

## Going the distance

WHERE NEXT FOR COPPER CABLING?

## Fact from fiction

DISPELLING THE MYTHS ABOUT MULTIMODE OPTICAL FIBRE



## On the record

WHY RIGOROUS IT DOCUMENTATION IS ESSENTIAL

## Recruitment drive

HOW TO ATTRACT MORE PEOPLE INTO THE DIGITAL INFRASTRUCTURE SECTOR



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Discover More

6

**ROB'S BLOG**

Breaking the fourth wall

9

**NEWS**

All that's happening in the world of enterprise and data centre network infrastructures



14

**MAILBOX**

The pick of the recent emails to Inside\_Networks



17

**QUESTION TIME**

Industry experts examine what the future holds for copper twisted pair cabling

34

**CHANNEL UPDATE**

Moves, adds and changes in the channel



40

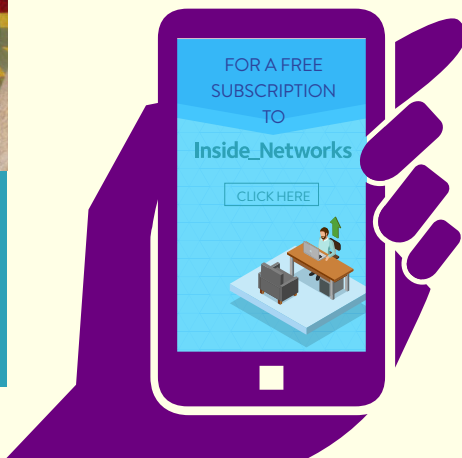
**TRAINING AND SKILLS DEVELOPMENT**

Andrew Stevens of CNet Training explains the new methods of learning and how we need to work together to encourage more people to join the digital infrastructure sector

44

**TRAINING AND SKILLS DEVELOPMENT**

Rob Shepherd talks to Andy Hirst about his experience in completing the Masters Degree in Data Centre Leadership and Management



46

**TRAINING AND SKILLS DEVELOPMENT SERVICES**

State-of-the-art training and skills development services profiled



48

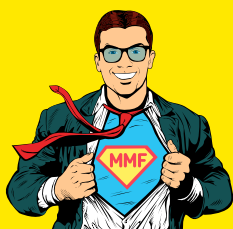
**TRAINING AND SKILLS DEVELOPMENT**

Joe Palmer of Colt Data Centre Services (DCS) explains how to drive data centre success through staff training

52

**QUICK CLICKS**

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



54

**FIBRE OPTIC CABLING STANDARDS**

Kevin Lenglé of Cailabs dispels some of the myths about multimode optical fibre and looks at how to future proof legacy cabling infrastructures beyond the standards

58

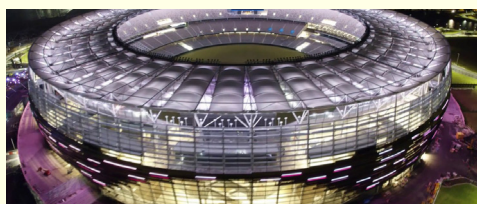
**FIBRE OPTIC CABLING PRODUCTS AND SYSTEMS**

A selection of the very best fibre optic cabling products and systems currently available

64

**SPOTLIGHT**

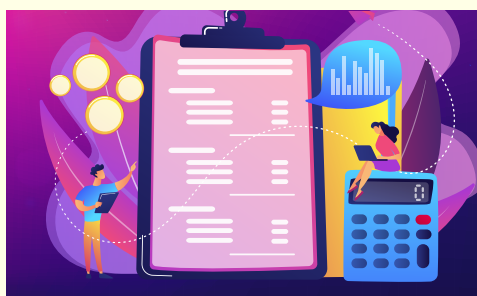
Rob Shepherd talks to Stephen Bowes-Phipps about his life, his career and gets his thoughts on some of the big issues affecting the data centre sector



68

**PROJECTS AND CONTRACTS**

Case studies and contract wins from around the globe



71

**FINAL WORD**

Martin Hodgson of Paessler AG offers six reasons why rigorous IT documentation is so essential



**CELEBRATING  
25 YEARS**

The Global Leader in Technical Education for the Digital Infrastructure Industry

## **CNet Training is Celebrating 25 Years of Delivering Technical Education Programs Throughout the Global Digital Infrastructure Industry**

CNet Training has been designing and delivering technical education since 1996 and is the originator of the highly acclaimed **Global Digital Infrastructure Education Framework**, comprising technical education programs throughout the **Data Centre** and **Network Infrastructure** sectors.

Today, CNet delivers programs in many ways to support learners across the world and remains the only industry dedicated technical education provider in the world to award both **industry recognised qualifications and official certifications**.

**Celebrate with CNet Here**

# Know how

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 Despite the ongoing turmoil caused by the coronavirus pandemic, the digital infrastructure sector appears to be in good health with many companies reporting positive starts to 2021. Further proof, if any were needed, of the importance of this industry to business and wider society, and its 'fourth utility' status.

Yet, as demand for enterprise and data centre network infrastructures continues to grow, so too does the need for people to join the industry and further its development. CNet Training has continually argued for the need to attract new talent and make sure that those who already have careers in the sector are equipped with the necessary skills. As the company celebrates its 25th year in business, CNet Training's Andrew Stevens looks at this issue and how the pandemic has promoted a shift towards innovative online learning platforms.

Continuing this theme, and looking at it from the perspective of a data centre services provider, Joe Palmer of Colt Data Centre Services (DCS) explains how to drive success through training, while I also get the lowdown from Andy Hirst of Sudlows about his experience of completing the Masters Degree in Data Centre Leadership and Management.

Turning our attention to physical infrastructure, this issue's Question Time examines whether predictions about the death of copper twisted pair cable as an effective cabling medium are premature. Experts offer their views and, without wishing to spoil the surprise, it seems that copper will be here for some time to come.

Copper's longevity has often been considered to be threatened by the popularity of optical fibre, yet the two media are seemingly able to coexist. Kevin Lenglé of Cailabs dispels some of the myths about multimode fibre and explains how to future proof legacy cabling infrastructures beyond the standards.

With so much more besides, I hope you enjoy this issue of Inside\_Networks. Don't forget that 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**  
THE NETWORK INFRASTRUCTURE E-MAGAZINE

# PoE—Is it Going to Work?

With multiple standards, power levels, and non-standard implementations, PoE can be frustrating. But with knowledge and the right tools, you can ensure an easy, reliable installation.

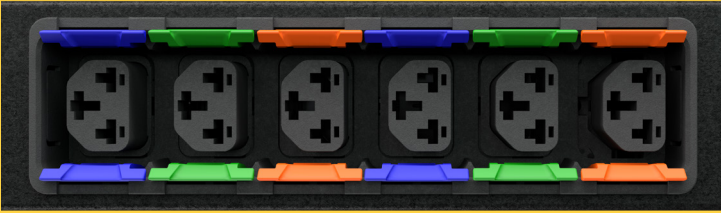


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## Equinix joins European cloud and data centre providers to make pledge towards climate neutrality by 2030

Equinix is joining other European cloud infrastructure and data centre providers, as well as European trade associations, to form the Climate Neutral Data Centre Pact and Self-Regulatory Initiative. It marks the first time the industry has come together to solidify its commitment to ensure that European data centres are carbon neutral by 2030.

The industry is seeking to play a leading role in transitioning Europe to a climate neutral economy in support of the European Union Green Deal, which aims to make Europe the world's first climate neutral continent by 2050. Equinix and other operator signatories will commit to measurable and ambitious targets, which include improving the efficiency of energy

use, purchasing 100 per cent carbon free energy, water conservation, equipment recycling and reusing data centre heat where practical.

Maurice Mortell, managing director Ireland at



Equinix, said, 'Digital technologies are an essential part of the European Union's goal to become the first climate neutral continent by 2050. Cloud infrastructure and data centre providers are a crucial component within this, as we have historically provided cloud first solutions to enhance the carbon efficiency within our sector whilst supporting other industries to meet their own climate neutrality goals.'

## 58 per cent of human resources professionals expect a permanent increase in remote working

A survey of UK human resources professionals by CIPHR suggests that remote working is here to stay. According to the survey, only five per cent said they expected to go back to old ways of working, while 58 per cent of respondents expect a large and permanent increase in remote working. A further 36 per cent said they expect a small increase in remote working, while one per cent said they don't expect to ever go back to the office.



Claire Williams, director of people and services at CIPHR, said, 'The shift to remote working was a shock to many organisations, especially if they were relying on manual processes to manage their workforce. With most human resources professionals expecting the increase in remote working to remain post-pandemic, organisations need to be equipped with integrated systems and processes that enable them to attract, engage and manage their people outside of the office.'

## ECA highlights the 'silent pandemic' threatening construction

Amid rising rates of suicide and mental health issues during the coronavirus pandemic, many large construction firms have stepped up to boost mental health support for their employees.

This is according to the Electrical Contractors' Association (ECA), which, in the months before the first lockdown in March 2020, conducted a survey of construction and engineering services business owners that revealed nine out of 10 suffered mental health issues due to business pressures. In the past year, however, large engineering services



businesses have taken huge strides to address mental ill-health. A recent Covid-19 Impact Survey from the ECA showed nine out of 10 large electrical and other engineering services businesses now train staff as mental health first aiders.

Paul Reeve, director of CSR at the ECA, said, 'On average, two construction workers take their own lives every working day, and 20 per cent of all work absence in the sector is attributed to poor mental wellbeing. The pandemic has further amplified the factors adversely affecting mental health and we now face an additional "silent pandemic" threatening the lives of owners, managers and other workers.'

## TeleGeography reveals top hyperconnected enterprise networking hubs

Using its WAN Geography Benchmark tool, TeleGeography has identified the most connected data centre facilities across the globe. A sample dataset shared by TeleGeography evaluated data centre connectivity and cost using 10 global cities based on their prevalence in real multinational enterprise networks. Cities included were London, Frankfurt, Hong Kong, Los Angeles, New York, Shanghai, Tokyo, Mumbai, Sydney and Mexico City.

Equinix FR5 (Frankfurt), Telehouse London Docklands West (London), CoreSite LA1 (Los Angeles), MEGA-1

(Hong Kong), and Equinix HK 1 (Hong Kong) had the highest number of carriers present at their facilities. Equinix FR5 leads the segment with 166 carrier networks

available and 37 cloud access providers, offering enterprises a hyperconnected hub for local, global and cloud connectivity.

'Network designers and managers have over 4,000 data centres and hundreds of carriers to consider when growing their international presence,' said Greg Bryan, senior manager enterprise research at TeleGeography.

'The WAN Geography Benchmark delivers bespoke scoring for each facility based on an enterprise's individual requirements.'



## 5G is 90 per cent more energy efficient than legacy 4G networks

A study by Nokia and Telefonica has found that 5G networks are up to 90 per cent more energy efficient per traffic unit than legacy 4G networks. The research, which was conducted over a three month period, focused on the power consumption of the radio access network (RAN) in Telefonica's network.

5G is a natively greener technology, with more data bits per kilowatt of energy than any previous wireless technology generation.

However, 5G networks require further action to enhance energy efficiency and minimise the CO2 emissions that will come with exponentially increased data traffic. There are several energy saving features at

the radio base station and network levels, such as 5G power saving features, small cell deployments and new 5G architecture and protocols.

Nokia and Telefonica are also developing smart energy network infrastructure and power saving features based on machine learning and artificial intelligence. Tommi Uitto, president of mobile networks at Nokia, said, 'This study

highlights how mobile operators can offset energy gains during their rollouts, helping them to be more environmentally responsible, while allowing them to achieve significant cost savings.'



Tommi Uitto

## CNet Training celebrates 25 years in business

CNet Training is celebrating its 25th birthday. The company was initially established with a focus on training military personnel in internal and external copper and optical fibre cable installation. From there it rapidly expanded and is now the largest dedicated industry education provider in the world.

CNet Training has educated over 70,000 individuals of 153 different nationalities in 45 countries across 19 time zones, spanning the Middle East, Asia Pacific, Europe, North America and Africa. All of its programs are delivered

by an expert team whose members have first-hand industry experience, providing

learners with access to some of the most respected and technical minds in the data centre and network infrastructure industry.

CNet Training's president and CEO, Andrew Stevens, commented, 'Companies don't last 25 years without a lot of hard work and I'm grateful to have such a talented and passionate team, many who have worked for the company for a long time. We have created a fantastic

educational framework that I'm immensely proud of and we never want to stand still. We are always striving to do more and we have a lot of exciting things coming over the next couple of years.'



Andrew Stevens

## Nexans inaugurates new plant in Morocco for the production of optical fibre accessories

Nexans has strengthened its industrial presence in Morocco with the inauguration of a new plant. Known as Midparc, it will produce fibre optic cable accessories for fibre to the home, 5G, data centre and LAN applications.



the African market.

'This investment enables us to pursue our development strategy in this high-growth region,' said Julien Hueber, executive vice president of Nexans' Industry Solutions & Projects Business Group. 'This new production unit illustrates our desire to

This plant will enable Nexans to increase its production capacity, while expanding its product range and offering new services to better satisfy its customers. It will serve the European market, as well as

better serve customers by improving our responsiveness, the quality of our products and by offering services with our telecom and data communications product range.'

### NEWS IN BRIEF

58 per cent of UK business decision makers have admitted that security remains the biggest barrier to public cloud adoption in their organisations, according to new research from Centrifry.

