevity, distance and upgradeability, singlemode fibre will be an increasingly attractive option for data centre and enterprise networks. ■



GARY BERNSTEIN

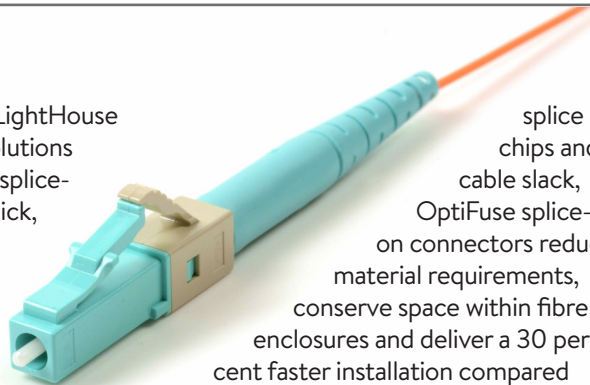
Gary Bernstein is senior director of product management, fiber and data center solutions at Leviton. He has more than 20 years' experience in the communications industry, with extensive knowledge in fibre cabling infrastructure and data centre architectures. Bernstein works closely with many hyperscale companies to understand their applications and requirements. He has held positions in engineering, sales, product management and corporate management, and has been a member of the TR42.7 Copper and TR42.11 Fiber Committees, and several IEEE Task Forces.

Siemon

Siemon has expanded its line of LightHouse advanced optical fibre cabling solutions with new OptiFuse pre-polished splice-on connectors. These provide quick, reliable and high-performance field terminations to support today's high-speed fibre applications.

Available in simplex LC and SC multimode, as well as simplex LC and SC UPC and APC singlemode fibre configurations, the new connectors feature a factory pre-polished fibre end-face, a ferrule dust cap that remains in place during termination, and an internally integrated and protected splice point for superior low-loss fusion splice performance.

By eliminating the need for splice trays,



splice chips and cable slack, OptiFuse splice-on connectors reduce material requirements, conserve space within fibre enclosures and deliver a 30 per cent faster installation compared to traditional fibre pigtails. As part of a Siemon end-to-end XGLO fibre system, OptiFuse splice-on connectors comply with relevant IEC, TIA and Telcordia industry standards, and offer a typical insertion loss of just 0.1dB for multimode and 0.15dB for singlemode.

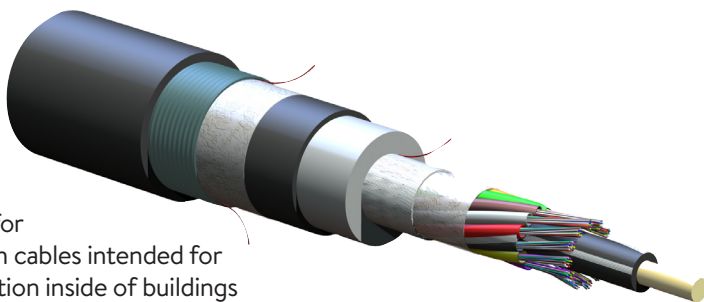
To learn more about Siemon's OptiFuse splice-on connectors [CLICK HERE](#).

www.siemon.com

Corning Optical Communications

Corning Optical Communications' portfolio provides full compliance to the Construction Products Regulation (CPR) for telecommunication cables intended for permanent installation inside of buildings and construction works. This means that its products meet the highest standards for safety – including high-performance B2ca rated products.

Corning's flame retardant B2ca compliant multi-purpose FREEDM B2 cables offer the versatility and durability needed for a wide range of indoor/outdoor applications. The cables are available from 12- to 192-fibre count, as dielectric armoured and double jacketed steel armoured. Their loose tube, gel-free construction, easily identifiable printing



and CE labelling make installation quick and clean. Plus, they're manufactured in Europe for fast, reliable delivery.

Corning provides a wide portfolio of B2 cables addressing requirements across multiple applications with high fire risks, such as hospitals, schools, hotels, high-rise buildings, tunnels, government or public buildings and data centres.

For more information [CLICK HERE](#).

www.corning.com

Nexans

Ever wondered how to deliver power over Ethernet (PoE) over a fibre network in an enterprise environment?

Typical applications

for PoE include a

growing number

of end devices

such as wireless

access points,

IP cameras

and voice over

IP phones that

often require

power in the

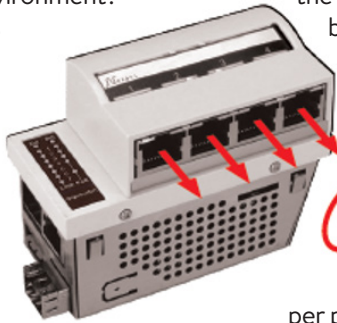
range of

60-90W. So how can this growing demand

for PoE be met with the current network

infrastructure in place?

Nexans' LANactive GigaSwitch V5



supports 4xPoE+ via its user ports – delivering up to 30W per port. Thanks to the modularity of the switch, the head can

be removed and exchanged with a head supporting higher power PoE++.

This allows

for existing

fibre to the

office (FTTO)

installations

to upgrade to

the new PoE++ Type 3

standard and achieve up to 60W

per port, with a total power budget of up to

150W per switch. The upgrade can be done

without disassembly.

Find out more about Nexans' LANactive

GigaSwitch V5 by [CLICKING HERE.](#)

www.nexans.co.uk/LANsystems



HellermannTyton

HellermannTyton offers an extensive optical fibre connectivity range that is suitable for any application including data centres, commercial installs and the 'user end' of FTTX networks.

As well as a wide range of pre-terminated RapidNet fibre solutions, HellermannTyton supplies a full end-to-end solution including fibre patch panels, fibre patch leads, fibre connectors and

adaptors, along with a range of multimode and singlemode cables.

The pre-terminated RapidNet fibre system is available as standard in singlemode and multimode formats. The



RapidNet fibre cassettes offer a choice in connectivity options including LC, SC and MTP in cassette to cassette, cassette to fan out, or cassette with MTP connectors on the rear.

With fibre solutions available in both singlemode and multimode, including the new Hyperscale 8-Fibre solution, and a full range of connection options including LC,

SC and high-density MTP, the fibre range from HellermannTyton caters for any project of any size.

