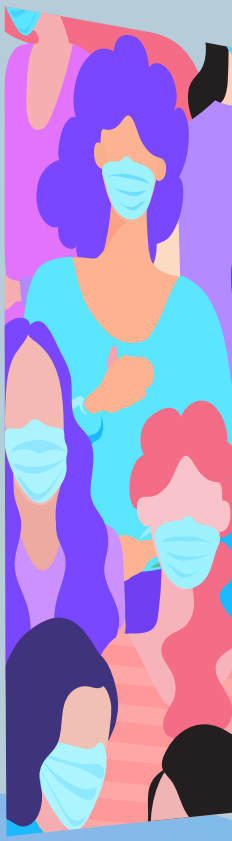
Inside_Networks

THE NETWORK INFRASTRUCTURE E-M

Senses workin overtime

THE RISE OF AUDIOVISUAL OVER IP



Boxing clever

HOW INNOVATIVE CABINET DESIGN IS CREATING AGILE NETWORK INFRASTRUCTURES

OCT
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The shape of things to come

IS THE CORONAVIRUS PANDEMIC ACCELERATING THE GROWTH OF EDGE DATA CENTRES?

APPLICATION GUIDE

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Big data is getting bigger, the development of smart technology devices and the concepts of the Internet of Things (IoT), smart homes, smart buildings and smart cities are driving a significant demand for wider network accessibility. Improvements in wireless technology and the increased deployment of wireless access points along with the rollout of small-cell technology (5G) aims to meet the growing demand for access. Underpinning all of this, as well as the UK government strategy for a 'full fibre broadband' access, is the need for a significant growth in the national fibre optic network structure.

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Next steps

EDITOR
Rob Shepherd
07708 972170

SUB-EDITOR
Chris Marsland

ADVERTISING MANAGER
Kate Paxton
01603 610265

CREATIVE DIRECTOR
Vishnu Joory

TECHNOLOGY CONSULTANT
James Abrahams

CIRCULATION MANAGER
Debbie King

ACCOUNTS
Billy Gallop

CHALK HILL MEDIA

The impact of coronavirus is really starting to be felt, with a significant number of people – some of who have worked in this industry for many years – losing their jobs. While this was always likely to happen, it doesn't make it any easier to accept and I hope that we can all pull together to help some of these incredibly talented and knowledgeable people find new ways to use their talents.

With the pandemic redefining how we work and live, those responsible for designing, specifying, operating and maintaining data centres are at the sharp end. Our reliance on technology and the internet has increased considerably in the last few months, so we have assembled a panel of industry experts to examine whether greater demand for data storage, production and processing will accelerate the adoption of edge data centres. You can read what they have to say on the subject by **CLICKING HERE.**

Also in this issue, we have a special feature dedicated to converged network infrastructures. Andreas Rüsseler of R&M looks at how the cloud, software as a service (SaaS), 5G, the internet of things (IoT), edge data centres and intelligent buildings have changed the network landscape, while Lee Funnell of Siemon and Phillip Meese of Lightware UK take a look at the fascinating world of audiovisual over IP (AV/IP). **CLICK HERE** to read Andreas' article and **CLICK HERE** for Lee and Phillip's.

Enclosures, racks and cabinets have a good claim to being the unsung heroes of enterprise and data centre network infrastructures, and in this issue we celebrate their immense contribution. Emma Ryde of Rittal explains how modern enclosures, racks and cabinets are meeting the needs of the many and Justin Bewick of Dataracks examines how manufacturers are reacting to the increased use of cloud based platforms and video conferencing software when creating new products. **CLICK HERE** to read Emma's article and **CLICK HERE** to read Justin's.

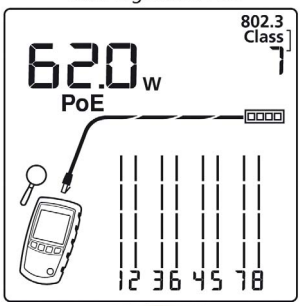
I hope you enjoy this issue of Inside_ Networks and if you'd like to comment on any of these subjects, or anything else to do with enterprise and data centre network infrastructures, I'd be delighted to hear from you.

Rob Shepherd
Editor

Get Ready for PoE!

In the new world of intelligent buildings, the number of devices that will be connected AND powered via IP will grow exponentially. New developments such as the digital ceiling, will drive this growth.