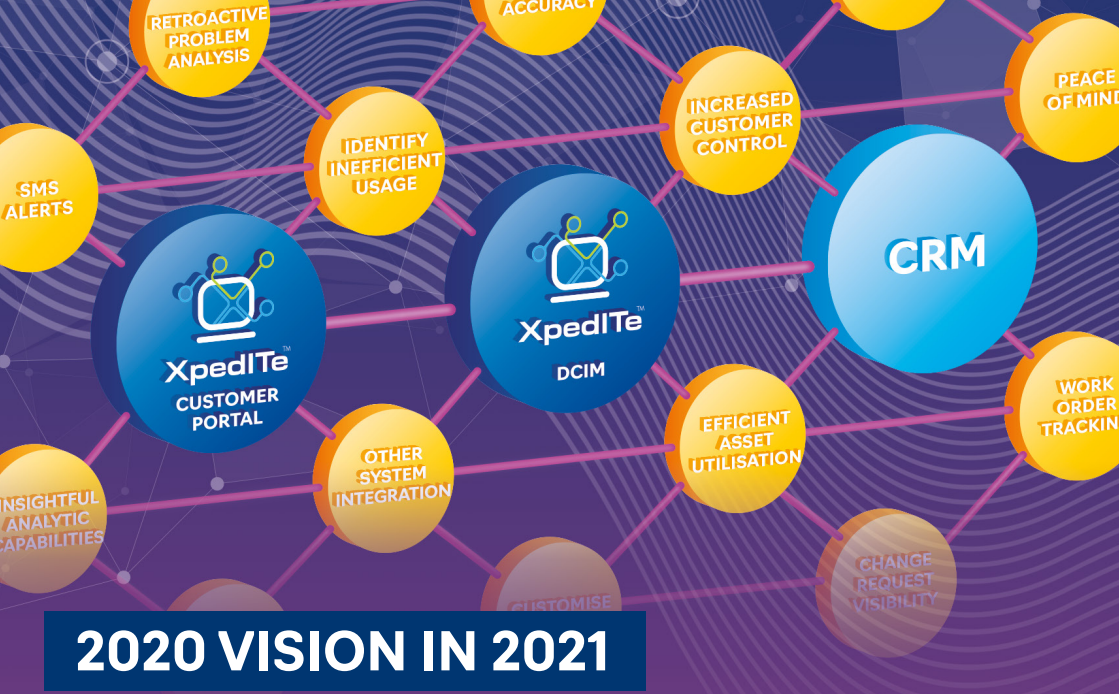
The Next Generation Mobile Networks (NGMN) Alliance has announced the latest requirements for a 5G End-to-End (E2E) Architecture Framework. It aims to advance the 5G ecosystem to enable heterogenous access, virtualisation, autonomic capabilities, forward looking service enablers and emerging usage scenarios that support 5G's full potential.

The UK's Ministry of Housing, Communities and Local Government (MHCLG) has designated BASEC as an Approved Body for UK Construction Products Regulation (CPR) testing.

Schneider Electric's Schneider Sustainability Impact (SSI) is built on long-term commitments to deliver on each of the United Nations' Sustainable Development Goals. It aims to deliver 800 million tons of saved and avoided CO2 emissions to customers and increase green material content in products to 50 per cent.

Atlas VPN has found that blockchain hackers stole nearly \$3.78bn in 122 attacks throughout 2020. Blockchain linked attacks that happened last year alone account for almost a third (33 per cent) of all time hacks aimed at blockchain projects.

i3 Solutions Group and EYP Mission Critical Facilities are collaborating to offer a response to the climate crisis through greenhouse gas reduction initiatives for the data centre sector.



## 2020 VISION IN 2021

**Dark sites. Covert cabinets. Concealed cables. Remote locations. Restricted physical access. Is it any wonder that customers can feel disconnected from the data centres they depend on to back-up their businesses?**

At RiT Tech, we are banishing these blind spots and shining a spotlight on services for those wishing for a panoramic window onto the world of big data.

XpediTe, our next-generation data centre, network, infrastructure and operations management solution, empowers its users with “X-ray” vision by federating disparate systems and environments to create an accurate, real-time picture of any given network.

For data centre operators, this encyclopedic insight – coupled with automated planning and provisioning tools – delivers a tangible return on investment by ensuring any unexpected downtime is diminished and the performance of assets is optimised.

Knowledge is certainly power and the seamless sharing of information via XpediTe’s fully customisable client-facing portal also provides customers with 360 degree visibility of their digital real estate.

Delivering round-the-clock clarity and peace of mind as to the health and performance levels of systems, the portal affords clients “hands-on” control of provisioning from a distance and keeps customers informed at all times through its automated alerts and resolution notifications.

XpediTe’s integration with existing Customer Relationship Management platforms further enhances this visibility – arming sales teams with the statistics to communicate with authority and track the progress of new and existing accounts in real-time.

**In brief, there is no reason to leave your clients in the dark. It’s time to become a beacon of best practice and deliver an unprecedented level of customer care.**

[XpediTe@rittech.com](mailto:XpediTe@rittech.com)



**XpediTe**<sup>™</sup>

[www.rittech.com](http://www.rittech.com)

# It's time to enhance

## Hi Rob

At the tail-end of 2019, research from GTT showed that businesses expected to increase their cloud spend in 2020. As we look back a year later, the pandemic is likely to have accelerated the pace of this transformation and increased the reliance on cloud based collaboration services.

As businesses look to digitally transform, many are embracing hybrid and multi-cloud deployments. Hybrid cloud provides flexibility and agility, allowing businesses to distribute

workloads across both public and on-premise data centres. Multi-cloud works as a variant of hybrid cloud, optimising the ability to operate across multiple

public clouds such as Microsoft Azure, Amazon Web Services and Google.

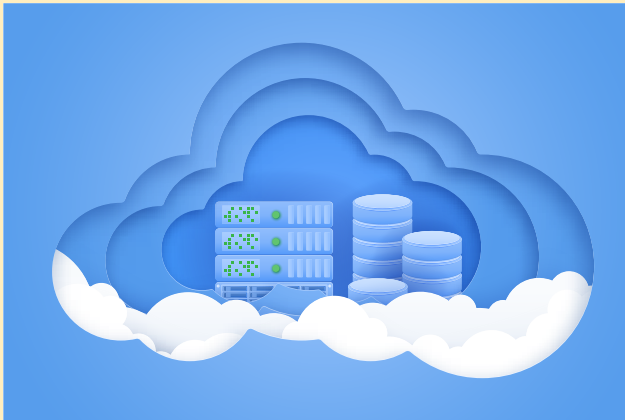
A hybrid approach is often taken to meet regulatory and security needs across different markets and is supported by a need to drive operational efficiencies. However, intentions to adopt hybrid cloud can often be accompanied by confusion around how to make this shift and how to correctly set up the wide area network to support such a move.

Organisations are increasingly thinking about how to manage the underlying network as they move more towards

cloud native applications and away from monolithic, legacy systems. Businesses are trying to understand how to support cloud applications that require faster deployments, agility and scalability in a secure manner.

Digital transformation is driving organisations to adopt a leaner methodology towards network architecture through a software defined (SD) approach, providing greater network

agility. The research conducted for GTT also showed 68 per cent of businesses were planning to use SD-WAN as part of their 2020 WAN strategies. SD-WAN makes networks



easier to configure so businesses can ensure traffic takes the most direct and low latency path to mission critical applications.

A study by Forrester Consulting showed that an enterprise using SD-WAN can generate a return on investment of 213 per cent and an investment payback period of less than six months. When SD-WAN is combined with what's commonly known as a 'cloud connect' service – a secure, low latency, low cost private connection that offers direct access to cloud service providers – it helps improve

# those soft skills

the performance of cloud applications by limiting any networking issues.

The uptake of the cloud has no end in sight, from the events of 2020 that have accelerated the move to the cloud for many businesses, to the ongoing shift as organisations rebalance capital and operational expenditure to gain elasticity and scale. The new normal has reinforced the importance of secure access and the guaranteed performance of cloud based applications through direct connectivity to different cloud providers.

Setting the right foundation through an extensive and strong cloud connectivity strategy will be critical for businesses to

adapt quickly to changing requirements, now and in the future.

**Rajat Mahajan**  
GTT

## Editor's comment

The SD-WAN market has long been projected for significant growth. It has become established as a common approach in enterprise deployments over recent years due to its ability to save time, money and resources. However, Rajat's point about the flexibility offered by SD-WAN is perhaps its biggest selling point at the moment.

15

## Inside Networks

2021 CHARITY GOLF DAY 26TH MAY

*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](http://www.marriottgolf.co.uk/club/hanbury-manor)

### 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**

### 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:

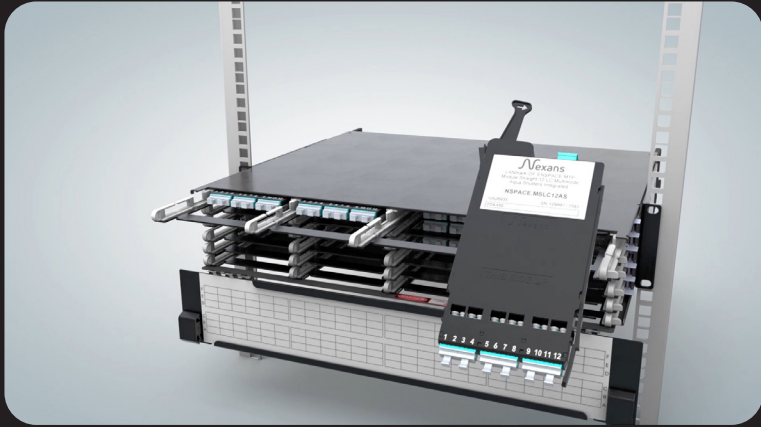


To book a team or for further information email [info@slice golf.co.uk](mailto:info@slice golf.co.uk) or telephone 077 69 69 69 76



# ENSPACE HD - UHD

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 **Nexans**

# Great expectations

Predictions about the death of copper as an effective cabling medium for higher speed network applications have proven premature, but where can it go next? [Inside\\_Networks](#) has assembled a panel of industry experts to offer their views

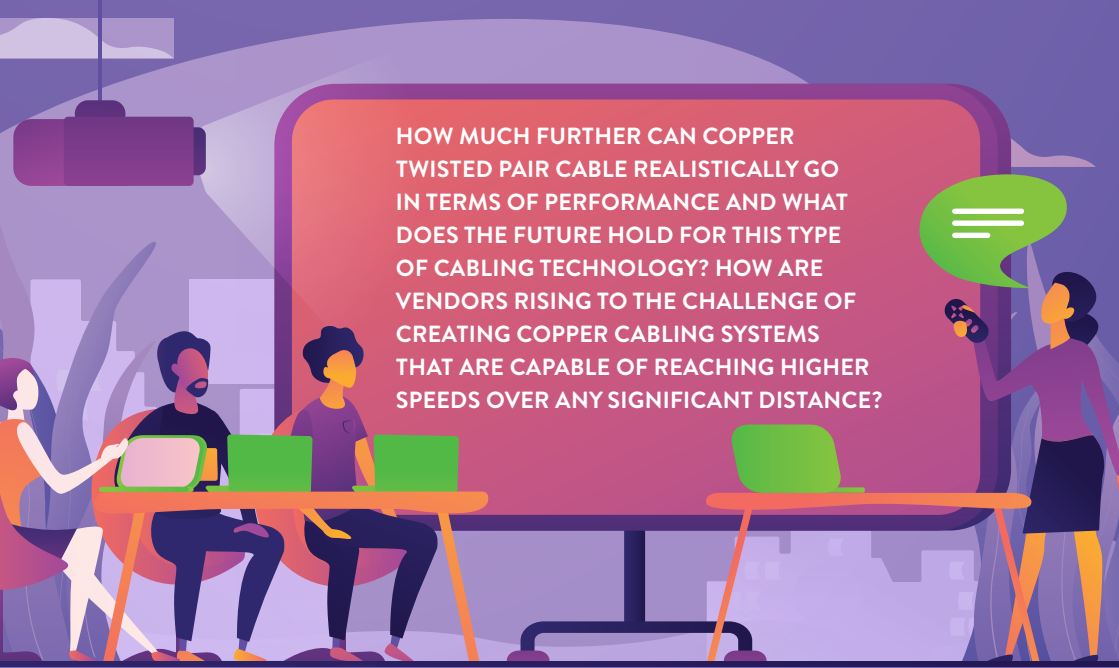
▶ Copper cabling has been a popular medium for network infrastructure connectivity for many years and is still used in everything from intelligent buildings and residential applications to complex data centre installations. It is the most cost effective solution to address higher bandwidth demands, is backwards compatible and has the ability to convey power to remote devices – features which compare favourably to optical fibre.

In 2016 the Telecommunications Industry Association's (TIA) ratification of the ANSI/TIA-568-C.2-1 specifications for Category 8 cabling systems was announced. Category 8 cabling and components offer four times the bandwidth of Category 6A and it supports short distances of between

5-30m runs of up to 40Gb/s transmission, primarily in data centres. Although links of 30m or less make up 80 per cent of data centre connections, according to the IEEE, it isn't suitable for longer runs in enterprise or premise networks.

While Category 8 has been seen as a positive development, it begs the question about what the future holds for copper. [Inside\\_Networks](#) has assembled a panel of experts to assess where it goes post Category 8 and discuss if vendors are rising to the challenge of creating next generation copper cabling solutions.

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



HOW MUCH FURTHER CAN COPPER TWISTED PAIR CABLE REALISTICALLY GO IN TERMS OF PERFORMANCE AND WHAT DOES THE FUTURE HOLD FOR THIS TYPE OF CABLING TECHNOLOGY? HOW ARE VENDORS RISING TO THE CHALLENGE OF CREATING COPPER CABLING SYSTEMS THAT ARE CAPABLE OF REACHING HIGHER SPEEDS OVER ANY SIGNIFICANT DISTANCE?

## VALERIE MAGUIRE

DISTINGUISHED ENGINEER AT SIEMON

The Ethernet Alliance's network speed and application space technology roadmap is clear – cloud providers and hyperscale data centres are driving the need for 400Gb/s and 800Gb/s optical fibre solutions. In turn, these extreme core networking speeds drive adoption of 50Gb/s and 100Gb/s edge solutions.

Meanwhile, in the LAN, developing IEEE P802.11be Extremely High Throughput (EHT) Wi-Fi promises greater than 20Gb/s 'real world' connection speeds. Balanced twisted pair copper uniquely supports auto-negotiation between switches and servers, as well as delivery of up to 100W of DC power to end devices, which makes it ideal for edge data centre, Wi-Fi uplink, and other user connections.

Today, the fastest speed supported by balanced twisted pair copper cabling over 100m distances is 10Gb/s (10GBASE-T). Operation over this reach, in addition to broad market availability and an installed base, will be key to successful adoption of new four pair Ethernet technology. While there's no IEEE 802.3 Ethernet Working Group initiative underway to begin a new BASE-T project, it's my belief that edge data centre, future Wi-Fi uplink and other emerging campus/enterprise needs will drive new BASE-T project development soon.

For the short-term, 50Gb/s transmission seems optimal for supporting emerging application needs and is already technically



feasible. In fact, existing copper cabling systems with high noise immunity and signal to noise margins, such as shielded Category 6A/Class EA and Category 7A/Class FA, can transmit baseband 16-level PAM (PAM16) encoding, as currently specified for 10GBASE-T and 25G/40GBASE-T, at signalling rates greater than 3200MBd without exceeding maximum

bit error rate. Therefore, it's quite possible that the next four pair Ethernet application could be targeted for operation over 100m of Category 6A (and higher performing) shielded cabling and 70m of Category 6A UTP cabling.

Looking to the future, higher transmission speeds can be supported over balanced twisted pair cabling if more complex encoding, higher signalling rates, improved noise and echo cancellation and even different modulation schemes – think amplitude modulation versus frequency modulation – are employed. One thing's for sure, today's balanced twisted pair shielded copper cabling systems have tremendous capacity and are here to stay whatever tomorrow brings.