To find out more [CLICK HERE.](#)

www.htdata.co.uk

xSiCute

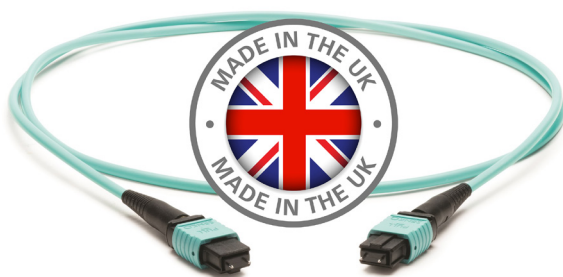
xSiCute UK manufactured custom fibre **MPO Trunks** and **MPO breakout**s are available with a fast turnaround – just 2-3 working days of production time. They are manufactured with Construction Products Regulation (CPR) Euroclass Cca or ruggedised dual sheath B2ca cable and Senko connectors, with field changeable polarity and gender for flexibility and fast deployment.

There has been confusion in the market surrounding MPO polarisation and the correct wiring required. Cut through that confusion with xSiCute's **Guide to MPO**. MPOs allow migration from 10-100Gb/s applications and connect multiple fibres within a single connector body – making them ideal for data centre high-density patching applications.

xSiCute custom fibre assemblies also include patch leads in **ZIP Duplex**, **Flat**

Twin, armoured and **multi-core pre-terms** in LC, SC, ST etc, which are factory tested and inspected, and provided with a test certificate. They also offer up to 75 per cent time savings when compared to field termination, involve no site storage, and have up to 80 per cent less packaging, with no termination scrap or debris to dispose of.

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



Huber+Suhner

Developed specifically to obviate the need to transition between external and internal cable types for links between buildings, the OptiPack Universal cable is an enhanced version of the existing range from Huber+Suhner.

Available in up to 144 fibres, the multi-unit construction carries up to 12 sub-units of 8 or 12 fibres, each measuring 2mm diameter and giving an overall maximum

tensile load rating of 9000N. To enable its use within buildings, it is supplied as a UK compliant Cca-s1a,d0,a1 Euroclass fire performance and, with a dry core, can be simply spliced without added cleaning preparation. For the external environment, there is added rodent protection with water blocking capabilities.

Available with black or fibre type relevant jacket colours, the cable is suitable for installation outdoors and within a dry or free draining duct. Integration of the OptiPack Universal cable within the pre-terminated cable systems portfolio, providing LC and MTP connectivity, is underway and expected to be available from Q1 2021.

CLICK HERE for more information on the OptiPack and Huber+Suhner.
www.hubersuhner.com



Excel Networking Solutions

The Enbeam range of fibre optic systems from Excel Networking Solutions delivers high-performance, reliability and scalability for a large range of multi-purpose venues, supporting high-density data centre applications or enhancing the cabling infrastructure for a small business.

Excel's portfolio is extensive and includes **cable, patch cords, adaptors and connectors, pigtails and fibre panels**, which are available in **plastic free** 100 per cent recycled and recyclable packaging. When installed by an accredited Excel

Partner, Enbeam fibre products can be covered by Excel's comprehensive 25-year warranty.

For more information about Excel and its fibre products and services, **CLICK HERE**

to visit the company's brand new website. It features all-new content, enhanced navigation and improved site structure to ensure you can find exactly what you need at the touch of a button – without compromise.

Alternatively, you can browse the **dedicated fibre catalogue** online, which provides more in-depth information about individual products from Excel's Enbeam fibre range. **www.excel-networking.com**



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Inside Networks

2020 CHARITY GOLF DAY 15th SEPTEMBER

An opportunity to compete and entertain clients and colleagues at the superb Marriott Hanbury Manor Hotel & Country Club.

www.marriottgolf.co.uk/club/hanbury-manor

Indoor Simulator Competition

The cost of a 4-ball team will be £595 (+VAT).

There will also be discounted accommodation at Hanbury Manor Hotel & Country Club, which will include breakfast and use of the extensive leisure facilities. Price to be confirmed.

As in previous years – teams will be asked to provide a raffle/auction prize on the day in support of the charity.

Organised by:

Promoted & Supported by:



Playing the Hanbury Manor PGA Championship Course:

This prestigious golf course was the first to be designed by Jack Nicklaus II and still incorporates features from an earlier 9-hole course designed by the great Harry Vardon. The course is now widely recognised as one of the best in England.

The event will ask for 4-ball teams to compete in a 'best 2 from 4' full handicap Stableford competition over 18 holes (with a 2-tee start from 10:30am).

Live Scoring sponsorship is available.

Golf will be preceded by tea, coffee and bacon rolls at registration and will be followed by a 3-course private dinner and prize giving with charity raffle.

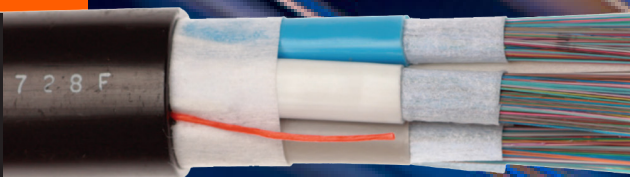
There will also be opportunities for sponsorship of all aspects of the day – all raising money for Macmillan Cancer Support – since 2005 this industry event has raised over £78,500 through our charity golf events!

Supporting:

**WE ARE
MACMILLAN.
CANCER SUPPORT**

The future's bright

Martin Ashton of Draka/Prismian and his colleagues offer their views on what's ahead for optical fibre



42

▶ A combination of developments in lasers, active equipment and smaller cables have allowed the many advantages of fibre over copper to come to the fore.

FIBRE VERSUS COPPER

When it comes to data centres fibre already dominates. Scott Brown, global director of product management at Draka, says, 'Here we are seeing real world demand for higher and higher fibre densities. We are regularly supplying 6,912 fibre count cable to hyperscale data centres.'

John Shuman, global product manager data centre and telecom at Draka, adds, 'With the bandwidth needs today of 10Gb/s, 25Gb/s or 40Gb/s, fibre is the answer as it scales easily and, with newer connectors and easier field installation, requires less complex tooling and training. Highly skilled technicians are no longer needed. The plug and play advantages of most fibre today is much like that of copper.'

GRAND DESIGNS

Outside of this arena, the use of copper and fibre is determined by the nature of a building's design. In most cases, fibre to the desk is not a reality now or in the future.

Andreas Wassmuth, director of business development at Draka, explains, 'I don't see electronics manufacturers changing the chipset in our devices to enable this. However, I already see fibre reaching to the floor distribution level or to a remote hub/consolidation point, which then serves an area of around 10-30m. Devices can then be connected by various technologies with copper category cables, single pair Ethernet (SPE) or wirelessly.'

Fibre is now a true internal/external Construction Products Regulation (CPR) compliant solution, which is rarely seen with copper. New product developments of up to 432 fibres have B2ca compliance. 'Internal/external cables remove a layer of complexity and a layer of connectivity,' states Ian Griffiths, director of research and



development telecom at Prysmian. 'If you can run an outdoor cable inside without a transition joint in place between the two, it's a cost benefit.'