Dual-Signature PoE



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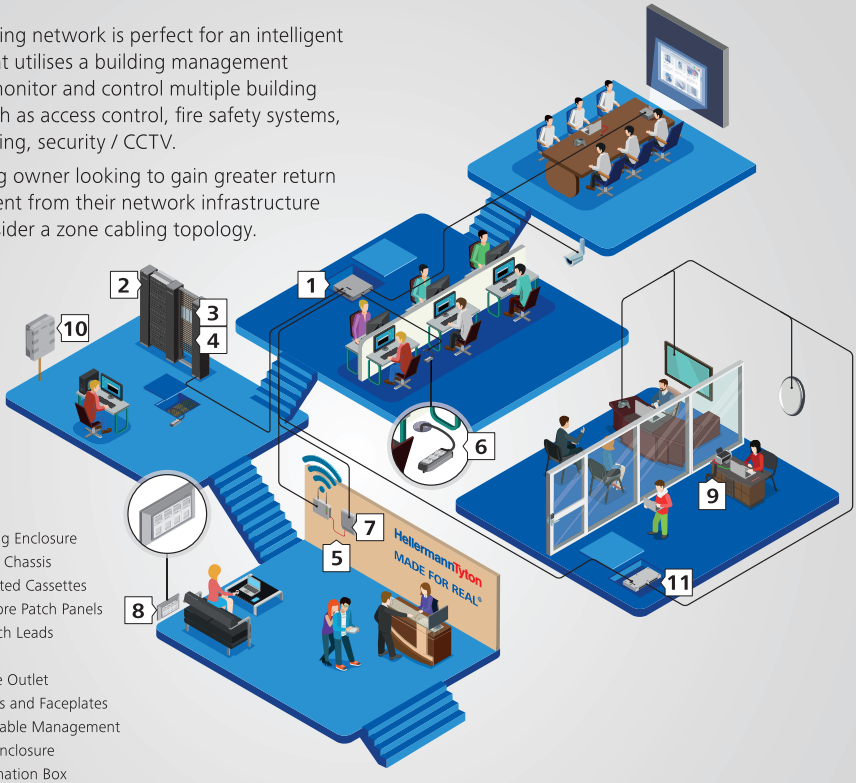

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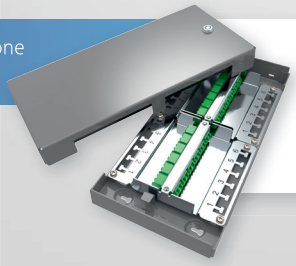


This modular version of the ZTB allows for the use of keystone jacks and fibre adaptors, making it easier to configure each box to your bespoke requirements giving even greater flexibility.

IT professionals cast doubt on Huawei's warning that ban will 'move Britain into the digital slow lane'

The majority of IT professionals (53 per cent) do not believe Huawei's claim that the UK's decision to ban it from 5G will 'move Britain into the digital slow lane, push up bills and deepen the digital divide', according to a survey from BCS, The Chartered Institute for IT. However, 28 per cent did agree with the Chinese telecoms firm's warning that the UK's tech development will stall without it, with 19 per cent remaining neutral.

Meanwhile, 48 per cent believe the government's 2027 target for removal of Huawei is feasible and 51 per cent think that Huawei's removal from the network will make the UK safer. Only 31 per cent are concerned that the consequences of Huawei's removal will damage the UK's IT industry – this compares with 48 per cent who are not concerned and 20 per cent who are neutral.

Nearly 3,000 IT professionals responded to the survey and Bill Mitchell, director of policy at BCS, The Chartered Institute for IT, said, 'Huawei's claim that the UK will somehow be thrown into a dark age without it looks like hubris. While our survey results show broad support for the government's decision, most experts also feel that no 5G infrastructure can be guaranteed as totally trustworthy. The government's challenge now is to build on public backing for the Huawei decision, by ensuring standards of high competence, ethics and trust throughout the tech industries, as it develops the alternatives.'

Data leaks surge almost 500 per cent amid pandemic

Data breaches exposing millions of personal records are becoming the new normal. Data acquired by Atlas VPN revealed that data leaks reached an all-time high, rising by 492 per cent to a record 27 billion in the first half of 2020.

The research showed a total of 2,037 publicly reported breaches in the first half of 2020 – this is 12 billion more than the total number of records leaked during the entirety of 2019. Additionally, it is more than four times higher than any six month time period between 2013 and 2020. Misconfigured databases and services were revealed to be the primary cause of the growing number of data leaks.


Rachel Welch

Rachel Welch, chief operating officer at Atlas VPN, said, 'It seems that data breaches are becoming more severe. In addition, not all breaches are detected and reported immediately, which is why we can expect even more breaches that happened within the first six months of this year to surface well after the first half of 2020.'

Cybersecurity becomes the fastest growing start-up sector during coronavirus pandemic

Funding has increased by 940 per cent for UK cybersecurity start-ups since the beginning of lockdown – with £496m being raised in the first half of 2020, almost outstripping the 2019 total of £521m. The findings come from a report by Robert Walters and VacancySoft, which claims that business spending on cybersecurity will double to £136bn this year.