**'IT'S MY BELIEF THAT EDGE DATA CENTRE, FUTURE WI-FI UPLINK AND OTHER EMERGING CAMPUS/ ENTERPRISE NEEDS WILL DRIVE NEW BASE-T PROJECT DEVELOPMENT SOON.'**

## Building Entry Points for all Properties...



The building entry point is an important stage of the last mile network and delivering fibre into a property isn't always a 'one size fits all' approach.

HellermannTyton have developed a range of products that are designed to deliver fibre into a variety of property types including SDU's (single dwelling unit) and MDU's (multi dwelling unit) for both residential and business.

### Building entry point products include:

- **CCE** with 50m of fibre storage and 2 SC Simplex/LC Duplex Adaptors
- **MCCE** with 6 SC Simplex/LC Duplex and splice tray
- **CCP XT / XL** with 2 SC Simplex/LC Duplex Adaptors and optional splice tray
- **CCP** with 2 SC Simplex/LC Duplex Adaptors



CCP



**Unlimited** throughput  
on existing  
multimode fibres

A simple box to increase network bandwidth  
without replacing existing cabling infrastructure



**An efficient and effective solution**

- 1-100 Gbps over any multimode fibre
- Compatible with OM1 to OM5 fibres (62.5 or 50/125 µm)

**Passive equipment**

- No power supply or electronics needed
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**Quick and easy to install**

- Simplified audit and deployment, without the need for recabling
- Short-term service interruption (average of 1 hour per link)
- Non-intrusive intervention on wiring closets only
- Solution operational after a simple fusion splice

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- 2 to 10 times less expensive than optical fibres

The **AROONA** solution is available in two versions

**Rack format**

For upgrading 4, 8, 12 or 24 multimode fibres



**Compact module format**

For upgrading 2 multimode fibres



<http://info.cailabs.com/en/aroona-star-ad-in>



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## PIERS BENJAMIN

EMEA IBN MARKETING MANAGER AT CORNING OPTICAL COMMUNICATIONS

In the LAN environment, the reality is that many companies still aren't dealing with the kinds of bandwidth demands that would make most copper classes and categories ineffective. Category 6A, which supports data rates of 10Gb/s up to 100m, has seen a growth in popularity as a minimum requirement for many hospitals and universities. For most businesses, however, Category 6 and a 1Gb/s maximum speed is sufficient.

In higher-speed environments, the advent of Category 8 and associated solutions has provided an attractive option for installers. This supports up to 40Gb/s across

copper twisted pair – the fastest data transmission local networks with structured copper cabling can achieve today. Category 8.1 cabling systems, unlike Category 8.2, are backward compatible, as they are based on the standard RJ-45 plug-in format.

Where Category 8, quite literally, falls short though is in its reach, with a maximum distance of 30m. Due to length restrictions, copper solutions in building cabling often reach their limits and the 90m provided in the standard for the permanent link or 100m for the channel is not always sufficient in practice to connect devices installed far away.

While we're yet to see 40Gb/s speeds

extended to a meaningfully large distance over copper, there are vendors that are enabling 10Gb/s over 120m. These must meet the requirements of the applicable

cabling class and in Europe these are primarily the ISO 11801 and EN 50173 standards. However, only measuring the channel allows an assessment of the entire transmission path from end to end.

Ultimately, while emerging smart, connected building infrastructures will become more and more reliant on optical fibre, there is still a place for copper. It remains a compelling medium for the last point

to point connection to a device. However, limitations of copper solutions in terms of bandwidth, power handling and distance mean networks should be designed to push the fibre to copper transition point deeper into the network.



**'ULTIMATELY, WHILE EMERGING SMART, CONNECTED BUILDING INFRASTRUCTURES WILL BECOME MORE AND MORE RELIANT ON OPTICAL FIBRE, THERE IS STILL A PLACE FOR COPPER.'**



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## MARK FROGGATT

### TECHNICAL DIRECTOR AT BASEC

The ongoing demand for bandwidth within the communications industry continues to be driven by emerging technologies such as cloud computing and the internet of things (IoT). All of these developments involve the internet and demand high-speed reliable connections. Therefore, the question arises, is your standard copper twisted pair cable still able to accommodate?

The reality is that there will always be a need for copper based solutions to make technology more affordable and applicable to the market. Copper based networking technologies supporting data speeds of up to 40Gb/s are, by comparison with their optical equivalents, low cost. Furthermore, copper based networks support more than just data. Most 1Gb/s and 10Gb/s solutions support power over Ethernet (PoE) with the ability to supply up to 100W of DC power to enabled devices.

The IEEE has identified the need for a simpler, smaller, lighter weight copper cabling solutions, which would also deliver power over an extended copper cabling network. However, this does not spell the end for optical fibre cabling either. At the core of the internet, cloud computing represents the most efficient solution for businesses and consumers. Secure and reliable infrastructures deliver readily available information. Cloud computing and the data centre infrastructure, which

underpins the need for high-speed data transportation, will continue to be serviced by optical fibre technologies.

Within the data centre environment high-speed, low latency links are essential. These links are best served by fibre, even though many of the links may be short. Furthermore, data speeds in a data centre are increasingly moving towards transmission rates of 100Gb/s and 200Gb/s, which is currently beyond the capability of

established traditional four pair copper cabling.

Most cable manufacturers are rising to the challenge by undertaking rigorous product development, testing and certification programmes to meet or anticipate the developing needs of the market. Inevitably, the speed of a market's progress precedes the global standards making processes. It therefore remains true that while standards help regulate or control a market, they do not necessarily establish or precede a market.



**'THE REALITY IS, THERE WILL ALWAYS BE A NEED FOR COPPER BASED SOLUTIONS TO MAKE TECHNOLOGY MORE AFFORDABLE AND APPLICABLE TO THE MARKET.'**

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## CHRIS FRAZER

PRINCIPAL CONSULTANT AT LAYER ZERO SERVICES

My very first 'computer cabling' installations, many years ago, all used coax or shielded copper cabling, so I was very disbelieving when told, whilst installing my first AT&T system, that unshielded telephone cable could support 4Mb/s and 10Mb/s transmission. I still recall how amazed I was.

Given this experience, I've never been one to say that copper twisted pair is finished. I'm confident that more can be done with the technology, particularly if the much-loved RJ-45 is laid to rest. However, I don't see a need for it at the moment.

I'm not hearing any industry 'noise' about needing more than 10Gb/s to the desk, which has always been the main driver for twisted pair cable development. For sure, I can see Category 8 being used in the data centre environment, especially for top of rack or mid/end of row implementations. Other copper cabling types are also available for data centre use that can accommodate greater data rates for short distances, so the technology exists.

The backdrop to all of this is price. Optical fibre can deliver virtually unlimited bandwidth but copper's trump card has always been cost. PC manufacturers will opt for the lowest cost interface to keep their prices down, so their preference has always

been copper.

Since that first AT&T installation I've always heard that fibre to the desk will be the next step. However, copper has beaten that challenge every time and getting Category 8 to 100m could see off any need for fibre to support 25Gb/s to the desk, should that be required. I think that copper cabling absolutely has a future and will remain in the typical office space for many years to come, delivering 10Gb/s and power. That said, we may be getting closer to the copper/fibre cost tipping point, especially if fibre transceiver costs continue to reduce in real terms.

Interestingly, there is challenge to copper in the office with passive optical LAN, which I think will probably become more common if it can establish a foothold. This is a technology to keep a close eye on.



**'I THINK THAT COPPER CABLING ABSOLUTELY HAS A FUTURE AND WILL REMAIN IN THE TYPICAL OFFICE SPACE FOR MANY YEARS TO COME, DELIVERING 10GB/S AND POWER.'**

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## ASEF BADDAR

SENIOR MANAGER ENGINEERING AT LEVITON

Copper twisted pair cabling technology is evolving at a rapid pace – not only in performance but also in terms of the applications it can serve. Twisted pair cables are capable of supporting speeds of up to 40Gb/s using Category 8 systems at distances up to 40m. At the same time, refinements continue to be made to four pair Ethernet systems that improve size, weight, density and flexibility. Equally important are the enhancements for supporting power over Ethernet (PoE), with improvements in distance, capacity, and temperature management in cable bundles, just to name a few.

Furthermore, new initiatives are underway to address emerging applications and markets.

For example, Single Pair Ethernet (SPE) standards are in development for commercial, industrial, building automation and automotive network applications. The internet of things (IoT), smart building sensors and machine to machine communications bring greater need for delivery of both power and data over longer distances, and SPE creates a lightweight, economical and non-proprietary solution to meet this need.

It is important to remember that higher speed is only one of many important needs that customers look for in cabling. Applications drive the requirements in cabling for speed, distance, power, backwards compatibility, interoperability, safety and cost. Cabling vendors consider all

of these requirements and more to deliver the right solution but they do not work in a silo – collaboration between cabling system vendors, network hardware manufacturers, standards bodies and customers helps

drive innovation and determines where improvements are needed most.

When addressing distance, cables and connectivity are important pieces of the puzzle, but there are other accessories that work with cabling systems to achieve distance requirements without compromising speed. One way is in the use of channel extenders that use copper and/or fibre cabling to reach

greater distances, yet meet the appropriate standards that allow all pieces to work together. Manufacturers continue to make advancements in copper cable construction and design that improve performance over longer distances, as well as greater levels of power, while adhering to industry standards.



‘COLLABORATION BETWEEN CABLING SYSTEM VENDORS, NETWORK HARDWARE MANUFACTURERS, STANDARDS BODIES AND CUSTOMERS HELPS DRIVE INNOVATION AND DETERMINES WHERE IMPROVEMENTS ARE NEEDED MOST.’

## JONATHAN LEWIS

TECHNICAL ACCOUNT MANAGER AT HUBER+SUHNER

I think it's fair to say that balanced four pair copper has confounded expectations of its lifespan, helped in no small way by the frankly astonishing improvement in electrical performance that we have seen in the ubiquitous RJ-45 interface over the last 25 years. The improvements in both cable and connector design, along with some clear standardisation efforts to ensure that users can enjoy guaranteed performance and interoperability, played some significant part in this.

What has become clear, however, is that the appetite for ever faster twisted pair network infrastructures has drawn to a close for most market segments. There are many reasons for this but I think in overall terms the market just doesn't see a need for anything better than is currently available to support desktop PCs.

The huge increase of homeworking has demonstrated that, by and large, a stable 15-20Mb/s internet connection allows PCs to function near identically to if they were connected at the office. It makes all of the '10Gb/s to the desk' chatter during the emergence of Class EA/ Category 6A cabling seem a little ridiculous now. That's not to say it is not needed for certain applications, but generally it isn't.

Despite this change in market demand, we do see a continued evolution in twisted pair copper, and an ability to adapt and repurpose itself to remain relevant. Generic structured cabling designs have been available to utilise twisted pair cabling systems that allow communication across a range of non-traditional building management type applications, the limitation being within the final connections where dedicated cabling systems may be required.

With the further development of a number of single pair application protocols, with varying bandwidths and distance attributes, together with an interface suitable for outdoors installation environments, its areas of application have widened considerably. They cover any number of as yet unthought of IoT and Industrial Ethernet possibilities, where its added benefit of providing remote power will be useful, if not essential.

To paraphrase Mark Twain, reports of copper cabling's imminent demise are much exaggerated.

**'TO PARAPHRASE MARK TWAIN, REPORTS OF COPPER CABLING'S IMMINENT DEMISE ARE MUCH EXAGGERATED.'**



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# Mayflex – the trusted partner for security solutions

 Some people might associate Mayflex with infrastructure and data cabling, but we've been distributing security solutions since 2007. Over the last 14 years we have established ourselves as a leading security distributor, with a focus on IP technology.

solution fits all and we are well placed to advise customers according to their specific needs. We carry around £3m worth of security products in stock for next day free delivery and also provide an extensive range of complementary **infrastructure** and **networking** products.

## Experienced team

We have built an exceptional team of associates, focused on selling and supporting security solutions. These highly skilled professionals have been in the industry for years and have extensive knowledge and experience. This makes them a great asset when it comes to assisting customers in choosing the best possible solutions to meet their varying requirements.

## Best of breed vendors

Mayflex has chosen to distribute and partner with a select number of **best of breed** security vendors. We aren't about badge collecting and our vendor partners include Axis, Avigilon, Hikvision, Milestone, Mobotix, Paxton, Suprema, Tether and Wavestore, to name but a few.

We believe these brands offer the best solutions for our customer base and provide an excellent choice of product solutions to fit both technical and budget requirements. It's not a case of one



Your trusted partner for security solutions

## Specialist Support Services

To further support our customers, we offer several **Specialist Support Services**.

These include IP configuration, whereby we can preconfigure cameras, network video recorders (NVRs) and switches before they are shipped, helping to reduce installation time on-site or to support a customer at a particularly busy time. We

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can even spray paint cameras and brackets so they discreetly fit into their installation surroundings, giving customers some extra benefits that they can pass on to their end customers.

### Mayflex Academy

Through the Mayflex Academy we run regular **courses**, most of which are free of charge to Mayflex customers. These bring people up to speed on best practices for installing security products and complement our numerous vendor focused courses. Currently, all training is taking place online due to the Covid-19 pandemic and customers can view and book courses by **CLICKING HERE**.

Mayflex customers can also take part in the **Spring Technical Training Event** that will take place from Monday 8th to Friday 12th March. This will include up to three different educational courses each day, primarily focused on IP security solutions. The event will also include the widely acclaimed **Introduction to IP CCTV** course, which is aimed at cabling installers looking to get into IP security and delivered by our experienced trainer, James Vian.

**'Partnerships are key to our success, whether that's with our vendor partners or with our customers. We are focused on building strong and lasting relationships.'**

If you don't already deal with Mayflex, you can easily open an account by **CLICKING HERE**.

For more information about Mayflex **CLICK HERE**, call our security team on 0121 326 2228 or to send an email **CLICK HERE**.

33



**SPECIALIST  
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SERVICES** 

## Sudlows opens new European office in Dublin

Having been working with an increasing number of key clients across multiple European countries including Ireland, Germany, France and Belgium, Sudlows has opened a new European office in Dublin.

A strategic move to ensure continued support and project delivery to European Union clients post Brexit, it will act as a satellite office for Sudlows' locations in Manchester and London.

It will also provide a European base for the company to continue to deliver its full suite

of services across European markets as Sudlows Enterprise Services Europe.

John Collins, managing director at Sudlows, commented, 'The new Dublin office is a key addition for us. It joins our United Arab Emirates (UAE) and India locations to make the third international Sudlows office, allowing us to offer our professional and technical services across the globe.'



34

## LMG bolsters its AV division with three new hires to support its next growth phase

LMG has appointed three new hires to its audiovisual (AV) division. This is a direct result of growing demand from property developers and main contractors to incorporate AV solutions within LMG's design and build smart building solutions. Andy Walsh joins as AV services director, Szymon Dworski as AV design manager and Stephen Nichols as AV project manager.