John Shuman agrees and says, 'Being able to use a single cable type to move between two different spaces without a transition point removes cost and allows one cable type for the entire deployment. For example, running cables between data centres directly into the main data hall.'

THE MORE THE MERRIER

'Densification is the focus here,' says Ian Griffiths. 'Trying to put as many fibres as possible within the duct case. For the past 20 years, the most popular fibre count range has been between 12 and 288. Over the past decade, with hyperscale data centres and telecom operators, this figure rose to 432 and 864 fibre strands. Today we are in ultra-high fibre count territory, with 1,728 and 3,456 fibre strand capacity. 6,912 already exists and we're still moving

higher.'

Space is now at a premium. John Shuman explains, 'Customers need smaller cables to take advantage of legacy infrastructure and fill them with the maximum number of fibres possible. While fibre strand capacity is increasing, overall cable size has been reducing. The world's smallest bend insensitive singlemode optical fibre was recently launched, with an outer diameter of just 180 microns.'

Ian Griffiths adds, 'As well as making smaller fibres, tubes are also becoming smaller and thinner, enabling even greater reductions in cable diameter. Previously, if you had an 8mm duct we could blow a 96 fibre microduct cable with 250 micron fibre. With 200 micron fibre, this increased to 192, but now with the smaller tubes and the 180 micron fibre, we can install 288 in there.'

DIFFERENT TAKE

Of course, this is very much from a

telecoms and data centre perspective, but what about when it comes to the enterprise market?

According to Andreas Wassmuth, congested ducts are also a major issue here. 'Making smaller cables is certainly important but getting them into an existing overcrowded duct is the real problem. Even as outer diameters reduce, the tensile strength of fibre cables increases with each new development. We also see the application of blown fibre at the design stage of projects. It allows for rapid fibre expansion and upgrades to the latest fibre technologies as bandwidth demands grow. Tube routes can also be easily interrupted at any location, so rerouting to new users can be achieved, increasing operational flexibility in a rapidly changing work environment.'

A TOUCH OF GLASS

Unless there are any major breakthroughs with glass manufacturing, Scott Brown sees OM5 multimode hitting a limit, which might drive more singlemode applications. He says, 'Some of this is happening already today, especially as singlemode equipment becomes less expensive.'

As UK sales manager at Draka I agree with this. We see more customers

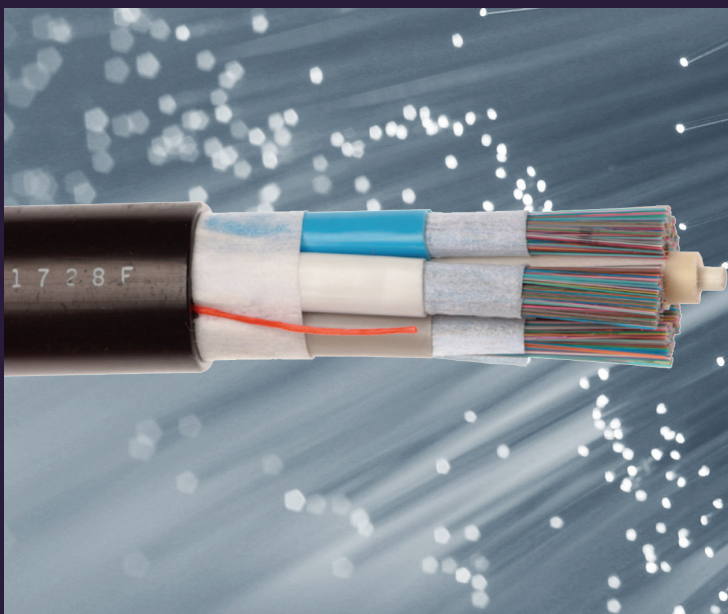
'Singlemode cables are cheaper, so it is the electronics that are the real drivers here. With current trends I expect singlemode to become the de-facto optical cable in enterprise, as well as telecom applications.'

making the switch to singlemode with the huge bandwidth advantages over multimode.

Singlemode cables are cheaper, so it is the electronics that are the real drivers here. With current trends I expect singlemode to become the de-facto optical cable in enterprise, as well as telecom applications.

THE RISE OF RIBBON

'Ribbon cables are easier to install when it comes to splicing or end connecting to other cables,' says John Shuman. 'It's a 12-fibre ribbon that is being worked with rather than 12 individual fibres. Time is money and faster more reliable installs lead to faster turn-ups of services. Realistically, you can expect to speed up



the splicing process by a factor of 3-5.'

Ian Griffiths sees the uptake of ribbon across Europe being driven by new developments. He says, 'One of main reasons ribbon hasn't been used much in Europe is that it isn't nice to work with! It bends in one direction, doesn't route very well in connectivity and isn't suited to the smaller spaces we must work in – unlike in the in US. However, new flexible ribbon technology is a game changer. The fibres collapse, so behave more like a bunch of single fibres – allowing for three dimensional routing into existing connectivity products. You then benefit from the time saved in splicing.'

It's not just bandwidth demands that are driving change, but also the way in which we use our buildings that are making us rethink cable design and installation practices. The internet of things (IoT) and future digital buildings, where energy saving is key, are bringing exciting new developments. Many sensing equipment

centres within the building will be required. While these devices don't have a heavy data stream, you need to power them and this is driving the development of fibre to the antenna (FTTA) hybrid designs, where power and optics are provided in one cable.

NEW AGE

Optical fibre will be at the centre of future system architectures. Cable density, splice time, operational flexibility, hybrid power cables and increasing bandwidth will all be in the mix. As an industry we must all take advantage of the exciting opportunities this will bring. ■



MARTIN ASHTON

Martin Ashton began his career in cable manufacture with STC Communication Cables, which became part of Pirelli UK. He then focused on structured cabling systems, holding regional management positions at Ortronics and Panduit. After a short break from the industry, Ashton joined the Prysmian Group in 2018 to head the Draka Multi Media Business Unit in the UK and Eire, with the responsibility of growing the Draka Universal Cabling System.



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Rittal has published a review of the five leading data centre trends, consolidating expert opinion and the latest research findings into a fully interactive playbook
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Rethink Possible: Visibility and Network Performance – The Pillars of Business Success is report by **Riverbed**.
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5 Tips for an Effective BOM is a blog from **Siemon**.
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Why Do Copper Cables Come in Different Packaging Types? is the question posed in a blog by Yves Debroyer of **Nexans**.
[CLICK HERE](#) to find out the answer.

10 Dumb Things Smart People Do When Testing Network Cabling Systems is a white paper from **Fluke Networks**.
[CLICK HERE](#) to download a copy.

Capital Cost Analysis of Immersive Liquid Cooled versus Air Cooled Large Data Centres is white paper from **Schneider Electric**.
[CLICK HERE](#) to download a copy.