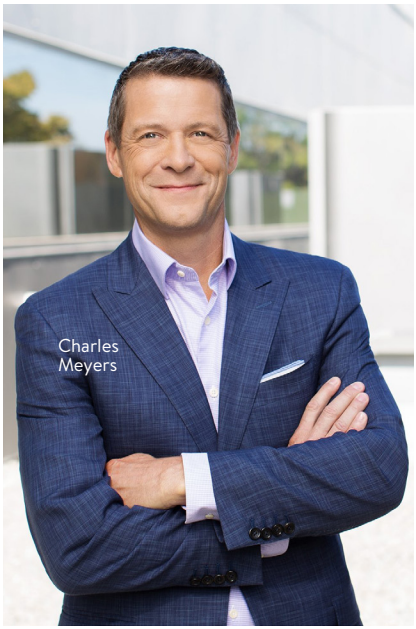
According to the government's Cyber Security Sectoral Analysis 2020 there are 1,221 firms active within the UK providing cybersecurity products and services. This is a 44 per cent increase in two years – indicating that a new cybersecurity business is registered every week within the UK.

Darius Goodarzi, principal information security and IT risk at Robert Walters, commented, 'This year in particular, cybersecurity start-ups have risen to become business heroes – from tools that alert users to security vulnerabilities to those that spot fraudulent activity. These new firms and tools have taken an important role in protecting our world.'

Equinix expands with acquisition of GPX India

Equinix has announced its expansion into India through the acquisition of the India operations of GPX Global Systems (GPX India). The acquisition will extend Platform Equinix to India with the addition of two data centres, providing a platform for additional expansion across the country.

Equinix customers will have access to a network-dense data centre campus with more than 200 international brands and local companies. Both data centres are strategically located in Mumbai, home to the critical IT infrastructure of numerous global organisations and with international connectivity serviced by subsea cables at landing sites located nearby.


Charles Meyers

Charles Meyers, president and CEO at Equinix, said, 'India represents the second largest internet user base in the world, with consumption expected to grow with the continued advancement of internet infrastructure, smartphone ownership and the penetration of 4G and 5G. Extending Platform Equinix to India has long been a strategic objective for Equinix and we are excited that the GPX transaction will allow us to capitalise on this market opportunity and meet the needs of our customers as they seek to expand their digital businesses.'

CNet Training acknowledged in MoD's Defence Employer Recognition Awards

CNet Training has been awarded Silver from the Ministry of Defence (MoD) in this year's Defence Employer Recognition Awards, which recognise organisations' ongoing commitment to the armed forces community. Organisations must be able to actively demonstrate that they treat service personnel and the wider armed forces community fairly during recruiting and selection processes.

L-R Alexandra Hall, Clint Sherratt and Paul Gorman

Following on from signing the Armed Forces Covenant and its Bronze award, the prestigious Silver award now recognises CNet Training as an organisation that is actively supporting the armed forces community, has put positive human resources policies in place and shows continued encouragement for team reservists.

Alexandra Hall, customer experience coordinator at CNet Training, said, 'The whole team is really supportive of me being a reservist. It's great to work for a company that supports the armed forces and the company has put support policies in place, which allows me to have additional annual leave to accommodate training and upcoming annual camp obligations.'

Employers must do much more to look after the physical wellbeing of their staff in the coming months

Working from home has been hugely effective in keeping businesses going in the last few months. While many have remained active during this time, the absence of a defined routine has made it more difficult for employees to maintain a strong sense of physical wellbeing. As a sense of normality gradually resumes, businesses have an opportunity to revolutionise the workplace by committing more fully to health focused initiatives, according to Aiimi.

The disadvantages of a sedentary lifestyle are well documented. What has also become clear in recent years is that physical vigour is linked very closely to mental health – if people are leading active lifestyles, their emotional wellbeing and ability to cope with the stresses of the workplace are also likely to be in a good place.

For Aiimi chief executive officer, Steve Salvin, it is crucial that organisations take the lead now that people are slowly heading back to the workplace, by taking their emphasis on proactive pastoral care to a new level. He said, 'The endless memes and social media posts about weight gain and general inactivity during lockdown have brought plenty of humour but, in truth, many people seem to have used the last few months to get into the best shape they have ever been. Essentially, it has taught us that the value of healthy, active lifestyles can't be underestimated.'

Challenges set by Schrems II personal data ruling won't go away after Brexit

The European Union's (EU) Schrems II judgement – which ruled that the Privacy Shield Framework cannot be used for transferring personal data between the EU and United States – demands 'prompt action', according to BCS, the Chartered Institute for IT.

The Court of Justice of the European Union ruling has major and immediate implications for international flows of information, as it says the current Privacy Shield Framework does not match the EU's standards for protection of individuals' data. It will have a sustained, post-Brexit impact on any countries that are not considered by the EU to have adequate data protection.