Walsh brings over 20 years' experience in the AV and building technologies industries, having held senior positions within deployment, operations and service support disciplines. Dworski joins LMG with over 15 years' experience in full AV

systems design for media, leisure, sport and corporate projects, while Nichols is an

accomplished project manager with experience spanning over 20 years, having delivered solutions across corporate, medical, education and government applications.

Mike Hook, executive director at LMG, stated, 'The convergence of IP technologies has seen AV become an integral component of integrated smart building solutions. The global pandemic has also accelerated the demand for integrated AV and IT solutions.

There is massive growth in remote and flexible working as well as a greater need for touchless features when people are in the office.'



## Norden Communication signs UK distribution agreement with CMW

Norden Communication has appointed Cable Management Warehouse (CMW) as the exclusive UK distributor for its SecNor access control solution.

CMW's director, Ian Bankhurst, commented, 'We can now offer our customers the opportunity to venture into a new area of expertise and generate additional revenue streams. Installers can take advantage of a product range that is simple to set-up and will earn them great

margins. Emma Harris, CMW's access control and security specialist, will also be available to support customers with product selection and system design.'

Stuart McIlroy, Norden Communication's territory manager western Europe, added, 'We are confident that by working with CMW we will get a positive reception from installers and end users alike. Having CMW as our exclusive distributor aligns perfectly with our commitment to customer service and satisfaction.'



## North appoints Glen Williams as CEO to drive growth

North has appointed Glen Williams to the position of group CEO. This will help to drive growth within the business, as it looks to further consolidate and strengthen its market position.

Williams joins from Allvotec, where he was the CEO of the channel only services provider, having previously led the successful sale of Damovo in 2018. He brings with him broad experience in

global IT and strategic partnerships, having held a number of senior management roles at Dell, Computacenter and Lenovo.

Williams said, 'North is at a pivotal time in its evolution. The bringing together of five market leaders with the clear strategy of building the UK's leading internet of things (IoT), networking and connectivity and safety and security provider is an exciting challenge. I am looking forward to tapping into the market's significant growth opportunities.'



## Salute Mission Critical forms global agreement with EkkoSense

Salute Mission Critical has been appointed as a deployment partner for EkkoSense's EkkoSoft Critical visualisation and monitoring solution.

Salute Mission Critical recruits military veterans and trains them to become data centre technicians. Headquartered in Michigan, USA, with additional offices across the USA, Canada, the Netherlands, Ireland, UK, Germany, Poland, Chile and Argentina, it was recently ranked as one of the fastest growing companies



Jason Okroy

in North America on Deloitte's 2020 Technology Fast 500 list.

Jason Okroy, CEO at Salute Mission Critical, said, 'We are delighted to have signed a global deployment partnership with EkkoSense. Combining the strength of EkkoSense's technology with Salute's proven deployment services allows clients globally to take full advantage of the EkkoSoft Critical solution.'

### CHANNEL UPDATE IN BRIEF

Blue Orange has become a Sharp Gold Partner in recognition of its impressive sales growth, in-depth expertise and exceptional customer support.

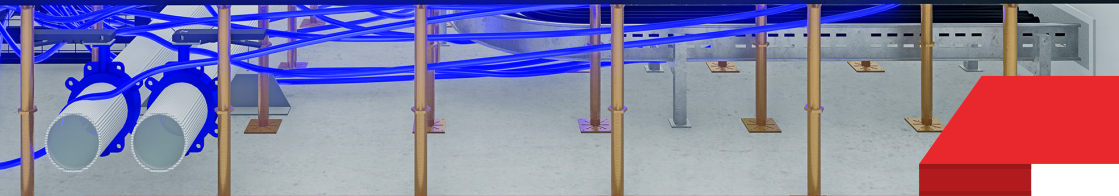
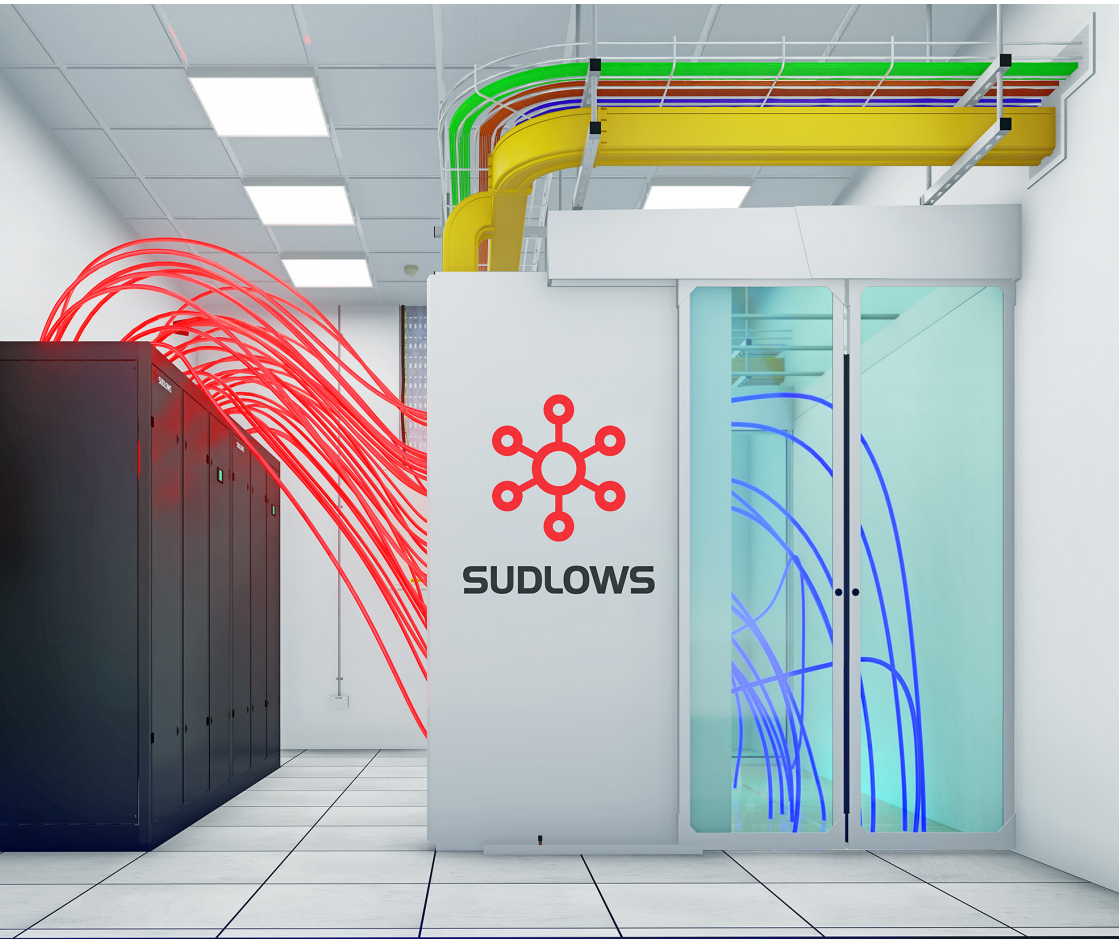
Salesforce has invested, for an unprecedented sixth time, in the Japanese IoT company, Uhuru Corporation.

InfinityQS has announced a new partnership with ElevatIQ. By joining forces, both companies will be able to accelerate the digital transformation initiatives of North America's manufacturing industry, empowering organisations to achieve operational excellence and overcome many of the challenges created by the coronavirus pandemic.

Nutanix has appointed Rob Tribe as vice president systems engineering for the Europe, Middle East and Africa (EMEA) region.

LogicMonitor has appointed Christina Kosmowski as president.

Cradlepoint has appointed Darryl Brick as the company's new vice president of partner sales in EMEA.



Audit | Design | Build | Test | Maintain

# SignalTEK 10G helps increase bandwidth and prevent downtime

**IDEAL Networks** is launching SignalTEK 10G – a new handheld Ethernet tester designed to measure the maximum bandwidth available on networks, identify bottlenecks and find ways to increase bandwidth without the need to replace expensive data cabling

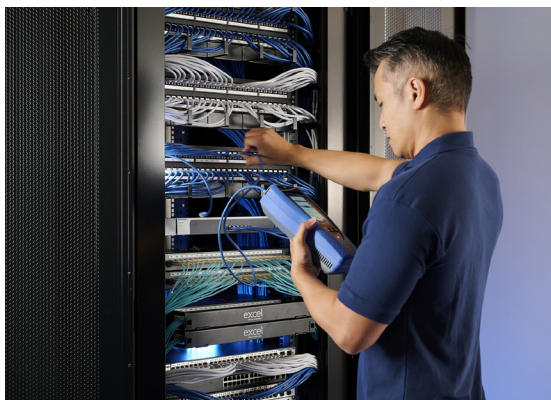
▶ There is ever increasing demand on LAN networks from bandwidth hungry services such as video streaming, video conferencing, CCTV cameras and Wi-Fi access points. This extra pressure can lead to expensive downtime and lost productivity, but replacing all cabling to improve bandwidth is cost prohibitive for many organisations.

‘There are 111 billion metres of Category 5e/Category 6 cabling installed globally that is limited to

1Gb/s bandwidth speeds due to the current switches deployed,’ said Tim Withershoven, marketing director for IDEAL Networks. ‘In the past there was no simple way to check the maximum bandwidth that existing cabling would support if you upgraded to multi-gigabit switches delivering 2.5Gb/s, 5Gb/s or 10Gb/s speeds. SignalTEK 10G solves that problem, enabling you to prove the system will support

the bandwidth required before you make an expensive investment.

By simulating actual network traffic SignalTEK 10G enables users to test, troubleshoot and document network and data cable performance up to 10 Gigabit Ethernet



standards. With a max throughput test, the tester verifies what the maximum error free bandwidth the cabling or infrastructure can support and establishes what hardware or applications would work on an existing link. This saves significant time and cost compared to replacing data cabling.

Once the upgrade is installed, SignalTEK 10G can be used again to test and prove



performance to international standards. With built-in Wi-Fi connectivity, it connects to the free IDEAL AnyWARE Cloud test management system to generate professional reports for the client.

The AnyWARE Cloud management system also allows real time collaboration between project managers and field technicians. Project managers can preconfigure the jobs and tests in the AnyWARE Cloud, eliminating potential mistakes and reducing the time taken to prepare reports for customers. As it is cloud based, it can be accessed from any location with an internet connection and web browser, making it an ideal solution for teams where members may be working from home.

Via the TeamViewer Live Support feature, project managers can also connect from

IT enterprises and AV installers alike,' commented Widdershoven. 'As well as providing accurate 10 Gigabit Ethernet transmission testing, SignalTEK 10G can also be used as a wiremapper, power over Ethernet (PoE) tester and for troubleshooting and maintenance of active and passive copper and fibre networks.'

The new tester brings together a range of diagnostic tools to support faster troubleshooting and reduce downtime. For instance, one feature of the SignalTEK 10G will log all network events over a 72-hour period to help diagnose intermittent connectivity issues faster, reducing hours on-site and trips to site. It also has features which eliminate guesswork when installing, maintaining, and troubleshooting where PoE is deployed up to

90W (PoE++), as maximum power can be measured accurately, and installations can be verified to IEEE standards.

'To maximise their investment, businesses can order SignalTEK 10G now, then upgrade and unlock additional features

only as needed,' concluded Widdershoven. 'This is a future proof tester, designed to meet your network needs today and tomorrow.'

SignalTEK 10G is available to pre-order now from IDEAL Networks' distributors or direct from IDEAL Networks' online shop.

**CLICK HERE** to find out more.

[www.idealnetworks.net](http://www.idealnetworks.net)



any location to SignalTEK 10G on the jobsite to troubleshoot failed links, minimising troubleshooting time and reducing call-backs, while limiting personal interaction. Access can also be granted to cable manufacturers and IDEAL Networks' technical support to allow further troubleshooting if required.

'SignalTEK 10G is a feature rich tool for data cable installers, systems integrators,



# Seizing the opportunity

**Andrew Stevens** of CNet Training explains the new ways of learning and how we need to work together to encourage more people to join the digital infrastructure sector

**▶** The data centre and network infrastructure sectors were propelled into the limelight in 2020, with the coronavirus pandemic highlighting just how much we all rely on technology. Demand for internet services increased dramatically as businesses went online, staff worked remotely, children and students studied from home and everyone tried to stay connected with friends and family. Zoom averaged 148.4 million monthly active users in the second quarter of 2020,

increasing 4,700 per cent year on year. Meanwhile, mission critical staff were given the deserved recognition of key worker status, highlighting their importance and how vital it is that we have enough people working 24/7 to ensure we can all stay online.

## ATTENTION TO DETAIL

The pandemic has pushed people into learning in different ways, and there has been a significant shift to online/virtual/

40



remote education and training. However, learners must understand that training and education providers can't simply switch a traditional classroom based program into a virtual or remote attendance version. It just doesn't work and, if it is just swapped, there are going to be quality issues and some unhappy learners.

To remain engaging, interactive and to further enrich the learning experience, it is important that the material, content, exercises and assignments of each program are reworked. Extra attention to detail and a full examination of the learning experience is needed to ensure learners receive the best experience – even when they aren't physically in a classroom.

### MEETING THE NEED

With people learning from home and working flexible hours, options must also be designed to suit everyone's needs and requirements. Individuals and organisations can now consider their workload and

patterns of work, and assess which program would be best suited to them, depending on their preferred learning style and available time. This provides more choice for those that can't travel or spend long periods out of their work environments.

Professional development and training opportunities have dramatically evolved. Organisations can now take a more targeted approach to pinpoint precisely where and, more specifically, what education is required for their individuals and teams.

Some individuals prefer a self-paced learning program, with video narration, that they can complete in their own time. Others prefer a live instructor-led remote attendance program, where they can engage with fellow attendees and complete it over a defined period of time. Organisations and learners may also be looking for shorter, more concise learning modules to best fit around work/life commitments.



## SPACE RACE

Predictions suggest that the majority of organisations will never go back to having 100 per cent of their staff in the office full time. So, the question is what to do with this space? How could it be better utilised to help grow and develop teams? There is now a real opportunity for organisations to look at their existing office and re-imagine it – in the same way organisations over the years have developed wellbeing and timeout areas.