Liquid asset

David Craig of Iceotope explains how to cool things down at the edge



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Over the course of 2020, into 2021 and beyond, the technology industry, and with it any organisation that requires computing at the edge, needs to consider the infrastructure that is being installed. Most major IT manufacturers already have edge data centre designs and a good number of these were developed with standard processor and air cooling technology at the heart of their systems. Whilst these designs may benefit suppliers and customers in the continuance of current product, they are inadequate to move us towards greater sustainability

and future scalability of technology in the location it occupies and supports.

REASONS TO BE CHEERFUL

No one can afford to miss out on the edge market and for good reason. There is massive growth waiting to erupt, based on wide implementation of 5G, increased uptake of the internet of things (IoT), artificial intelligence (AI) and machine learning (ML) based applications.

The edge and its network infrastructure, by its very nature, will be among us and will be deployed in unmanned and remote sites

that, due to their locations, require high levels of reliability and low maintenance. As edge expansion increases, public awareness and interest groups will intensify pressure on local and central authorities



to enhance corporate social responsibility, requiring edge computing to be powered and cooled as cost effectively and sustainably as possible. Will this be possible with air cooled standard designs?

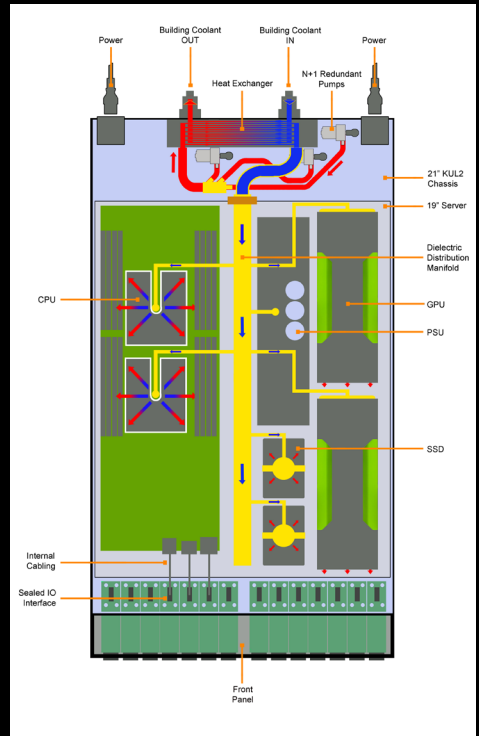
THE JOURNEY CONTINUES

In this environment the need to provide efficient, scalable capabilities where the user operates is becoming imperative. Liquid cooled technology is continuing its journey from high performance computing (HPC), mainframe level systems that reside in

the research laboratories or dedicated data centres to flexible platforms for highly efficient, high volume processing in standard rack or custom format configuration.

Most conventional corporate server rooms or data centre technology suites rely on airflow at cabinet and rack level, and possibly chiller systems, to maintain the climate for processors and associated technology. Within the limited space of an edge site, refrigerant and fan based systems are ineffective, inefficient and possibly antisocial.

This old standard system design includes many electromechanical parts, which require a high level of servicing and maintenance. Furthermore, exhaust extraction generates noise, which may be unwelcome in many local environments.



These new edge environments will not be uniform in nature, however, all will require robust systems that ensure IT equipment remains cool, efficient and operational.

SUPPORT STRUCTURE

The edge is presenting new challenges to supply side companies and their partners responsible for installing, operating and supporting edge compute solutions. IT equipment designed to operate in clean rooms and controlled environments will be exposed to huge temperature

variations, airborne contaminants, humidity and other factors such as the need for noise control. Power and water supply constraints are additional factors which in certain situations may make fan assisted systems untenable.

The step that has projected liquid cooling to a prominent position in distributed IT is the use of chassis level immersive liquid cooling techniques. At the edge of the network, where the separation of the server from the environment is a key advantage, the sealed motherboard/ serverboard ensures a highly robust format.

Distributed local environments are ideally suited to the use of chassis level immersive liquid cooling solutions. This technology has advanced to the point where it is a viable solution for demand and supply side players contending with the commercial, logistical, support and sustainability imperatives for installation and maintenance of thousands of servers

in multiple locations. Importantly, it uniquely allows systems to operate below 0°C and above 35°C.

COST EFFECTIVE

A key requirement of edge computing rollouts will be low operating costs. Chassis level immersive liquid cooling provides dramatic energy saving benefits. The elimination of air cooling infrastructure such as fans, air channels and filters allows liquid cooling technologies to offer reductions in energy and water

consumption, delivering significant cost savings. On-site water requirement is also greatly reduced using liquid cooling, so increasing the technology's sustainability credentials.

Liquid cooling uses five times less energy than air cooling, with obvious environmental and cost benefits. In chassis level immersive liquid cooling solutions server fans are eliminated, and precision delivery technologies using natural

or forced convection ensure a constant flow of liquid across hot components.

The flexibility of the technology allows both retrofit and new build IT deployments. The technology delivers 1,000 times the capacity to remove heat from electronics compared to the most efficient air cooling solutions. Using immersive cooling systems, more than 95 per cent of heat can be removed by the liquid, resulting in a major reduction in the need for traditional cooling systems and increasing operational efficiency.

FLUID MECHANICS

IT equipment immersed in fluid is inherently better protected from contamination, vibration and noise than

'Liquid cooling uses five times less energy than air cooling, with obvious environmental and cost benefits.'

air cooled equipment. Therefore, overall system reliability is likely to be increased, especially in harsh environments.

Once installed, a key consideration is the maintenance and monitoring of multiple edge deployments. End user companies will not want the high costs associated with large teams of field engineers previously required to perform servicing or maintenance. With no moving parts, chassis level immersive liquid cooling technology removes the need for much intrusive maintenance and its related downtime. Additionally, removing human intervention increases the uptime state of the equipment, as human error still results in a high percentage of equipment outages.

MATCH OF THE DAY

The reliability and no-touch features of liquid cooling solutions will match the needs for extended mean time to maintenance and the longer intervention intervals needed for viable operation and management of remotely located equipment. The sealed chassis also offers an additional layer of physical security.

One previous concern related to immersive cooling was corrosion because of the use of water or natural oils. Some patented liquid cooling technologies that are currently available are 100 per cent sealed to avoid contamination and the technology cools all the electronics across the whole IT stack, using a range of specially engineered dielectric fluid.

Many deployments supporting 5G and other data collection and delivery applications will be in densely populated locations where noise pollution is a concern. Chassis level immersive liquid cooling operates in near silence, reducing the overall noise output ensuring

operators and those close by are not disturbed by undue noise levels.