Chiara Rustici

Chiara Rustici, privacy analyst and chair of BCS' Law Specialist Group, said, 'This is a significant decision which will require prompt action for organisations that transfer personal data outside of the EU – or those service providers you trust with your personal data which do. The implications of the judgment are still evolving, but already the IT professional and business communities need to pay due care and attention to Schrems II to safeguard their businesses and operations as much as possible.'

NEWS IN BRIEF

Analytics Insight has named Carrie Goetz in its Top 10 Most Influential Women in Technology 2020.

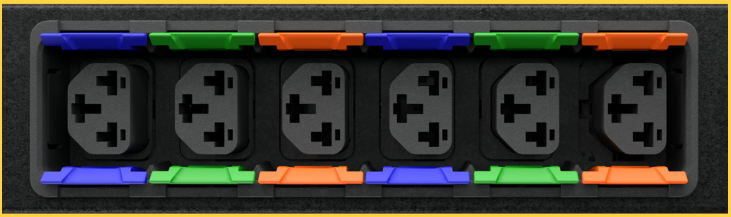
Oxylabs has announced the launch of its AI & ML Advisory Board, appointing four industry leading data science, machine learning (ML) and artificial intelligence (AI) experts as its members. Oxylabs' newly formed group will help support and drive the company as it expands its influence in the data industry, while providing discussions and guidance.

Iceotope has been named as Barclays Entrepreneur Awards, Regional Winner of International Expansion of the Year 2020.

The Bluetooth Special Interest Group (SIG) has announced that work is underway to create a specification that will enable wearable devices to participate in an existing smartphone based coronavirus exposure notification system (ENS).

Fortinet is integrating its Network Security Expert training and certification curriculum with IBM's SkillsBuild – a digital platform for users to develop technology and professional skills including cybersecurity.

VERTIV.



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Home is where the heart is

Hi Rob

The transition to remote and flexible working was a gradual process over the years until lockdown measures were enforced to safeguard the population against coronavirus. Businesses were left with two choices – cease operations or support employees to get up and running from home where possible.

Government research during the pandemic shows that more than 39 per cent of adults are now working from home compared to around 12 per cent last year. Meanwhile, 63 per cent of workers said they are open to working from home full time and never going back to the office permanently once 'normality' resumes, according to research from Glassdoor.

With the right connectivity set-up and collaboration tools in place, firms can maintain productivity and safeguard business operations in order to thrive, even in the likely event of a future health crisis. Businesses are already thinking about how they can rollout a more flexible set-up, considering new operational procedures around the management of desk space once workers return to the office. The concept of hot desking will definitely change, as additional sanitisation will be required for the next user, along with appropriate record keeping. For shared office space, the automation of shared touchpoints such as door handles and elevators is a straightforward way to limit cross-contamination.

Technology can also be used to monitor sanitiser bottle fill levels, monitor and alarm the 2m distance between people via infrared beams, and analyse movement around the office by thermal imaging camera systems. Additionally, room sensors could be deployed in offices to measure humidity and temperature levels, and send alerts when best conditions for virus multiplication are being reached, so that evasive steps can be taken.

These initiatives and solutions will start to become part of the day-to-day routine

for the entire population. Contact tracing applications that inform us and others about potential exposure to infected persons and monitor how long people are together will be vital to protecting people's health and wellbeing – particularly so as lockdown measures ease and everyone starts mixing and interacting with other people outside of their usual 'bubbles'.

As the home becomes an extension to the office, there must be separate infrastructure, connectivity and optimisation of living space for health, for productivity and for professionalism. Unified communication and collaboration tools have become essential for workers to maintain productivity during the crisis and will continue to be an integral component of the new business environment.

Employees need streamlined communication and collaboration systems to perform their roles to an optimum level. A shared digital collaborative space where users can assign tasks, participate in discussions and provide updates is the catalyst for productivity, especially in the absence of a shared office environment.

Networks at home and in branches will also need to be strengthened by additional connectivity/resilience options to ensure optimised user experience, business continuity and to underpin productivity.

Despite home networking challenges, 4G data technology has proved itself capable of supporting workforces, customers and operational processes. And as some start returning to company offices, technology will continue to support businesses, enabling companies to scale and employ flexible workforces in new regions – both nationally and internationally.

Nick Sacke
Comms365

Editor's comment

We are at the start of a massive step-change in our working lives and things will never be the same again. As Nick points out, ensuring that remote workers can communicate and collaborate effectively is fundamental, as is the need for those returning to places of work to be kept as safe as possible.