Now is an excellent time to create a designated learning zone. This benefits

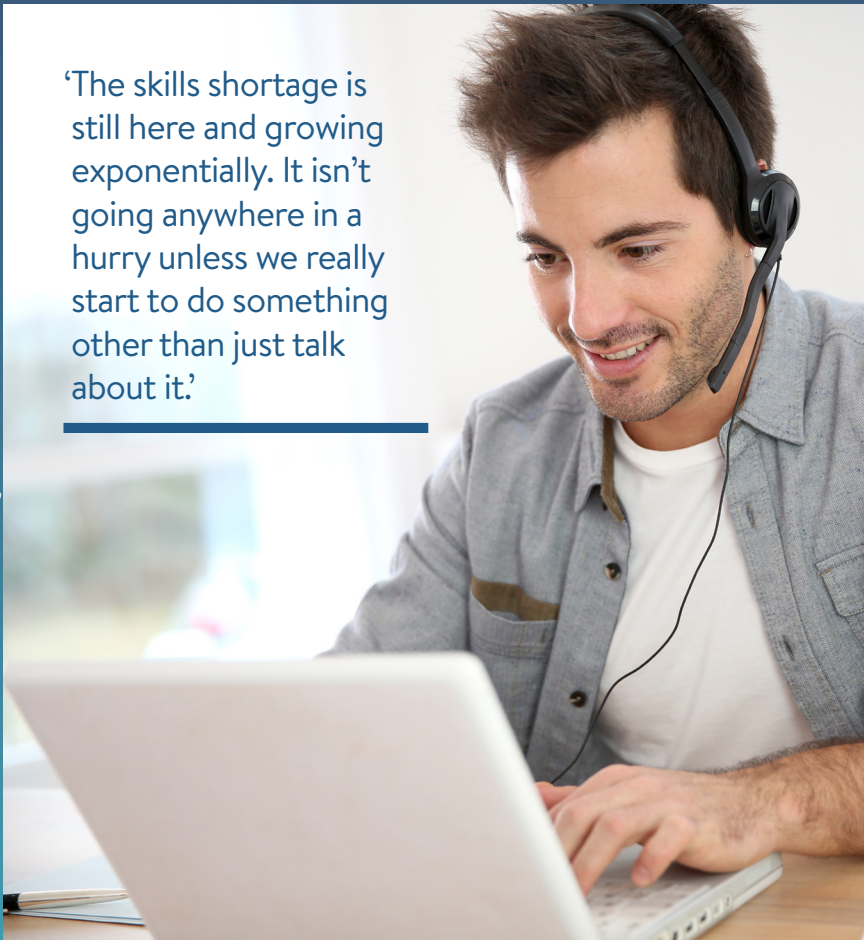
individuals who do not have a suitable space at home or those who simply prefer to learn from the office. For organisations taking on apprentices, or for individuals enrolled on long-term programs like a master's degree, a dedicated learning space could allow them to complete coursework and projects away from their desk and the day-to-day distractions that come from working in an office or at home.

Organisations could create bespoke smart learning areas for single or multiple occupancies, allowing individuals to undertake self-paced distance learning and small group collaborations to share ideas. The majority of mission critical teams have continued to work during the pandemic, so this space could give them a dedicated area to devote to learning.

## SKILLS CRISIS

The skills shortage is still here and growing exponentially. It isn't going anywhere in a hurry unless we really start to do something

'The skills shortage is still here and growing exponentially. It isn't going anywhere in a hurry unless we really start to do something other than just talk about it.'



other than just talk about it. We have to stop thinking that we, as an industry, are special. We aren't, and we need to work together. One organisation will never be able to fix the skills issue and take all the glory on its own, so we must stop thinking in that way.

The pandemic has hit many people and industries really hard. Some have lost their jobs and are looking for new careers. There are also a lot of young people starting to make decisions about their future careers, choosing academic subjects, looking for apprenticeships and considering degrees.

Our industry is busy, demand will only grow and right now we simply don't have enough people. It should be the perfect storm for organisations to take full advantage by ensuring that the industry is visible and people are aware of it. The jobs may be out there but things will never move forward if people don't know the it exists.

### ON THE RIGHT PATH

Careers fairs, apprenticeships, work placements, mentoring, going into schools and universities to spread awareness of the industry will take us only so far. The digital infrastructure industry needs to come together to put plans in place to upskill and develop talent, while offering new career paths to individuals. Apprenticeships are a great way to develop and grow much needed new skills and talent.

The entire talent pipeline needs to be protected, as the industry is rife with organisations poaching each other's staff from a diminishing pool of talent. Long-term training and development plans need to be put in place to continually develop and assess individuals throughout a business, to help hold on to staff and future proof an organisation.

### RAISING THE BAR

During 2021 organisations need to not only make their teams more diverse but also develop their existing staff. The challenge is to ensure that people from all backgrounds know about the digital infrastructure industry and to entice them to get involved. The industry offers lots of fantastic opportunities and international career paths. People just need to know what it is, and the variety of potential roles waiting for them. ■



### ANDREW STEVENS

Andrew Stevens is president and CEO at CNet Training. He has been involved in the international telecommunications and data centre industries for the past 33 years, starting his career within the manufacturing and distribution arenas. Stevens joined CNet Training in 1997 as sales director and has been CEO since 2004. He has been an active member of numerous industry trade bodies and has also been awarded a number of industry accolades for his work.



# Better by degrees

**Andy Hirst** was one of the first people to complete the Masters Degree in Data Centre Leadership and Management. Rob Shepherd finds out what motivated him undertake the course, his experience of doing it and its impact on his career

## **RS: Why did you want to gain a Masters Degree in Data Centre Leadership and Management?**

AH: In order to advise clients, you have to be up to date with current knowledge. I have attended various courses over the years, which have been predominantly technical, so I wanted to expand my knowledge into other areas. Before enrolling I had to consider the implications of undertaking a three-year programme and the commitment it requires.

## **RS: How difficult was it to fit studying in around your day to day work?**

AH: I hadn't anticipated the effort needed to sustain three years of study and the volume of work required. That said, when you complete and pass a module, and whilst you take a breather preparing for the next one, you do feel an immense sense of achievement.

In this day and age work is extremely fast paced and it can be difficult to switch off. However, if you make a commitment outside of work, it is possible to make time but you do have to be disciplined.

## **RS: Much of the course is conducted via distance learning. How did you find this?**

AH: All of my previous courses were classroom based, so I wasn't sure what to expect. However, once I understood the

course requirements and the various protocols it was quite seamless.

One of the main things to keep in mind whilst doing this course is that although it is online with fortnightly tutorials, you have a large back office support team to help with any issues or concerns. If I had difficulty with any of the content, or needed clarification, I could get issues cleared up relatively quickly, allowing me to concentrate on the module.

## **RS: What benefits has it brought to your day to day work?**

AH: This course gives you a holistic view of the industry. It enables you to take a step back from the technology and look deeper into management and leadership.

It has given me an understanding of the pressures my team faces above and beyond technical expectations, a greater insight into why we have skills shortages, along with the working requirements that

'After completing the course I visited various universities for their engineering departments. I could not believe the lack of knowledge just of the technology within data centres also in respect of the sector and opportunities

are needed and are sometimes not taken into account. Researching some of these areas allowed me to gain more of the skills needed to head a mission critical business, which can get overlooked.

**RS: What was the biggest insight you gained from the course?**

AH: The biggest insight I gained has also become my biggest concern – that is the shortage of new engineers and, in particular, the lack of female engineers joining the industry. While researching it, my concern was magnified and I found the issue quite frustrating.

After completing the course I visited some universities for discussions with their engineering departments. To be honest, I could not believe their lack of knowledge – not just of the technology within data centres but also in respect of the scale of the sector and the opportunities it offers. If these organisations are not aware of the opportunities, what chance do we have of attracting the next generation of data centre engineers?

**RS: What advice would you offer someone looking to take the Masters Degree in Data Centre Leadership and Management?**

AH: Although not technical in content, I got more from this course than any other I have undertaken. However, I would urge potential students to remember that it requires three years of your time. Therefore, don't just look at your position now, look ahead and ask yourself, 'could I sustain this workload for the next three years?'

**RS: What would you do to drive uptake of qualifications, certifications and accreditations amongst data centre professionals?**

AH: You could have an extremely experienced electrician who has spent 30 years working on domestic rewire. Although common sense would say that they could not work on a 1MW mission critical data centre facility, their qualifications could potentially allow them to do so! If a mission critical engineering passport system was introduced it would drive the correct qualifications and experience within the industry.

**RS: What are you doing with all of your free time since you graduated?**

AH: Like most things, once you have completed a project you look back and think, 'I'm so busy – how did I find the time to do that?' That said, I am sure another course or research opportunity will come along soon to keep me occupied! ■



# Mayflex

At **Mayflex** we are keen to continually develop the knowledge of our staff and customers, and enable them to learn new skills while keeping up to date with the latest best practices and standards. Through our **Mayflex Academy** we currently offer online vendor training including the Hikvision HCSA course and the Avigilon ACC Kickstarter course – both of which are free to **Mayflex account customers**, with dates running throughout the year.

Mayflex will also be running a Spring

Technical Training Event from the 8th-12th March and this will include up to four different **training courses** each day,

all of which are designed to educate customers and broaden their knowledge across a wide range of IP security solutions. Customers can sign up to attend as many

Date/Time	Monday 8 <sup>th</sup> March	Tuesday 9 <sup>th</sup> March	Wednesday 10 <sup>th</sup> March	Thursday 11 <sup>th</sup> March	Friday 12 <sup>th</sup> March
09:00	AVIGILON ACC Kickstarter	tether	MAYFLEX ACADEMY Part 1	MAYFLEX ACADEMY Part 2	
09:30					Paxton 10
12:00		VENZO_secure	VSS VIDEO STORAGE SOLUTIONS	TRIPP-LITE	
14:00	Paxton Net2	AXIS COMMUNICATIONS	HIKVISION	milestone	suprema
15:30	AVIGILON	IDEAL NETWORKS	MOBOTIX	wavestone	

**Spring Technical Training Event**  
8<sup>th</sup> - 12<sup>th</sup> March 2021

**MAYFLEX**  
A Sonopar Company

training sessions as they wish.

For more information on the Spring Technical Training event and the training courses in general **CLICK HERE.**

[www.mayflex.com](http://www.mayflex.com)

46

# R&M

In a recently published series of blogs detailing trends and expectations for 2021, R&M outlines a further boost for the data and communication networks market.

Following the company’s well-received series of trends reports last year, the recent instalment looks at developments in data centres, public networks and LANs. Across various sectors demand for bandwidth, new fibre optic technology and extensive, tightly meshed cabling is increasing.

For data centres, evolution to 400Gb/s fibre networks will progress



Andreas Ruesseler

and high-density fibre connectivity will demand new administration and monitoring instruments. 5G is a key driver for the expansion of optical fibre – countless 5G antennas have to be connected with fibre networks, and required transmission performance can only be realised with fibre to the antenna (FTTA). LAN drivers include Wi-Fi 6, the next WLAN generation, internet of things (IoT) and building automation relying

on internet protocol (all over IP).

To read more **CLICK HERE.**

[rdm.com](http://rdm.com)

## Networks Centre

BICSI is renowned for promoting ICT design and installation training. The BICSI RCDD is the global gold standard for ICT professionals involved in the design of structured cabling systems. Many who have followed this vocation have attained the RCDD qualification and gone on to C level positions.

Taking the RCDD was always a challenge – a significant investment in time and work commitments deterred many. More recently, virtual classrooms have helped but are on US time-zones. This year, for the first time,

the Networks Centre Training Academy (NCTA) offers RCDD as a virtual classroom on GMT.

The course is expanded, enabling students to better manage their work-life balance. This time-zone study is already finding appeal in Europe and the Middle East, where BICSI has a strong following.

NCTA also offers other virtual training courses including City & Guilds and the popular Fluke Networks Versiv course.

To find out more [CLICK HERE](#) or call 01403 754233.

[www.networkscentre.com](http://www.networkscentre.com)



## Nexans

Chances are you are stuck indoors, working from home and waiting for things to settle down in the world. Technology events, seminars, in-class training and meeting customers face to face are no longer options. So why not continue to educate yourself using Nexans' Cabling Café webinar series and/or structured cabling eLearning modules?

The Cabling Café is a series of webinar sessions covering key technology developments, best practices and practical

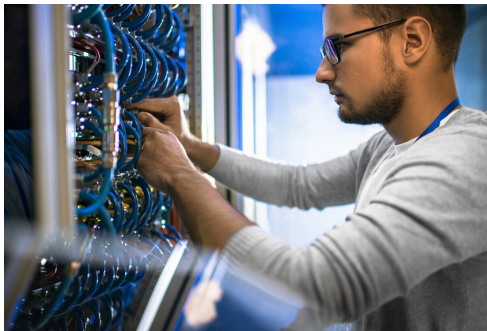
advice. Up to 30 recorded sessions are currently available, each lasting for around

30 minutes. All are freely available and split into four main categories – Data Centres, Enterprise, Fibre To The Office and Practical Tips. [CLICK HERE](#) to select a webinar to watch.

Nexans' partners can also make use of eLearning modules to

get instructed in the world of structured cabling, its standards and Nexans' products and solutions. [CLICK HERE](#) to become a partner.

[www.nexans.co.uk/LANsystems](http://www.nexans.co.uk/LANsystems)





# One eye on the future

Joe Palmer of Colt Data Centre Services (DCS) explains how to drive data centre success through staff training



48

▶ Despite the huge rise in technology use in recent years, one fact remains true – for almost every business its employees are the key to its success. This is a phrase employees often hear and roll their eyes at but it's true, and every successful company knows it.

## PLAYING CATCH-UP

The data centre industry is no exception to this rule. After all, as data centres continue to grow in size, especially with the emergence of hyperscale facilities, it can take a village to run just one data centre. As became patently clear in 2020,

the challenges and, therefore, the skills required to run a data centre can change year on year. The question is how can data centre operators ensure they are ahead of the curve and that their staff are prepared for all eventualities?

The data centre industry did incredibly well in adapting in 2020 and staff will have learned a multitude of skills they may not have had in their lockers before the coronavirus pandemic. For example, at Colt DCS most data centre tours went virtual while lockdowns were in place. Our staff had to learn how to conduct these tours and have improved their ability to interact with customers as a result.

### TRAIN TO GAIN

While key training will have continued online, it's likely some training, particularly for soft skills, may have been overlooked. Data centre providers must ensure that these training sessions do not fall off the agenda in 2021, or skill gaps could begin to develop.

Now is certainly a good time to reassess how the industry trains its staff. When deciding which training sessions to run, it's important that data centre providers tailor them both to their existing staff and the current needs of the time. This can be done on a more individual level, which means getting to know your employees' strengths and weaknesses better. It is vital to think not only about the skills staff need but also what knowledge and experience they should gain to benefit themselves and enhance the customer experience. This is a key differentiator and blanket training sessions, which many

employees don't find helpful, will not help data centre providers to achieve this.