FLEXIBLE BENEFITS

The edge is not simply many smaller data centres. The market requires a specific and flexible response that positively impacts and promotes robust solutions that benefit the customer and the environment it operates from. ■



DAVID CRAIG

David Craig is CEO at Iceotope. Having worked his way up through Unisys and IBM in global procurement roles, he was hired to lead the commercial integration of Prudential Assurance and Scottish Amicable. Moving on from the merger to turnaround a leading British refrigeration company and start a consultancy, which he sold three years later to Amey, he was then invited to join a late 1990s tech boom disaster, which then became Scotland's third largest software company. Craig has done a few turnarounds since but now primarily leads Iceotope and a life sciences business.

The heat is on

Chris Wellfair of S
IT Environments t
about how remot
monitoring system
play a key role in
modular and edge
centres througho
summer months
beyond



▶ Hot weather conditions are becoming more common. According to the European Environment Agency the global near surface temperature was 0.91°C to 0.96°C higher between 2009-2018 than the pre-industrial period and the warmest years on record have occurred every year since 2015. Europe as a region has experienced eight extreme heatwaves since 2000.

TAKING THE STRAIN

If the weather was not enough of a

challenge, then the experience we have all faced in 2020 through the coronavirus pandemic is putting data centres under greater strain than ever before. McKinsey recently reported that the level of digital transition that consumers have gone through in the last 90 days is as great as the preceding 10 years! In addition, many of us are now working from home, and expect to do so more than ever before going forward, so it is easy

to see why more is expected of our data centres and networks.

But the pandemic has created another problem. Lockdown and social distancing measures have meant that over the last six months it has been very difficult for data centre owners to have anything but a minimal level of staff on-site, hampering upgrades and even normal maintenance schedules. Whilst lockdown might be lifting, nobody can be sure whether measures may be reintroduced at some point later in the year.

PREVENTATIVE MAINTENANCE

Heating, ventilation and air conditioning (HVAC) is, of course, a major maintenance area for any data centre. Even last summer, we spoke with many data centre managers whose biggest worry was whether their HVAC was performing as well as it should. Many had a dim and distant memory of its last maintenance service even then, suggesting preventative maintenance had fallen down, or even off, the priority list.

When creating a preventative maintenance plan, it is important to have detailed information on the actual installed equipment and maintain it as per manufacturer recommendations. Keeping a data centre in top condition is crucial to the 24 / 7 availability of IT systems and helps assure infrastructure is not the cause of costly downtime. But it isn't just about downtime – long-term monitoring and maintenance leads to expanded equipment lifespan, cost savings and greater energy efficiency if a data centre has been designed correctly.

PUT IN ITS PLACE

As a bare minimum, every data centre should have the following in place:

- A maintenance plan, as per the manufacturer's recommendations, for each piece of equipment.
- A current inventory, forward planned budget and list of maintenance priorities.
- Cleanliness standards. These should be daily activities and be deep routed in the way every member of staff works in the data centre, particularly in light of current social distancing and hygiene rules.
- Detailed records of the completion of maintenance processes and cycles. These are critical to proving good practice when auditors make site visits to inspect the maintenance regimes. No records means no evidence, regardless of how the data centre looks.
- A record of the emergency callout numbers on the wall within the data centre and ensure you have your pre-planned preventative maintenance contract number to hand.

MONITORING MATTERS

Environmental and remote monitoring have critical roles to play, especially if tighter lockdown measures are reintroduced. Throughout the summer of 2019 we spoke to data centre managers who had been watching the environmental data points on their data centres as if they were expecting their lottery numbers to come up. It is a nail-biting experience, which for many spanned weeks on end.

Think about the monitoring systems you use, and more specifically how they are configured. Now is not the time to put a new system in, but it is important to check what it is monitoring and the conditions and parameters that will trigger automatic actions or alerts to staff. Are they tight

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enough, or in place at all? Use this time to fully assess them against your processes and IT 'red list' of problems. Check alerts are going to the right people – it is more common than most would like to admit that someone who left the company two years ago is still represented in the monitoring software.

Make sure that your monitoring software brings you good news as well. Better to get a daily report and know all is well, rather than be left wondering because your

system is only configured to send alerts with bad news. Silence breeds fear, and you will just worry about whether the data centre has gone offline.

TRAIN TO GAIN

In periods of persistently hot weather, where mechanical and electrical (M&E) equipment may be operating near its peak capacity for long periods of time, or if you want to run equipment on rotation, it is critical that all team members have a

‘Make this summer the one you are most prepared for, with a strong maintenance regime and a playbook that also takes into account the challenges coronavirus could throw into the mix.’

strong understanding of the equipment and how to manage those situations. What should they do if an alarm sounds relating to HVAC? If it becomes necessary to shutdown certain servers, which should be chosen and how should that be managed and communicated across the organisation? Do all team members understand how to switch services to the back-up mirror data centre?

One of the ways companies overcome these challenges is to make M&E and

company process training related to HVAC a regular fixture in the maintenance regime. An example might be that twice a year every member of staff is taken through a training course by the data centre maintenance provider. In an ideal situation that company should also help develop and run through scenarios that could be encountered, in order to test the understanding of the team and run exercises.

BE PREPARED

Everything points to us seeing more of these prolonged spells of hot weather. Maybe you got away with it in 2019, even though you were nervous. This year is different though – you can’t predict exactly how you will be able to respond when a problem strikes. Make this summer the one you are most prepared for, with a strong maintenance regime and a playbook that also takes into account the challenges coronavirus could throw into the mix. ■



CHRIS WELLFAIR

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

Secure IT Environments completes new data centre project at Hammersmith Hospital

Secure IT Environments has completed a new data centre project at Hammersmith Hospital, part of the Imperial College Healthcare Trust, which has over 12,000 staff, caring for around 1.5 million patients a year. The company worked closely with Hammersmith Hospital to help identify the right location for the new server and communications room, deciding on a ground floor location that offered good access, as well as connectivity for the services needed.

The chosen room was fully stripped back and built to a design developed by Secure IT Environments that includes six 19-inch cabinets, uninterruptible

power supplies (UPS), energy efficient air conditioning systems in N+1 configuration, intelligent power distribution units and an environmental monitoring system. Secure IT Environments also provided the structured cabling services for the project, as well as a room deep clean upon completion.

The new server and communications room was completed on time and within budget. It forms part of the Imperial College Healthcare Trust's wider upgrade programme, of which Secure IT Environments also completed mechanical and electrical infrastructure upgrade works at its other hospitals.

Rittal's infrastructure protects compact data centre for Marshall-Tufflex

East Sussex based Marshall-Tufflex produces PVC trunking, cable trays and a range of other products for the construction industry. It was proposed that an area within its factory floor, currently used as a workshop, could be repurposed as a space for a compact IT computing system that would run the factory's automated machinery.