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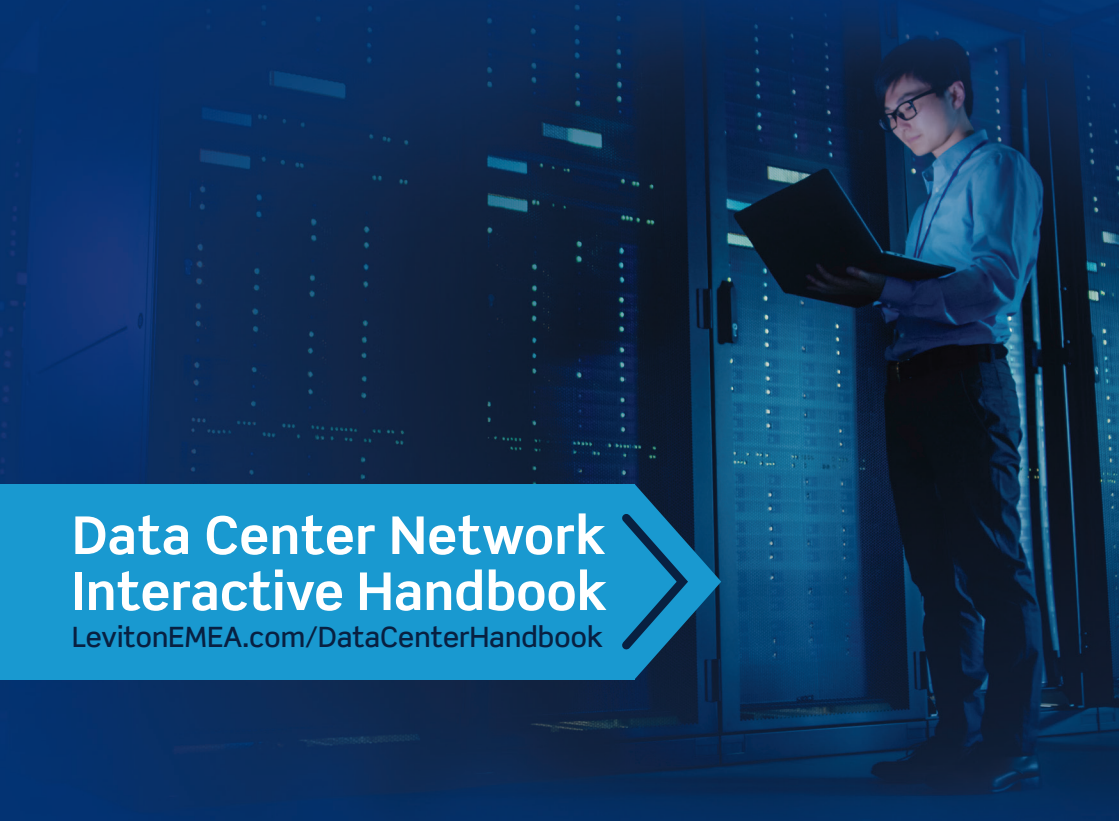

Data Center Network Interactive Handbook

LevitonEMEA.com/DataCenterHandbook

Things ain't what they used to be

With the coronavirus pandemic changing all aspects of our lives, Inside_Networks has assembled a panel of industry experts to examine whether our increased reliance on technology and the internet will accelerate the adoption of edge data centres

It's been a tumultuous few months in which all aspects of life have changed. Data centres have been thrust into the spotlight as we spend more time at home, work remotely and increase our use of entertainment streaming services.

Some of the changes this experience has brought are likely to remain with us in the long-term. For example, Gartner analysis shows that 48 per cent of employees will work remotely at least part of the time after the pandemic, compared to 30 per cent pre-pandemic, while 74 per cent of chief financial officers intend to increase remote working at their organisations after the outbreak.

With edge data centres already seeing high levels of growth, they will be relied upon to ensure quality service thanks to their improved latency and bandwidth. So, as the 'new normal' is defined and we enter the post-lockdown era, will our new lifestyles accelerate the adoption of edge data centres?

To uncover the answer, Inside_Networks has assembled a panel of experts to examine the issue.

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

NANCY NOVAK

CHIEF INNOVATION OFFICER AT COMPASS DATACENTERS

I believe that this intense escalation of demand on network infrastructures will remain at high levels in the post-pandemic world – continuing to put them under the same stresses. As a result, we can expect to see an increase in edge computing assets to reduce backhaul costs, deliver lower latency and provide high performance applications as close as possible to where employees, companies, patients, doctors, gamers and Netflix-watchers live and work.

From a telecom perspective, the primary driver catalysing edge computing proliferation in the short- to medium-term will be cost. At per unit prices of $1m or less, edge facilities, even when purchased in multiple, will be cheaper than building a full sized data centre or adding additional switching facilities on the part of telecom providers. I foresee telecom companies accelerating their movement from the limited trial stage to larger edge deployments within 18-24 months of the recession of coronavirus.

In terms of industries such as gaming, or applications like content delivery, the experience gathered during the prolonged period of self-isolation can also be expected to jumpstart edge related planning and implementation. While the ability to accurately estimate future traffic patterns and usage volume may remain imprecise in a post-pandemic world, it is safe to say that they will not return to their pre-shelter in place levels. In fact, a 'pandemic' factor may now become part of existing capacity planning algorithms moving forward. All of these elements will coalesce to create a boost in the need for expanding existing architectures closer to end user communities more rapidly than previously projected.