### TREND SETTING

Announcing its sixth carbon budget in December 2020, the Climate Change Committee set a target for the UK to cut its emissions by 78 per cent below 1990 levels by 2035. Other countries will be facing similar objectives to ease the climate crisis and every industry will be tasked with doing its bit.

If the data centre industry is to help achieve these objectives, training will play a crucial role. Widescale adoption of techniques such as water cooling will require new skills. Meanwhile, the development of new data centres will require sustainable designs. We've already seen innovations such as Microsoft's underwater data centres, which were a success and could be logistically, economically and environmentally positive. This, again, will require a whole new set of skills to run efficiently.

### GLOBAL AMBITION

Another trend we are seeing is a rapid acceleration of digitalisation processes across the globe. In Japan, for example, prime minister Yoshihide Suga appointed the country's first minister for digital transformation. The ambition is to create a public and private sector which is more digitally connected.

Elsewhere, in Europe and the Americas, remote working has boomed in popularity due to the pandemic, making it a more viable option for the future. The amount of data being stored and the need to connect people from around the world is only going to rise as a result. Hyperscale data centres, with their size and scalability, will be key enablers. However, running them will



require new skills and knowledge from both technical and health and safety standpoints.

### CONNECTED WORKFORCE

Training staff for the technical challenges involved in

‘While key training will have continued online, it’s likely some training, particularly for soft skills, may have been overlooked during a tumultuous year. Data centre providers must ensure that these training sessions do not fall off the agenda in 2021, or skill gaps could begin to develop.’

running a data centre is, naturally, a no-brainer and every successful data centre provider will be doing exactly that. However, as an industry, we need to start looking at the bigger picture. It’s no secret that the data centre



industry is not exactly the most diverse, with a clear gender gap arguably the biggest problem.

Now is the best time to start seriously addressing this problem, though. Despite the events of 2020, the data centre industry has stood strong and growth is expected in 2021. Gartner anticipates that end user spending on global data centre infrastructure will grow by six per cent and it's expected that the industry will grow year over year until 2024 at least.

This level of security could encourage people to work in the industry – particularly those who hadn't considered it before. However, to reach these people, data centre providers need to start funding early education and training programmes at both higher and lower education levels. It's important that we begin to change the narrative claiming that the industry is only open to certain types of people. By creating a more diverse workforce, providers can attract a wider range of talent and skills, which could prove invaluable.

### HEART OF THE MATTER

For most of us in the data centre industry, 2020 was a year of adapting and doing the best we could to provide a high-quality service to our customers, despite the challenges we

faced. With vaccines being rolled out, there is hope that things may start returning to normal in 2021. However, this doesn't mean we as an industry should stand still. 2021 can be seen as a clean slate to start afresh and improve as an industry. We need to become more sustainable, diverse and, as always, more efficient. Data centre staff will be at the very heart of this and in order to create the best workforce possible training is going to be crucial. ■



### JOE PALMER

Joe Palmer is vice president of human resources at Colt DCS. He is an experienced human resources director with a history of working in the information technology and services industry. Palmer is skilled in consulting, employee relations, workplace engagement, technical recruiting, management, applicant tracking systems and workday, with a UK and international employment law background.

# Quick clicks

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

PUE – The Data Centre Measure of Efficiency That is Still Going Strong is a blog by Spencer Lamb of **Kao Data**. [CLICK HERE](#) to read it.

The Difference Between Data Centre Redundancy and Resilience is a blog from Sam Yearley of **4D**. [CLICK HERE](#) to read it.



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How Microgrids for Data Centres Increase Resilience, Optimise Costs and Improve Sustainability is a white paper from **Schneider Electric**. [CLICK HERE](#) to download a copy.

**Juniper Research's** white paper, Edge Computing: 5G's Secret Weapon, examines the short-term and long-term benefits to network operators of coupling their 5G services with edge computing technologies. [CLICK HERE](#) to download a copy.

**Leviton** has published its latest Standards Report. [CLICK HERE](#) to read it.

**Corning Optical Communications** has published its 40G, 100G, and 400G Cabling Reference Guide. [CLICK HERE](#) to download a copy.

**Siemon** has produced a Data Center eBook, which is available to download by [CLICKING HERE](#).



# To the next level

Kevin Lenglé of Cailabs dispels some of the myths about multimode fibre and explains how to future proof legacy cabling infrastructures beyond the standards

▶ The implementation of new services in campus networks is exploding total data demand. Enterprise networks have undergone substantial changes over the last decade in terms of transmission speed, reach and capacity. However, one thing has remained constant – the cabling infrastructure of these networks consists, for the most part, of multimode fibre.

## NEED FOR SPEED

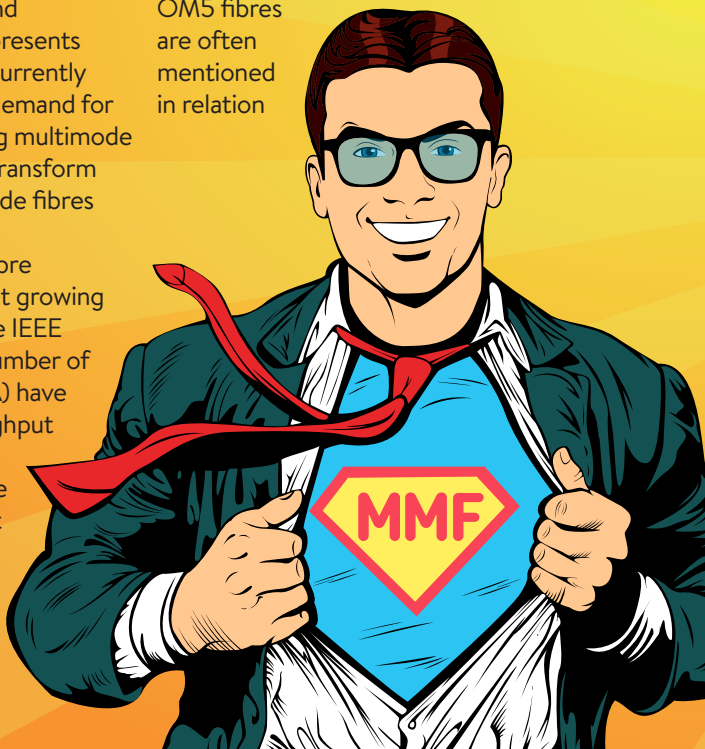
It is well known that multimode fibres have limited bandwidth. So, how can these network cables carry large volumes of data with high throughput and minimum latency? This article presents the technological approaches currently available to meet the growing demand for increased bandwidth on existing multimode infrastructure. Is it possible to transform multimode fibres into singlemode fibres with the wave of a wand?

















In recent years, multimode fibre throughput has evolved to meet growing demand. Recent changes to the IEEE 802.3cd/cm standards and a number of multi-source agreements (MSA) have made it possible to offer throughput of 50Gb/s, 100Gb/s, 200Gb/s or even 400Gb/s on multimode fibre. However, this throughput is limited to short distances of a few tens of metres up to possibly a hundred metres, and it is mainly intended for the data centre market.

## GOING THE DISTANCE

For local area networks (LAN), the required data throughput on backbone cabling between floors or buildings of a campus is closer to 10-40Gb/s. Today, for distances of 100-150m, multimode fibre is the solution of choice, while singlemode fibre is generally used for distances greater than 150m. This engineering rule was not always applied in the past and there is now a very large number of multimode fibre building to building links of several hundred metres in campus networks.

In addition, OM3, OM4 and OM5 fibres are often mentioned in relation



	FIBER DEPLOYMENT	PARALLEL OPTICS	MODE CONDITIONING PATCHCORD	MODAL ADAPTER
Technical approach	Replace existing fiber by new generation fiber	Parallel and aggregate low speed links	Reduce modal dispersion	Overcome modal dispersion
Bandwidth				
Throughput vs Reach	From 10 to 400Gb/s over several kms	Nx10Gb/s over 80m max 25-40-100Gb/s not compatible	10Gb/s over 200m max 25-40-100Gb/s not compatible	From 10 to 100Gb/s over several kms
Complexity of installation				
Installation time				
Project cost				
Commentary	Long, complex, intrusive & costly project	Aggregated bit rates depending on length & availability of dark fibers	Performance not guaranteed; depending on field connectors	Fusion splicing required

to multimode fibre. However, many existing multimode fibre links use OM1 or OM2 fibre. It is well known that these first generation multimode fibres have very limited bandwidth and cannot support throughput exceeding 10Gb/s. So what about users who need high throughput on legacy multimode fibre networks, or who have campus-wide multimode links of several hundred metres?

The table above groups the different alternatives to meet the growing demand for bandwidth in legacy multimode fibre LAN. These different solutions are compared in terms of complexity and installation time, project cost and of course the bandwidth obtained.

## THINK AGAIN

Multimode fibre has limited bandwidth due to its design and, in particular, to modal dispersion. This physical phenomenon of intrinsic distortion in multimode fibre

limits the transmission capacity of OM1 and OM2 fibres to a few tens of metres at 10Gb/s (35m and 80m respectively) and 100-150m at 40Gb/s for OM3 and OM4 fibres.

One way to improve the throughput on an existing multimode fibre link is to aggregate the links to circumvent this bandwidth issue. It is possible to transport low throughput signals on multiple fibres in the same cable, up to their maximum bandwidth capacity, and then perform physical layer aggregation to obtain a high throughput channel. However, this approach quickly reaches capacity limits and has operational constraints, which do not make it a viable solution.

## SOLUTION PROVIDER

A solution that avoids throughput and distance limitations on old multimode fibres is to replace the cabling with new generation multimode fibre or

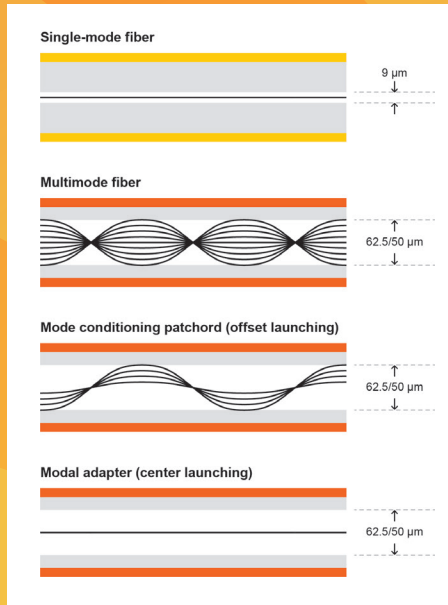


singlemode fibre, which is not subject to capacity limits due to modal dispersion. This solution is conventionally used to address the problem.

Redeploying fibre cable is often a difficult task. It depends on the distances involved and the difficulty in installing the cables. It is generally best to audit the cabling infrastructure required to check the availability and condition of cable ducts. In some cases, micro-trenches or more invasive work may be required to install the new cables throughout the campus. For these reasons, the cost of redeploying new cable can be exorbitant. Cable replacement can require complex installation work with a significant impact on business operations. So, are there other solutions than rip and replace?

### DISCUSSION POINT

The problem of multimode fibre transmission capacity was discussed a few years ago within the IEEE and MSA workgroups. Designed for backward compatibility with OM1 and OM2 fibres, a 10Gb/s interface was developed within the IEEE 802.3aq standard, referred to as long reach multimode.



‘The problem of multimode fibre transmission capacity was discussed a few years ago within the IEEE and MSA workgroups. Designed for backward compatibility with OM1 and OM2 fibres, a 10Gb/s interface was developed within the IEEE 802.3aq standard, referred to as long reach multimode.’

10Gb/s interface was developed within the IEEE 802.3aq standard, referred to as long reach multimode.

By using electronic signal processing for dispersion compensation, combined with specific light launch conditions into the multimode fibre with mode conditioning patch cords (offset launching), it is possible to achieve a maximum range of 220m at 10Gb/s by reducing the impact of modal dispersion. However, performance is not guaranteed – variable according to the field connectors – and this does not cover all the current bandwidth needs of local networks.

According to the principle of specific light injection used in the IEEE

802.3aq standard, the best scenario would be to perform mode conditioning, thereby allowing the data to be injected with very high accuracy into the fundamental central mode of the multimode fibre (perfect centre launching). In this way, the light transmission within the multimode fibre

would no longer induce modal dispersion, as only one mode would propagate. This can be considered a kind of quasi-singlemode transmission over multimode fibre.

## FULL POTENTIAL

Advances in optical technologies in recent years mean that it is now possible to shape a laser beam to perform the specific type of centre launching discussed in the IEEE 802.3aq studies. Recent interaction and coordination between many players in the ICT industry have made it possible to offer customers and suppliers of campus networks multimode fibre cabling upgrade solutions by increasing the transmission capacity of the existing multimode fibre network.

By overcoming speed and distance limitations, throughputs of 10Gb/s up to 100Gb/s can be carried over existing multimode infrastructure for up to several kilometres – a bargain for brownfield campuses upgrade projects. This enables the gradual and flexible evolution of a legacy network's optical infrastructure.

Interoperable and compatible with any type of 62.5/125µm or 50/125µm multimode fibre, these solutions can help to preserve existing network infrastructure. Furthermore, these technologies consist solely of optical elements, the solutions on the market are passive – with no power consumption, configuration or monitoring required – and operate at the physical layer level, which makes them transparent to the wavelength, communication protocol and modulation format used. This provides an opportunity to implement singlemode wavelength division multiplexing (WDM) technologies on multimode fibre, to perform singlemode to multimode media conversion functions passively, or to

deploy GPON within a passive optical LAN architecture partially composed of multimode fibre.

## PROVING A POINT

These solutions have already proven their effectiveness across numerous industrial, military, university and hospital campuses around the world. As a relevant alternative to complex recabling, these new technological approaches make it possible to solve the LAN bandwidth problem in a practical, economical and environmentally friendly way, with proven benefits for end customers and ICT professionals alike. ■



### KEVIN LENGÉ

Kevin Lenglé is product line manager at Cailabs, where he brings his expertise in optics and telecommunications to the development of innovative optical solutions that fully exploit the potential of multimode optical fibres. Lenglé has been a member of the European APOLAN committee since 2020.

## Networks Centre

Networks Centre has, for many years, been a leading supplier of optical fibre cable to the enterprise and data centre markets.

Over the past few years the company has developed its range to meet changes in market demand, particularly in telecoms.

Networks Centre now stocks a range of ultra-lightweight (ULW) outdoor fibre cables for customers who have recognised the opportunity in the unbundling of telecom networks for fibre to the premises (FTTP) and 5G applications. Many of these



are overhead singlemode G657 A1 cables to BT specification for catenary installation. These cables are stocked in several core counts – 12, 24, 36 and 48.

Complementing the outdoor fibre cables are Sumitomo fibre splicers, as well as Fluke Networks and EXFO fibre optic test equipment, giving Networks Centre customers everything they need to support their

fibre optic requirements – whatever their speciality.