Normally, systems like edge data centres require separate, secure, brick-built rooms to protect the servers' delicate internal electrical components. In busy industrial

environments, the risk to the circuitry is amplified through repeated exposure to significant temperature variations, as well as dust in the atmosphere.

Rittal configured a solution using remotely monitored IP55 racks and a redundant N+1 cooling system. Combined, they created the required controlled environment for the IT equipment, while avoiding additional building costs and any disruption that can be associated with on-site construction works. The final result, built using standard Rittal products, included two TS-IT racks and an LCU-DX 6.5kW on demand close-coupled cooling system with redundant condensers.



BSO expands into South America with 10 new data centre locations

BSO has officially entered the South American market, marking another milestone in the company's international expansion and demonstrating its experience in emerging market connectivity.



BSO is also in the process of connecting to Brazil's data centre, B3 – the country's largest liquidity hub and a major financial centre for international traders, market makers, banks and financial services firms.

In addition to

Existing BSO customers can now immediately connect to 10 of Latin America's largest data centres. These sites are spread across Brazil, Mexico, Argentina, Colombia, Peru, Ecuador and Chile. Local companies can use BSO's global network for data centre connectivity, as well as access to internet exchanges and connectivity to cloud service providers.

B3, BSO is also establishing its first Amazon Web Services (AWS) cloud onramp in Brazil's Equinix SP4, bolstering its cloud credentials in the southern hemisphere. BSO has partnered with EdgeUno and Seaborn for this expansion. BSO's connectivity is made possible by Seabras-1, the fastest path from North America to South America.

PROJECTS & CONTRACTS IN BRIEF

Birmingham City Council's Information, Technology and Digital Service (IT&D) has teamed-up with Nutanix to migrate its legacy hardware to a hybrid cloud infrastructure. The new infrastructure will be based on Nutanix's highly scalable hyperconverged infrastructure (HCI) software with its integrated AHV hypervisor and central management console, Prism. It will also leverage other cloud products including Nutanix Beam, Calm and Flow.

Canary Wharf Group, alongside Cisco and Virgin Media, have announced the first European commercial deployment of OpenRoaming for residents on the Canary Wharf estate. The OpenRoaming deployment will benefit more than 20,000 businesses, entrepreneurs, independent retailers, workspaces and local school that will be based in Wood Wharf.

Equinix has announced the development of a new data centre in Milan, due to open in Q1 2021. Known as ML5, the International Business Exchange (IBX) data centre will offer state-of-the-art colocation, as well as a host of advanced interconnection services including Equinix Cloud Exchange Fabric (ECX Fabric) and Equinix Internet Exchange.

Stay on the safe side



Rob Jewell of Irisys explains the long-term benefits of occupancy monitoring in smart buildings

▶ Running a business is an expensive task at the best of times – and in the middle of a pandemic it's even more difficult. However, upgrading your building to a smart building can have a significant impact on the company's bottom line and help keep everything running smoothly. Smart sensors and other connected technology can automate your workplace to improve its operational efficiency, lower its environmental impact and, in turn, reduce costs.

PROOF POSITIVE

Smart technology can also have a positive effect on employee happiness – helping to create a better culture and improve productivity. As many workplaces are creating return to work plans, a smart building can help streamline this transition and create long-term benefits beyond the coronavirus pandemic.

Smart sensors for buildings come in many different varieties, but it is occupancy sensors that are in high demand, and of most interest, right now. These sensors are typically installed in doorways and are able to accurately count people as they enter and exit. They can be used to monitor individual rooms or whole buildings and, depending on the occupancy sensor chosen, can do so completely anonymously and without impacting on the privacy of building users. When monitoring occupancy, it is also important to consider the accuracy of the sensor, as if they are not accurate enough – below 99 per cent – then large errors can build up over the day that make the occupancy data collected completely useless.

This technology has been widely adopted by the retail industry for many years and sensors are often referred to as footfall or people counters, which accurately

describes their function. More recently, retail stores and supermarkets have been using this technology to measure the occupancy of their stores so they can limit the number of customers entering and enable social distancing.

SOCIAL WORK

According to research from Qualtrics, 93 per cent of workers want social distancing to be implemented in the workplace, along with other health and safety measures. Utilising an occupancy monitoring solution can help to alleviate employee concerns and show that you are actively looking after their wellbeing.

Sensors can be used to monitor the overall occupancy of a building, as well as the real time occupancy levels of individual floors, meeting rooms and high traffic areas such as washrooms and canteens. When combined with digital signage at the entrances to these areas, employees can instantly see whether it's safe to enter or not. Managers and property teams can monitor the real time occupancy of different rooms, and even different buildings, from cloud based portals, allowing them to ensure that occupancy restrictions are being met without needing to be on-site and manually checking.

EMPOWERING EMPLOYEES

Buildings that have break rooms, cafeterias or larger conference rooms can use the occupancy data their sensors collect to empower their employees. Digital display screens and audio alerts can notify

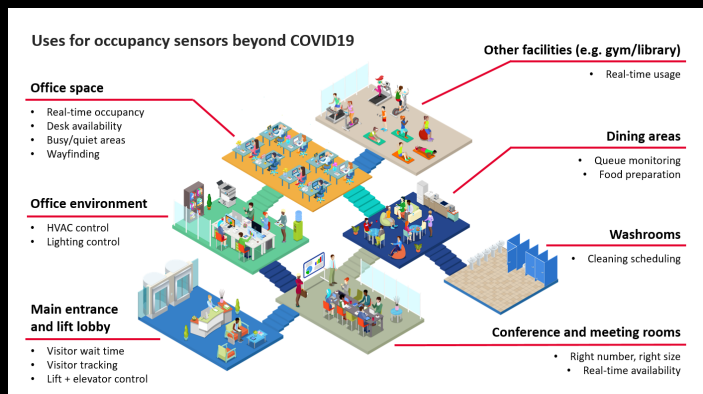
employees or visitors if a space has already reached capacity.

Occupancy limits can be set on a room by room basis and a display screen placed around an entryway can show green when it's safe to enter, orange when occupancy is close to the restrictions set, or red when occupancy restrictions have been met or exceeded. This enables employees to adhere to occupancy restrictions and facilitates social distancing.

Being able to quickly see if an area of a building is safe to enter will be extremely important in a post-coronavirus workplace. As businesses look to welcome employees back, demonstrating that their safety is the number one priority will be key. Real time occupancy data can empower them to act in the way that makes them feel safest.