To a large extent, the growth of edge computing has been intrinsically linked to the rate of 5G accessibility by most market observers. While this relationship will remain intact post-coronavirus, it will be substantially weakened. The catalysing role of 5G will be somewhat mediated by the recognition that, for many telecom and application providers, there is an immediate need for more rapid and extensive edge deployment to satisfy customer demand, to achieve desired levels of performance and to provide 'bridging' until large scale 5G availability.

'I FORESEE TELECOM COMPANIES ACCELERATING THEIR MOVEMENT FROM THE LIMITED TRIAL STAGE TO LARGER EDGE DEPLOYMENTS WITHIN 18-24 MONTHS OF THE RECESSION OF CORONAVIRUS.'

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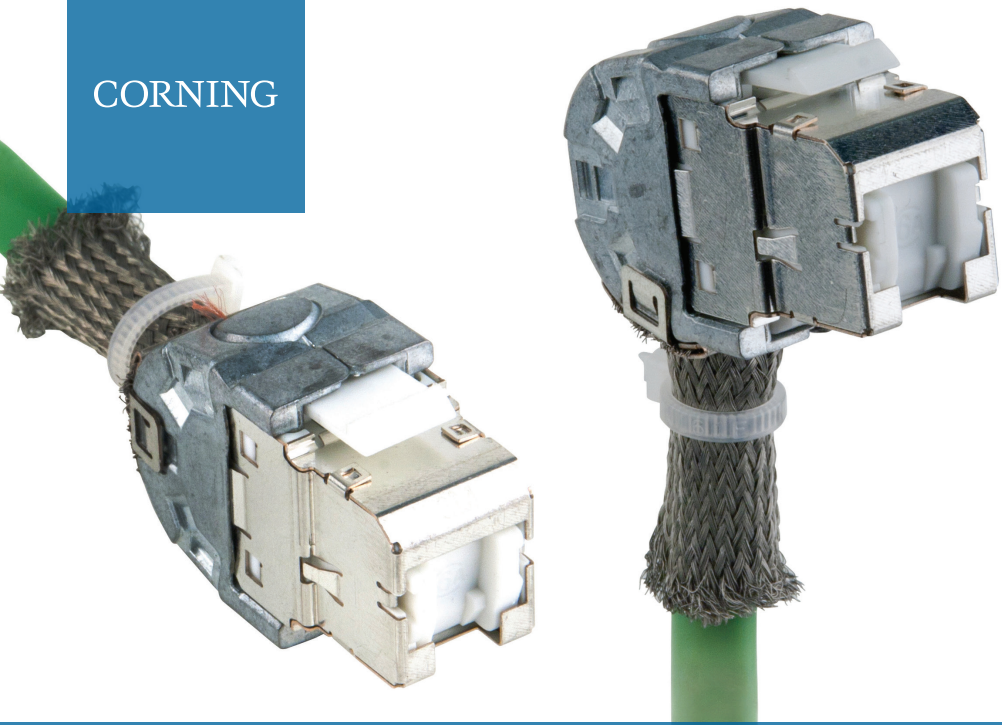

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RUSSELL POOLE
MANAGING DIRECTOR UK AT EQUINIX

As the shift towards remote working has accelerated in the wake of the coronavirus pandemic, companies with outdated, siloed IT infrastructures face a significant challenge. Digitally savvy employees, combined with changing work patterns, are driving a spike in demand for video conferencing and unified communications services. This growing need for remote working and conferencing tools has led to an explosion of internet traffic amongst vendors like WebEx, Zoom and Cisco, which have seen their web traffic increase by over 100 per cent.

This huge uptick in web traffic has exacerbated the need for enterprises to locate their services at the digital edge, close to major urban areas where there are vast populations of people using these solutions. It's no secret that distance remains key in regard to latency impacting the user experience – building exchange points in proximity to customers, employees, partners and clouds is one of the best ways to provide real time, on demand services.

Although the pandemic has been a catalyst to accelerate the deployment of digital solutions, the move toward global, industry-wide transformation has been gaining speed over the last decade. According to IDC, by 2023 over 50 per cent of new enterprise IT infrastructure deployed will be at the edge rather than in corporate data centres. And by 2024, the number of apps at the edge will increase by 800 per cent. These figures highlight the growing importance of the digital edge in the post-coronavirus world, establishing it as a key component of successful enterprise IT strategies.

Although the physical reach of global data centre companies is what initially attracts many enterprises, it is the essential on-demand access to network, cloud/software as a service and edge ecosystems that helps them create new value for their businesses and their customers. Colocation data centres provide the flexibility and scalability needed for enterprises to seamlessly handle the demands of a remote workforce and increased online activity safely and securely, because they operate away from the public internet.