To find out more [CLICK HERE](#) or call 01403 754233.

[www.networkscentre.com](http://www.networkscentre.com)

## HellermannTyton

The last 12 months have hit us all pretty hard – some more so than others. With exhibitions having to resort to online events, it has been a frustrating time being unable to show off products to customers.

At HellermannTyton, we have created our very own virtual stand, allowing you to take a wander

around and have a look at our range of optical fibre broadband products. So, put the kettle on, grab yourself a coffee and settle down for five minutes to check out HellermannTyton's products that are



designed to deliver and manage fibre connectivity, to and inside the building.

We know it's not quite the same as physical event, but we are looking forward to when we can see you again – hopefully very

soon when it's safe to do so. Look after yourselves and stay connected.

[CLICK HERE](#) to visit HellermannTyton's virtual stand.

[www.htdata.co.uk](http://www.htdata.co.uk)

## Siemon

Siemon is soon to launch its innovative LightWays optical fibre routing system. LightWays has been specifically designed to maintain proper bend radius of fibre cabling, which is imperative in ensuring network uptime, performance and reliability, while also protecting it from dirt and dust.

Part of Siemon's WheelHouse range of advanced data centre solutions, LightWays comprises a wide variety of straight, solid



and slotted duct, elbows, tees, crosses, reducers and outlets available in four different sizes.

Innovative tool-less joiners completely eliminate the need for any drilling, nuts, bolts or other tools to connect or disconnect components.

The system's revolutionary low profile Waterfall Outlet can be easily placed anywhere along the sidewall of straight sections to create vertical drop-offs, with full bend

radius control for safely routing fibre cables to and from data centre racks and cabinets.

To find out more [CLICK HERE](#).  
[www.siemon.com](http://www.siemon.com)

## Fluke Networks

Fluke Networks' FI-3000 FibreInspector Ultra allows users to find contamination – the most common cause of optical fibre failure – on nearly any connection. Users can get a live view of the fibre endface instantly on their phone or Versiv Cabling Certification System, and then use a gesture based interface to zoom in on individual fibres or perform a pass/fail test.

The FI-3000 FibreInspector Ultra offers an extensive feature set that makes testing single fibres or MPO trunks easy and efficient. It features unique ergonomics that support the easy inspection of panels or cables, with controls on the back that make it simple to operate with one hand.

It works with iOS or Android smart devices through the FI-IN App. The app allows users to store results, or even share them with others as an image or a PDF report.

To find out more [CLICK HERE](#).  
[www.flukenetworks.com](http://www.flukenetworks.com)



## Nexans

Nexans has extended its LANmark-OF ENSPACE Pre-Terms portfolio with 12-core indoor MPO-MPO cables, which are optimised for rapid installation in data centres. The multimode ENSPACE Pre-Terms have ultra-low loss performance. This allows users to increase the number of connections in a channel for advanced applications or increase overall reach. Meanwhile, singlemode ENSPACE Pre-Terms have low loss performance.

The ENSPACE Pre-Terms have a double jacket with a high fire performance B2cas1ad0a1 rating, which is suitable for installation in-between data centre racks.



Once inside the rack the outer jacket is removed to give the inner jacket more flexibility and allow easy arrangement inside patch panels.

Some installations don't use panels but directly connect switches and/or servers. When these are located in a separate place from the cabling rack ENSPACE trunks can be used as 'patch cord' trunks to make a direct connection. Compared to traditional cords used for in-rack patching, ENSPACE Pre-Terms are more robust and have a high Construction Products Regulation (CPR) rating.

Discover the new ENSPACE Pre-Terms by [CLICKING HERE](#).  
[www.nexans.co.uk/LANsystems](http://www.nexans.co.uk/LANsystems)

## Comtec

Whether you're deploying optical fibre to the premises, home, building or cabinet, Comtec, part of the ETC Group, provides value, choice and availability.

Our stocked solutions from leading brands have been developed toward altnet and FTTx networks and encompass network build materials, tools and equipment. Physical infrastructure access (PIA)

approved Prysmian fibre is available in a wide range of fibre counts, fibre types and constructions. We also offer a cable cut to length service to reduce cost and wastage.

We offer CBTs from Corning and Prysmian, modular

access chambers from Cubis for quick and inexpensive construction, a choice of ducting and blown fibre tubing, outside cabinets, data racks and optical distribution frames (ODF) including a Redi-Rack rack integration service.

In addition, Comtec can supply all the necessary commissioning, test equipment and tools you might require. These include fibre blowers and compressors, splicing and termination tools, optical time domain reflectometers (OTDR), fibre loss test and power meters, site equipment including jointers tents and cable dispensers, as well a wide range of personal protective equipment (PPE) such as safety helmets and high-visibility clothing.

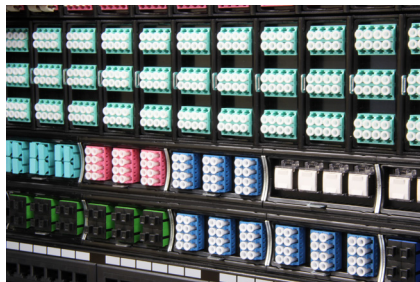
Speak to our FT Tx team on 01480 415000 or view the range online by [CLICKING HERE](#).  
[www.comtecdirect.co.uk](http://www.comtecdirect.co.uk)



## Patch Solutions

In partnership with Zettonics, Patch Solutions provides an easy to deploy cassette solution, revolutionising your optical fibre infrastructure.

The 1U chassis takes five cassettes, allowing data centres to quickly install 120 LC singlemode or multimode fibres in a tool-less one click installation from either the front or back of the chassis. Each cassette has an option of a single 24 core or two 12 core MTP connections, with cables supplied in the requested lengths and polarities. The solution works just as well with traditional tight buffered pre-terminated cables, using



a gland installed on the cassette's backplate instead of MTP adaptor(s).

In larger installations, a 2U chassis can house 12 cassettes, providing 288 fibres (144 duplex) OM4 or OS2 adaptors. Options are also available for SC, SC/APC and Category 6A cassettes, which are all interchangeable in either chassis, creating a fully adaptable system for moves, adds and changes, as business applications grow.

This Zettonics modular and scalable solution is competitively priced and available immediately. [CLICK HERE](#) to find out more.

[patchesavesolutions.com](http://patchesavesolutions.com)

# MISSED AN ISSUE?

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**Shoot for the sky**  
ARE THE DAYS OF THE CORPORATE DATA CENTRE NUMBERED?

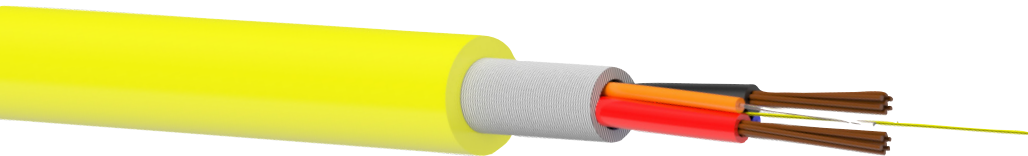
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## Corning Optical Communications



Corning Optical Communications' ActiFi Composite Cable provides the ultimate solution for indoor remote powering of distributed antenna systems, optical networks, small cells and more.

The composite design, which integrates linear laid copper and loose tube optical fibre in one cable, eliminates the need to install separate power and fibre cables, saving installation time, labour costs and duct or tray space.

The two fibre, tight buffered

cable uses SMF-28 Ultra fibre, which is an ITU-T Recommendation G.652.D compliant optical fibre with Corning's enhanced low loss fibre and bend fibre technologies. This promises reliable performance in challenging cable routes.

The cable is also Construction Products Regulation (CPR) class Cca-s1a-d1-a1 and compliant with ICEA S-83-596.

For more information [CLICK HERE](#).  
[www.corning.com](http://www.corning.com)

## Ideal Networks

SignalTEK 10G from Ideal Networks is designed to test, troubleshoot and document network and data cable performance up to 10 Gigabit Ethernet standards. However, this feature rich tool offers additional features for optical fibre testing that can be unlocked with a simple license key if you need them.

This includes, for example, testing maximum bandwidth up to 10Gb/s or conducting 1Gb/s and 10Gb/s data transmission tests. After infrastructure has been upgraded with multi-gigabit switches,



SignalTEK 10G can be used to verify fibre link speed up to 10Gb/s, which can be affected by cable length or signal loss.

The SignalTEK 10G bandwidth tester also makes it simple to identify the SFP temperature, vendor and model (for both SFP and

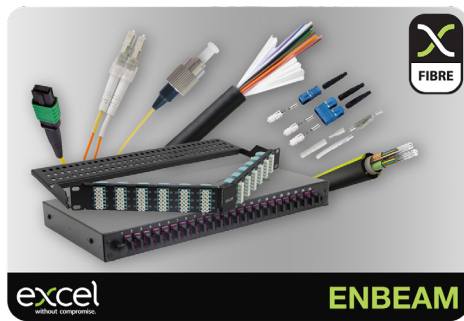
SFP+ transceiver modules). Users can also easily measure optical Tx/Rx power and data throughput, then prove performance to IEEE fibre standards with professional PDF reports via the Ideal AnyWARE Cloud test management system.

To find out more [CLICK HERE](#).  
[www.idealnetworks.net](http://www.idealnetworks.net)

## Excel Networking Solutions

Excel Networking Solutions has significantly enhanced its optical fibre offering to embrace the latest developments in this technology.

The Enbeam fibre range is extensive and includes **bulk cable, patch cords and pigtailed, patch panels, pre-terminated solutions, MTP and high-density solutions** through to a full range of **cleaning products, tools and accessories**. Excel also recently launched a portfolio of **cables, ducts and distribution enclosures** intended to service the rapidly expanding FT Tx market.

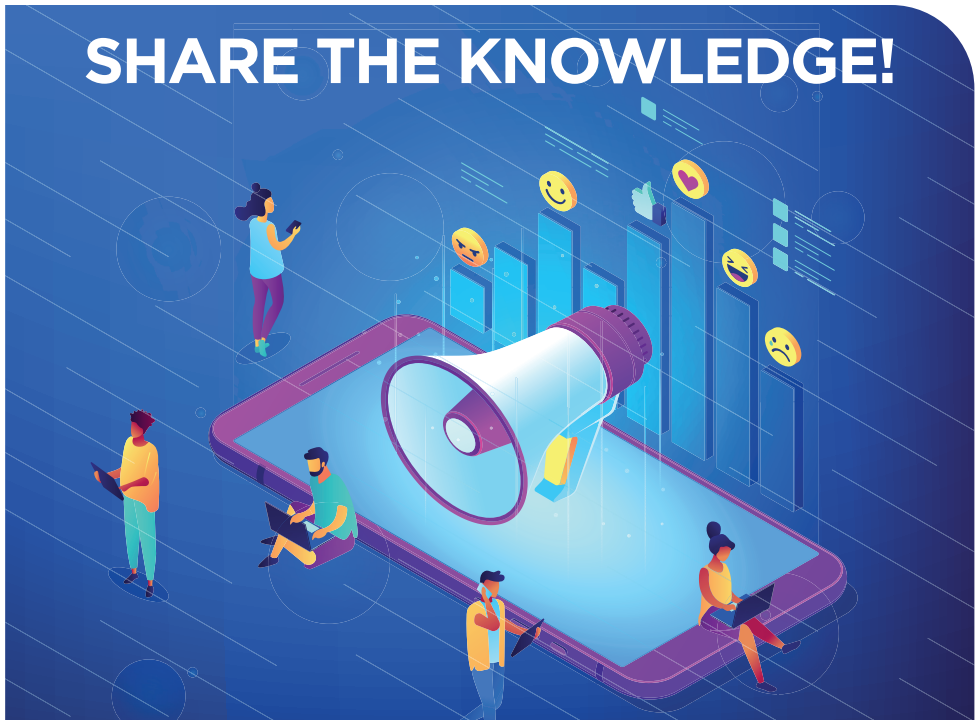


When selecting Enbeam fibre and FT Tx solutions, customers are choosing best in class products that are designed to support high-speed multi subscriber applications with high-density, ease of install and reliability at the core of each design. These solutions are backed by a **25-year warranty** when installed by an

accredited Excel Cabling Partner.

To view the full range of **Enbeam fibre products**, or for more information about Excel **CLICK HERE**.  
[www.excel-networking.com](http://www.excel-networking.com)

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# Stop, look and listen

As a leading consultant in the data centre space, **Stephen Bowes-Phipps** provides concepts, ideas and designs that give his clients a competitive edge. Rob Shepherd caught up with him to find out more about his career, how the role of the consultant has changed and how he helps to power our modern world

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

SBP: I'm a 54 year old 'social geek' – someone who started liking IT when it wasn't 'cool' and therefore balanced my love of my ZX Spectrum with a need to

party and play tennis and football! I'm now married with three kids that I had later in life – they're three, five and seven years old now and I've never been so exhausted. I love sport and I still play tennis but football has had to become a spectator

sport only. I also dabbled in local politics as an elected district councillor but gave that up when the kids came along.

**RS: How and why did you decide to embark on a career in data centres?**

SBP: Since the age of 16 I had decided I wanted to be in computers and my first job was in the sandwich year of my BTEC HND at ICL in East Putney. I beat 30 other candidates to it and yet it wasn't what I

thought I was going to do at all – no (or little) programming – but I was, in fact, responsible for the 'computer room', as well as office IT support. I looked after the ME29 mini-computer and a Dual 2900.

Little did I know that that room would

define my career over the next 30 years!

The next big turning point came when I was responsible for all the back-end processing for MBNA Europe Bank. One day my IT director promoted me and immediately declared that I was 'responsible for the data centres'. I had to

go and seek advice from colleagues as to what that actually meant!

**RS: How has the role of the consultant changed over the last 10 years?**

SBP: I think the role of a consultant is continually changing. Keeping on top of how the industry moves is vital and I believe that clients are just as confused by all the acronyms now as they were 30 years ago.

**'A good consultant listens. Too many consultants get a bad name because they only want to show how clever they are and not really give what the client needs.'**

The move from the physical (infrastructure) to the virtual (software) is continuing apace and hyperconvergence is blurring the lines between the traditional devices in the data centre. It's incredibly important to understand why data centres exist – for the IT and not as an end in themselves.

**RS: What differentiates a good consultant from a not so good one?**

SBP: A good consultant listens.

Too many consultants get a bad name because they only want to show how clever they are and not really give what the client needs. As a consultant, one also has to

be able to deliver projects and retain strict control over scope and cost.

**RS: What excites you about the data centre sector at the moment?**

SBP: What has always excited me about the data centre sector is its dynamism and innovation – there are a lot of smart people out there doing some great work.