CLEAN AND TIDY

Cleaning schedules typically operate on fixed or regular intervals, however, this doesn't factor in high traffic or quiet



periods. Rather, the room in question will get cleaned at the same rate in either instance. Research has shown a link between lower staff morale and unclean washrooms. In fact, a survey conducted by the Bradley Corporation found that

89 per cent of Americans believe the condition of a workplace restroom is one indicator of how a company values its workforce.

An occupancy monitoring solution can be used to automatically notify cleaning staff once a certain number of people have walked through the washroom door. When cleaning staff receive that notification, whether it's been 30 minutes or three hours since the last cleaning, they'll know it's time to give the room a refresh. This ensures that hygiene standards in the facility are maintained regardless of busyness.

Looking at the bigger picture, the same system can be implemented to ensure

'93 per cent of workers want social distancing to be implemented in the workplace, along with other health and safety measures. Utilising an occupancy monitoring solution can help to alleviate employee concerns and show that you are actively looking after their wellbeing.'

hygiene standards are maintained all over the building. Cleaning based on the number of uses of an area rather than on a time interval can help businesses take precautions to stop the spread of coronavirus and enable cleaning teams to focus on the most commonly used areas. For example, in an office building, knowing how many people have used the cafeteria, break room or even a

meeting or conference room can ensure that they stay clean and are sanitised throughout the day.

SPACE OPTIMISATION

The data collected through occupancy monitoring systems can help optimise the interior of a building. Not only do you get an idea of paths employees take, but you can gain valuable data on space utilisation.



Workplaces are certainly going to look different after the coronavirus pandemic and a building will become viewed as a tool instead of a necessity. I asked Jim Phelan, director of smart buildings at Irisys, to summarise his thoughts on this subject and his response was, 'Use the building as you need it, don't require employees to be there. Hire the right people, trust that they do the right things and allow them to be more flexible in their daily work. The right way to improve the output of your people is to make them comfortable, happy and safe, then everything else becomes secondary.'

EFFICIENCY DRIVE

Analysing how a building and the space within it are used offers insight into the capacity each department needs to work efficiently. You can then make data driven decisions about where to allocate and spend budget, truly understand if you need to invest in more space or another building, or know if you have too much space and actually need to downsize or cancel a lease. The data may show that instead of investing in expensive changes, you may be able to rearrange or reallocate the space you already have.

Researchers have referred to the coronavirus pandemic as a global social experiment in remote working, with many predicting that flexible working arrangements are here to stay. An occupancy monitoring solution can help you to understand this change in demand for your facilities and enable you to react accordingly. Space utilisation rates can show you which areas are most used and which are not, enabling cost cutting measures like downsizing to take place with minimal impact on employee needs and productivity.

MANY HAPPY RETURNS

Long after we've become used to the new normal, occupancy data can also be used to automate the control of heating, ventilation and or conditioning (HVAC), as well as lighting systems, or even improve the experience of staff by letting them know when facilities like gyms and dining areas are busy or crowded. In addition, this pandemic has shown many companies that their employees can successfully work from home. An interconnected smart building can help to respond to this and recognise when no one is there, but it can also help to draw employees back to the office. By providing an environment where they can be productive and their needs are met, businesses can encourage employees to return to the workplace. ■

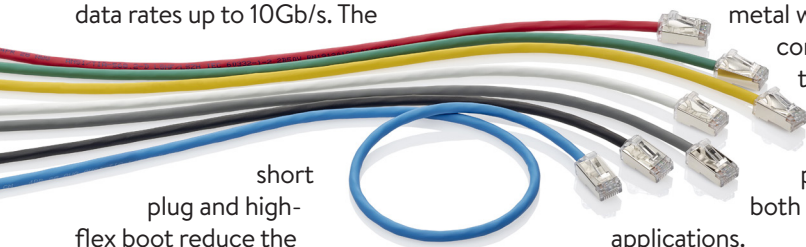


ROB JEWELL

Rob Jewell started his career as an electronics engineer in the Royal Air Force (RAF). After leaving the RAF he moved into the IT industry and has mostly been involved in the test and measurement sector, working for leading companies such as Fluke Networks. He recently joined Irisys as sales director for EMEA and APAC regions, with a focus on forming global strategic relationships.

Leviton

Leviton's Cat 6A High-Flex Patch Cords give network managers additional flexibility and improved bend radius at wireless access points (WAPs) and remote smart building devices, while supporting higher data rates up to 10Gb/s. The



short plug and high-flex boot reduce the amount of space required in applications with limited depth behind

WAPs, backboxes and furniture plates.

The small diameter cords also help data centre technicians with installation and maintenance in high-density patching environments. The design and

metal wrap on the patch cord plug also enables the cords to have outstanding electrical performance in both shielded and UTP

applications.

[CLICK HERE](#) to learn more.
www.leviton.com

Draka/Prysmian

With the continued growth of Draka's Universal Cabling System, Prysmian Group has now launched a UK specific website dedicated to its data communications and multimedia cabling solutions. It has been designed to provide Draka UK customers with a single source of information on the brand's extensive range of optical fibre and copper structured cabling.

Draka is investing heavily in the Universal Cabling System to deliver a continual stream of upgrades to both cables and connectivity. Customers can expect to see new products released shortly, specifically designed to increase system performance and ease of installation. The new website will be key in the coming months in announcing these

and other key advances and news.

Technical information on new and existing products – including datasheets, installation guidelines, application assurance warranty documents and more – are held on the website and accessible to



Draka's Technology Partners, Distribution Partners and Approved Installers that are part of the Draka Installer Programme. All Draka Universal Cabling System products are sold through a select set

of Distribution Partners – Comms Centre, Comtec, Dunasfern and Precision Cables – whose contact details can be found on the Our Partners page.

To visit the website and find out more about Draka's Universal Cabling System [CLICK HERE](#).
mms.drakauk.com

R&M

With the internet of things (IoT), Ethernet is now making inroads into the sensor layer of smart buildings and factories, requiring high connection density in-building cabling. A new blog from Matthias Gerber, market manager local area networks at R&M, explains why Single Pair Ethernet (SPE) offers the perfect solution for this.

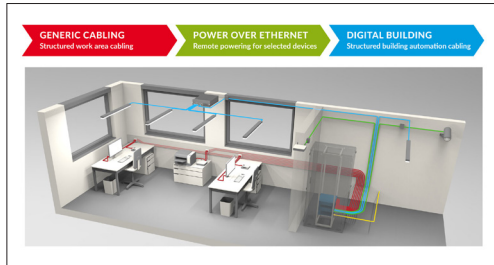
SPE requires just a single twisted pair for data transmission. Compared to classic Ethernet cabling, the number of possible connection points is multiplied. Connection

to the LAN is done using switches, either centrally in the floor distributor or distributed in the zone at the service outlets.