This trend will only become more critical to business continuity in the future, as more and more companies introduce the option to work from home permanently, even as the virus subsides.

'ACCORDING TO IDC, BY 2023 OVER 50 PER CENT OF NEW ENTERPRISE IT INFRASTRUCTURE DEPLOYED WILL BE AT THE EDGE RATHER THAN IN CORPORATE DATA CENTRES. AND BY 2024, THE NUMBER OF APPS AT THE EDGE WILL INCREASE BY 800 PER CENT.'

MICHEL RIVA
CEO AT R&M

Coronavirus is affecting us in many ways. However, confinement and self-quarantining have become more manageable thanks to the availability of sufficient bandwidth at home. We can work remotely, stay in touch, access news, and find diversion and entertainment. Of course, human contact will always remain essential, but the value of high-speed networks, bandwidth and digital tools, and their potential for keeping the economy going in difficult times, has become very clear.

The current situation has made it clearer than ever that IT and sufficient local bandwidth at home ought to be considered a basic necessity, just like electricity or water. Edge computing and edge data centres play a vital role in this – keeping frequently referenced content and applications close to end users.

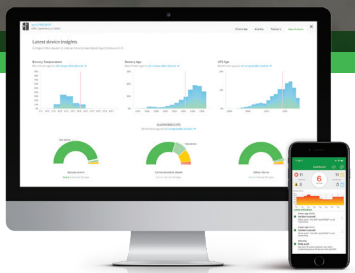
Technavio predicts $5.9bn growth in the global edge data centre market during 2020-2024. The increased reliance on cloud, video conferencing and phone applications has boosted the importance of edge computing. Homes are now the edge and we require the processing speeds we're used to having at work. Network traffic that used to be highest in business and industrial areas has moved to residential neighbourhoods. Placing applications and content as close as possible to end users is essential to the user experience and quality of service.

Speed is, of course, absolutely essential to edge data centres to realise the fastest response times and lowest latency. However, speed isn't everything – a holistic approach is required. To ensure the edge is rolled out in the best, most effective and flexible way possible, we need to look at the complete network, which should be optimised end-to-end.

Selecting fully integrated and compatible products, and making numerous small improvements throughout the supply chain, ensures smoother operation and makes life easier for installers and end users. Products that ensure network infrastructure runs smoothly play a key role in dealing with business disruptions. A smart design taking all relevant factors, at every stage, into account will ensure future readiness and also make sure the network is easy to reconfigure if it suddenly needs to be scaled up or more capacity is required.

> 'THE CURRENT SITUATION HAS MADE IT CLEARER THAN EVER THAT IT AND SUFFICIENT LOCAL BANDWIDTH AT HOME OUGHT TO BE CONSIDERED A BASIC NECESSITY, JUST LIKE ELECTRICITY OR WATER.'

VISIBILITY



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MARK ACTON

CRITICAL SUPPORT DIRECTOR AT FUTURE-TECH SCI

The changes to our home and working lives resulting from the coronavirus pandemic have highlighted our dependence on digital infrastructure in all facets of our lives. Until the coronavirus spotlight illuminated digital infrastructure it was firmly below the horizon for most. Now it has popped up on radars across the planet, with governments designating our engineering teams as key workers, exempt from travel restrictions and quarantines.

It's remarkable how reliable and resilient digital infrastructure, including data centres, has proved to be despite restrictions imposed on travel, site access and maintenance activities. This questions the need for the traditional staffing models currently considered standard. One of the biggest overheads for data centres is 24x365 site engineering teams. A well designed and built data centre has an increasingly low risk of failure and a permanent team of engineers based on site may not be necessary. Lessons and experience gained in the current crisis can inform the models needed for remote unmanned edge sites, as dependency on these sites increases.

With the advent of increased machine learning (ML) capabilities, internet of things (IoT) sensors and deep analytics, we can base maintenance on prediction rather than prevention in well designed and built data centres of all types. Traditional planned preventative maintenance (PPM) can be reduced using effective predictive maintenance. Routine site visits may be needed but with a greater range of planned activities, upgrades and installations based on depth of knowledge and insight rather than rigid adherence to a PPM schedule.

Predictive maintenance should be more common with remote monitoring tools using ML and analytics to create intelligent management systems, as well as engineers and engineering teams with multiple skillsets including IT related expertise. This approach has the added benefit of breaking down traditional cumbersome data centre siloes. Alternative operating models applicable to both edge and traditional sites should be adopted – with these techniques and tools deployed more widely the capabilities will increase and costs will come down.

The challenges of maintaining the edge and the lessons from the pandemic could result in new operating models and reduced costs for all sites. However, this will require different sets of skills and tools to replace current siloed facilities management methods.