With my IT background, I am a strong advocate for 'availability' to be viewed in terms of the holistic whole – the data centre is merely part of the digital infrastructure of an organisation. When people go on about Tier 3, Tier

4 etc, I wonder if they're missing the point. Businesses need to develop their applications and services to be available through reference to the entire IT stack. I am also passionate about getting new people into the industry through my role as an advisor to the Data Centre Alliance.

I also think that the move to software defined everything is a whole new direction for the industry. It will also drive new demands for specific skills and expertise that colleges and universities are just not ready to deliver to the future workforce.

**RS: Do you consider the Open Compute Project (OCP) to be a threat or an opportunity?**

SBP: Neither. John Laban is a great advocate for the work that's going on in the OCP, however, there is always a huge amount of variety in what companies need. This will be different for hyperscalers, enterprises and public sector – there is room for different solutions to serve different markets. I would recommend that which best fits my client's need.

**RS: Is the battle for the energy efficient data centre being won?**

SBP: Interesting question. Yes and no. Yes, in that the reasons for investing in energy efficient solutions is now well



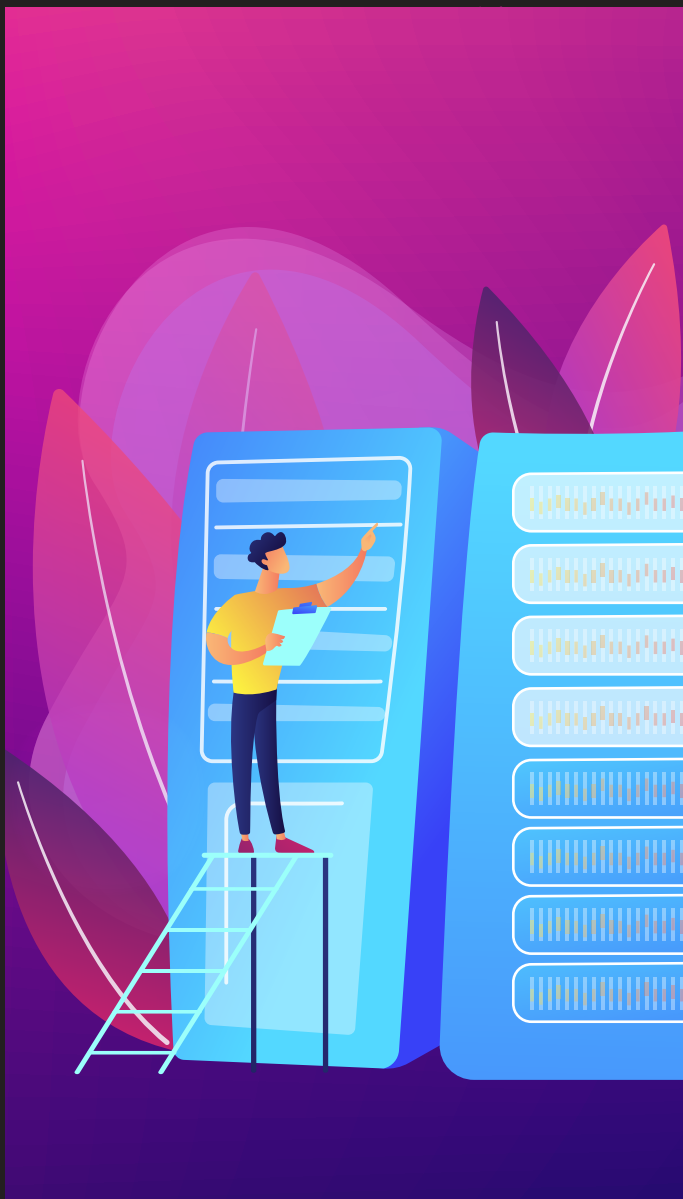
‘I think the role of a consultant is continually changing. Keeping on top of how the industry moves is vital and I believe that clients are just as confused by all the acronyms now as they were 30 years ago.’

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established and we see it as a base requirement for almost all new procurement exercises. No, in that Power Usage Effectiveness (PUE) is still widely misunderstood and misapplied. Also, more has to be done on the 1 in the PUE value – the IT part.

Efficient software programming should be mandatory teaching in schools and universities to reduce the burden on energy consumption in devices, which, in turn, will reduce energy consumption in the data centre. Also, there is a wide differential between what colocation providers are doing, what enterprise data centre owner/operators are doing and what goes in within the supplier side of the industry. Ultimately, ‘greening’ the data centre

relies on passionate advocates within organisations, otherwise it’s just a lot of box ticking and nodding to standards such as the EU Code of Conduct for Data Centres (Energy Efficiency) (EN50600-TR-99).





a plane or get in your car to go and visit them. Many of the data centre construction companies seem to have been able to keep the wheels turning in their projects despite it, but it has slowed down some activity.

More crucially, we see a lot of companies taking longer to make decisions concerning their digital infrastructure. Add in the double header of Brexit and the General Data Protection Regulation (GDPR), and it all adds up to a lot of confusion and change that I and my fellow consultants need to be able to address and guide our clients through.

**RS: What's the most useful piece of advice you've been given?**

SBP: I believe it's an Ian Bitterlin quote, though he may have 'borrowed' it from someone else – 'before you believe what someone says, always seek

**RS: What impact has the coronavirus pandemic had on the data centre sector?**

SBP: Well, from a personal perspective, it is making the job of assessing facilities worldwide extremely difficult when you can't just jump on

to understand why they said it'. I might be paraphrasing but it's useful advice in an era of politically motivated fake news, outspoken opinions and misleading marketing. ■

## Vantage on schedule to deliver 40MW hyperscale campus near Zurich

Vantage Data Centers is on schedule to deliver its first greenfield European hyperscale data centre in 2021. Located in Winterthur, Switzerland, the 40MW development is part of the company's \$2bn European expansion and will provide customers with large scale, sustainable data centre facilities built for the unique needs of hyperscalers, cloud providers and large enterprises.

The seven acre campus will be home to four multi-story, state-of-the-art data centres totalling more than 37,000m<sup>2</sup> once

fully developed. Vantage is constructing the shell of the initial facility with 8MW of capacity as part of its standard design practice.



The campus will employ hyper-efficient cooling with outside air economisation using minimal water. This approach, along with other design features, enables Vantage to achieve excellent Power Usage

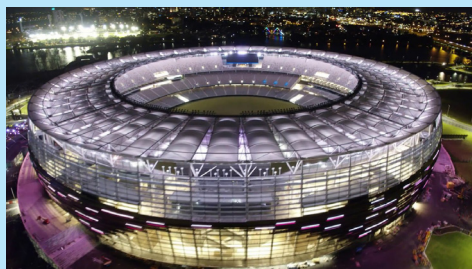
Effectiveness (PUE) and Water Usage Effectiveness (WUE). Additional green characteristics of the campus include a solar facade, electric vehicle charging stations, drought resistant landscaping, a green roof and motion sensor LED lighting.

## Nokia launches 5G experience at Optus Stadium

Nokia has launched 5G services with Optus at the Optus Stadium in Perth, Australia. The move provides visitors attending sporting or music events with access to incredibly fast indoor and outdoor 5G coverage, with speeds over 1Gb/s. Nokia has supported Optus with the deployment of the technology, as well as its ambitious goals for 5G.

Optus is utilising Nokia's 5G AirScale indoor Radio solution (ASiR) to provide comprehensive coverage for indoor zones such as corporate boxes or VIP areas. The solution supports major network

technologies and is designed to be easy to upgrade from 4G to 5G new radio (NR). It includes indoor small cells that deliver a consistent 5G user experience with high data rates across multiple zones.



Nokia's 5G solutions help deliver an enhanced end user experience. Low latency, high bandwidth connectivity can give spectators access to different camera angles

in real time, high definition video from their smartphones, as well as information overlays to enhance the performance. Optus has deployed Nokia's 5G indoor and outdoor radio system and reported peak speeds of 1.1Gb/s downlink and 100Mb/s uplink.

## Jefferson County Public Schools advances digital education for 200,000 users with Extreme Networks

Jefferson County Public Schools (JCPS), the largest school system in Kentucky and the 29th largest in the USA, has deployed Extreme Networks' high-density Wi-Fi 6 access points and the ExtremeCloud IQ network management platform as part of a district-wide upgrade. The refreshed network enables remote learning and powers digital education programs and applications for 200,000 users across 169 schools.

JCPS deployed nearly 8,400 Extreme Wi-Fi 6 access points and high-performance gigabit Ethernet switches



in buildings and outside, where they've created a wireless mesh network for video surveillance on 950 school buses. It has also deployed over 3,000 cameras, some with gunshot recognition, making instantly accessible data a crucial part of student safety.

The district also invested in ExtremeAnalytics software to more quickly identify and address connectivity and performance issues. With more bandwidth consuming applications on the horizon, having a scalable, high-capacity core wired infrastructure, as well as a reliable Wi-Fi 6 connection, is a necessity.

### PROJECTS & CONTRACTS IN BRIEF

Openreach has awarded Exfo a contract to supply optical test heads and test access switching for its Fibre First programme.

Plymouth is to benefit from an investment of at least £52m in its digital future, as part of CityFibre's plans to upgrade the nation's legacy networks with gigabit capable full fibre connectivity.

Greenhouse Datacenters has entered into a partnership with i4Networks.

Full Fibre has announced a financing deal with Basalt Infrastructure Partners that will see the company spread its wholesale fibre only infrastructure to at least 500,000 additional premises by 2025.

Auto Europe is implementing Nutanix hyperconverged infrastructure (HCI) software to support a fully remote workforce.

Kao Data has announced a new customer contract with InstaDeep. The new high performance computing (HPC) installation at Kao Data's Harlow campus allows InstaDeep to expand its research and development capabilities.

TOOQ Solutions has selected NetFoundry's edge and IoT platform for secure and simple provisioning, management and networking of its innovative edge and IoT retail analytics solutions.

# All you need to know

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# Six pack

Martin Hodgson of Paessler AG offers half a dozen reasons why rigorous IT documentation is so essential

 In this day and age data forms the crux of pretty much all activity for IT professionals. In order to fulfil customer and employee demands, we go to great lengths to store, manage, share and analyse it. But as we fall into the cycle of simply 'getting things done', best practice can sometimes go by the wayside when it comes to documenting the process.

## DOCUMENTARY EVIDENCE

It can't be denied that there are more glamorous aspects to the job, so it can be easy to avoid the documentation side. The

perception that is formed around building a documentation strategy, when thinking about cost and time, is ill-informed. What's more, it can be tiring trying to prove to decision makers and budget managers why it can be valuable and add to the bottom line.

As a whole, decision makers and IT professionals need to understand that documentation of the network can provide a business with a lot more than a record of past activity. There is no doubt about how much the IT industry is increasingly governed by regulations that ensure security. One





example that requires IT documentation is ISO/IEC 27001 but there is region specific legislation too. In order to fulfil the role and ensure regulatory compliance, IT professionals should understand that documentation mustn't be seen as a 'nice to have' process, but rather a critical component in pushing a business forward and maintaining a license to operate. However, compliance is not where it should end.

## STRATEGIC DIRECTION

By implementing a comprehensive documentation strategy, IT professionals can push the performance of the IT environment to the next level. And to do so, here are six reasons why IT documentation should be a priority:

- **Ability to minimise disruption and response time**

A critical factor in the role of any IT admin is being able to service the business and its users at speed. We all know how painful it can be when users are reporting issues to IT before they can be detected by admins. In fact, it's one of the greatest frustrations reported by IT admins from the UK, with our research showing that over half (54 per cent) reported this to be their biggest

'Going beyond compliance for improved business practice is key. When businesses look past emergency procedures and regulatory compliance, it is easy to understand how incorporating IT documentation best practices into an IT management strategy is simply good for business.'



pet peeve in the workplace. Yet, 86 per cent feel that they are doing a good job when they can fix problems quickly.

This is where documentation can help immensely. While it won't eliminate bugs and errors from cropping up, it will mean that the necessary information is at your fingertips in an emergency. This means that IT can focus directly on system recovery rather than spending more time



emergency management is not possible without documentation.

This information defines the people responsible, who to contact and their telephone numbers, so that the team and wider business know everyone involved and who to call in the instance of IT emergencies. Failure to be efficient and effective in a crisis can have devastating consequences not only for the IT department but for organisations as a whole.

- **Knowledge and expertise retention increase**  
We've established having easy access to information at speed is critical. A big part of this is making sure it doesn't sit in silos or in the heads of IT staff who then go on to leave the business. As organisations evolve and employees come and go, documentation eliminates silos and ensures knowledge is spread across an organisation, allowing

than necessary searching for IP addresses, system locations or instructions.

- **Tracking steps to understand a crisis**  
Documentation is just as important when IT needs to respond at speed in an emergency. To comply with the guidelines for IT emergency management, the provision of complete and up to date IT documentation is mandatory. In fact,

for more efficient handovers and greater knowledge retention when a colleague leaves.

- **Get to grips with assets and infrastructure**  
It's not easy to keep on top of an entire estate and the larger the organisation the harder it gets. In terms of enterprise level IT networks, visibility is vital to avoid

security issues and shadow IT. But that's not to say smaller businesses don't also require deep insights into their IT assets.

Whether it's information on warranty periods or which employees are connecting to the Wi-Fi on their smartphones, it's much easier to keep up to date with a well-documented asset management system. What's more, it means you can say goodbye to the various notebooks you have in use and store all information in one centralised and secure environment.

- **Seamless process standardisation**

New hardware rollouts and maintenance are difficult to plan when you don't know what hardware actually exists. It is surprising just how many unknown or forgotten devices are located by newly installed asset management software. If administration and documentation of hardware components is done properly, special devices and old equipment can be found and, where possible, exchanged for standardised hardware, which helps to remove any delays to fast-track change.

- **Optimising service providers**

Just as much as IT documentation can help your own internal team and business, it's equally as important to help external providers get up to speed when outside help is needed. A clear understanding of your IT environment gives greater insight into how external service providers can amplify practice by shining a light on areas that they may be able to assist with. Whether staff have the insight to share this overview or not, understandable and clear IT documentation becomes vital when selecting and communicating with external service providers.

## ONE STEP BEYOND

Going beyond compliance for improved business practice is key. When businesses look past emergency procedures and regulatory compliance, it is easy to understand how incorporating IT documentation best practices into an IT management strategy is simply good for business. With a strategy in place IT teams will be able to locate, eliminate, predict and monitor any issues before they arise. This not only allows systems to run smoothly but also keeps employees and customers happy and reassured. So, the only question now is do you have a clear view of what is happening in your network? ■



### MARTIN HODGSON

Martin Hodgson has worked in the IT industry for over 25 years in a variety of technical and commercial roles. He is currently the head of Paessler AG in the UK and Ireland. Along with his extensive experience in many areas of technology, he has an ability to break down and communicate sometimes complex technologies in simple terms.

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