SPE works with transmission rates of 10Mb/s (10BASE-T1) to 1Gb/s (1000BASE-T1). The link ranges are 15-1000m. What's

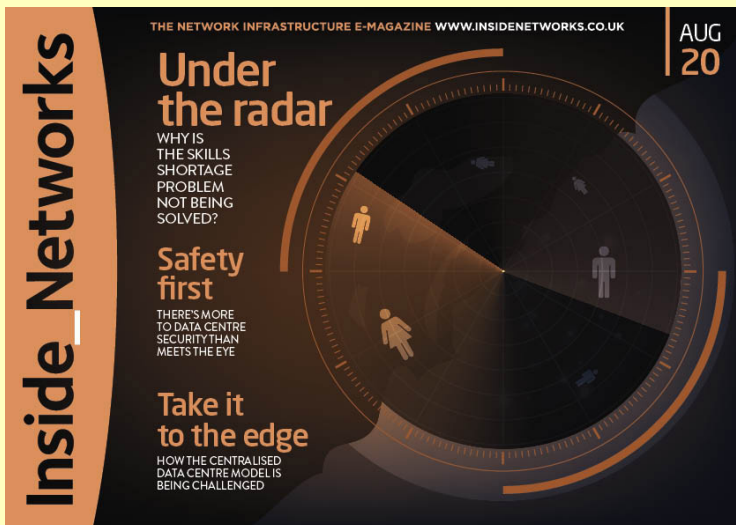
more, SPE cabling can supply terminal equipment with up to 50W with power over DataLine (PoDL).

To read Matthias Gerber's blog on this subject [CLICK HERE](#).
rdm.com



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So near yet so far

Remote working and remote learning have quickly become familiar to us all in recent times. Sarah Parks of CNet Training explains why we need to embrace this change



▶ With makeshift home offices, management from afar and teams socialising virtually, we are geographically further apart but perhaps more connected and engaged than ever before. Some people have commented that they are working far harder now than they were when they were in their actual offices! That said, it's still important to find ways to bring everyone together virtually to maintain personal and business

relationships, motivate teams and connect with colleagues around the world.

LEARNING CURVE

Education does not have to stop because we are at home. There are many online portals and other learning methods that allow everyone to continue to enhance their knowledge.

If utilised correctly, there are some fantastic tools that can bring education



programs into an environment which best suits the individual. These tools provide a more convenient approach to learning – not forgetting the added feel good factor around doing your bit for the environment, as travel is no longer required. It is good for the budget too, with no accommodation or subsistence expenditure. This way of learning also introduces a much more convenient route to education and professional development, where learners choose the time-zone they prefer and can fit learning around their work and other commitments.

ANYTIME, ANYPLACE, ANYWHERE

Conversations, debates and engagement still continue to thrive around remote learning, with technology allowing the

same working and learning experience from the comfort of a home or place of work. This creates added benefits including a familiar environment and not having to travel or stay away, allowing for family/life balance, yet still being able to interact and participate in a technical based education program with industry professionals from around the world.

There are a variety of different types of remote learning options, depending on the technical depth of the subject. Some are more all-encompassing than others – some transport learners into the classroom with an instructor and other learners to provide an all-round enriched learning experience, while others are simply online watch and learn.

For learners who are constantly on the road travelling, or in mission critical roles

‘There are some fantastic tools that can bring education programs into an environment which best suits the individual. These tools provide a more convenient approach to learning – not forgetting the added feel good factor around doing your bit for the environment, as travel is no longer required.’

where they cannot commit to a specific date to attend a classroom or remote attendance program, distance learning is an option that allows them to log-in and work through resources any day and any time. This allows learners to dip in and out as needed and plan their own study schedules. Sometimes this kind of learning is supported by online tutors too, making it really flexible and providing access to technical help and guidance as needed.

AHEAD OF THE GAME

Even before the current pandemic and the forced shift towards remote learning, many organisations were already

venturing down the remote attendance delivery route. CNet Training invested in a live instructor-led remote attendance capability three years ago, and since then we have been able to offer the majority of our programs as live classes via remote attendance. This move was driven by the demand and need to operate in a more sustainable and environmentally sensitive way, but has come into its own during the coronavirus pandemic.

It is important to look at remote attendance from all angles. From the learner perspective, the idea is to transport them into a classroom setting, bringing the classroom and the instructor to

REMOTE CONTROL

Martin Murphy, chief operating officer at CBRE Data Centre Solutions, explains the benefits of remote learning from a customer perspective:

‘At CBRE we have found remote learning to be remarkably effective, as it allows our business to continue its training and education program during these challenging times. We have committed to certifying 100 per cent of our workforce with the CNet Training Certified Data Centre Technician Professional (CDCTP) program, so enabling our people to gain this certification through attending remote classes means that our teams are receiving a consistently high-quality learning experience – even in isolated areas.

‘The flexibility of participating in these classes from home is a huge benefit, and the remote learning experience has been complimented by our engineers, who enjoy the live environment and interaction with both the instructor and other participants online. Our success depends on our people and the ability to certify our entire workforce to the same high standard, despite their location, is a huge benefit and allows us to offer consistency to our clients.’

learners wherever they are. It is important to ensure they still feel like they are in a classroom environment and make the learning experience as comfortable as possible. The result is a highly interactive learning environment, where learners can see the instructor at all times, as well as everyone else on the program.

Everyone has the ability to interact with each other, ask questions, have lunch break gatherings together for social interaction and even partake in smaller group breakout sessions. This way of learning, even when we are socially apart, transports learning into a group environment where everyone can work together in the exact same way as they would in a classroom based environment.

OPTIONAL EXTRA

Remote attendance is already a popular learning option for the data centre sector due to convenience. Being a mission critical sector, remote attendance allows teams to remain relatively close to their working environment, so can still react when needed.

For the more practical based learning programs, blended learning is now an option. This allows learners to undertake the theoretical elements of the program in a live instructor-led remote attendance setting, with the practical elements being available later. This blended option provides choices for the learners, so even with classroom restrictions lifting, we are still able to offer the remote attendance blended option to those that may prefer to learn in this way.

INTO THE LIGHT

As we ease out of lockdown, organisations are embracing the benefits of remote

learning and looking at it as a permanent option for their teams going forward. It is a perfect time for organisations to consider dedicating some quiet space to a learning environment within their facilities, allowing those who need to remain in premises, or those who simply are unable to learn from home, the environment to continue with their new learning and professional development. Our ways of working and learning are evolving, just like the industry we work in, and we need to be prepared to embrace it. ■



SARAH PARKS

Sarah Parks is the director of marketing and communications at CNet Training. She has worked with the company for over 15 years and has over 20 years of marketing experience within technology and other sectors.

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