'IT'S REMARKABLE HOW RELIABLE AND RESILIENT DIGITAL INFRASTRUCTURE, INCLUDING DATA CENTRES, HAS PROVED TO BE DESPITE RESTRICTIONS IMPOSED ON TRAVEL, SITE ACCESS AND MAINTENANCE ACTIVITIES. THIS QUESTIONS THE NEED FOR THE TRADITIONAL STAFFING MODELS CURRENTLY CONSIDERED STANDARD.'

NICKY THOMPSON
BUSINESS DEVELOPMENT AT EDGETIC

Well, where would we all have been without technology and the internet over these last few months? This single unprecedented event has forced us to rely on it like never before – thinking about what the effects of the coronavirus pandemic might have looked like without the technology we have at our disposal certainly helps focus the mind on how our reliance on it has increased.

For many of us, it has facilitated being able to continue working. But technology has also helped to prevent us from feeling isolated, by offering us the opportunity to socialise and stay connected with the world outside, whilst remaining physically confined. It has awakened many people to new possibilities and fuelled their creativity. For example, the majority of households now use video conferencing as a matter of course, and that has brought people closer together and helped to bridge physical gaps.

Now that so many people have been pushed into adopting some of the new experiences that technology offers, much of it will quickly have been embraced and accepted as the new way of living.

The resulting increased demand on our technology infrastructure is going to need to accelerate data centre and bandwidth capacity. It seems to be generally accepted that the return to the office will be replaced by a significant portion of the workforce now working from home and this decentralising may well boost the rollout of edge data centres in support.

I have felt proud to be part of an industry that has offered a lifeline to many people and I've been impressed by how well our communication resources have coped with this sudden and significant demand. I feel certain that the wave as a result of the pandemic is still gathering momentum, so this industry continues to be an exciting place!

> 'I HAVE FELT PROUD TO BE PART OF AN INDUSTRY THAT HAS OFFERED A LIFELINE TO MANY PEOPLE AND I'VE BEEN IMPRESSED BY HOW WELL OUR COMMUNICATION RESOURCES HAVE COPED WITH THIS SUDDEN AND SIGNIFICANT DEMAND.'

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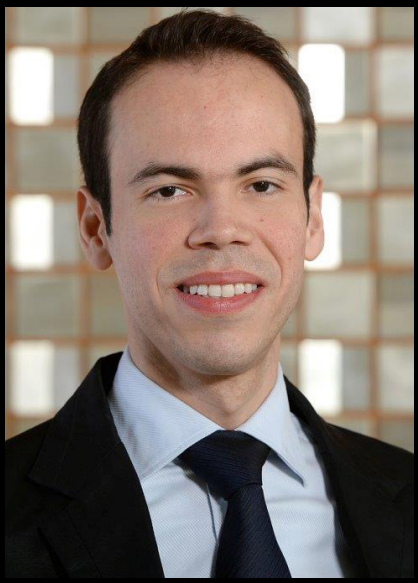
CARLOS MORA

MARKET DEVELOPMENT MANAGER AT CORNING OPTICAL COMMUNICATIONS

While the cloud has played a pivotal role in enabling businesses to continue operating in recent months, a huge leap in data consumption, as well as a much more distributed workforce, has created a surge in the need for edge computing in the middle to help improve response times. By enabling content to be hosted near the user we can avoid the latency that will inhibit our 'new normal' – not to mention avoiding potential issues around cost, scalability and security if servers are in different regions.



Edge computing is particularly valuable in scenarios where local analytics and rapid response times are needed, such as in a manufacturing environment that relies on artificial intelligence (AI) or connected cars. Looking forward, 5G will play a major role in maximising the capabilities of edge data centres, ensuring the incredibly low latency that is needed for the most demanding applications and use cases.

To enable edge computing, colocation and hyperscalers are working together to provide services that will support the required response times. Colocation facilities serving as the edge can be positioned closer to users and offer much needed flexibility in onboarding new customers or services, and scalability in the face of unexpected events. Configuring and optimising edge data centres may include the adoption of new technologies such as very small form factor connectors like Corning/Senko (CS), Senko Nano (SN) or MiniDuplex (MDC) recently released to the market to provide relief on real estate and increase rack space utilisation.

Power consumption must also be managed carefully, both in the central data centre as well as at the edge – 400Gb/s transceivers, for example, would require a substantial 7-15W of power per port. Port breakout deployments have become a valuable tool for de-aggregating these into lower speed ports, which require less power and cooling.

Network monitoring will also be more crucial than ever to manage the security risks of users accessing the network from many different locations and devices. Here, passive optical taps can be deployed within the cabling infrastructure to allow monitoring without compromising on space or power efficiency.

'5G WILL PLAY A MAJOR ROLE IN MAXIMISING THE CAPABILITIES OF EDGE DATA CENTRES, ENSURING THE INCREDIBLY LOW LATENCY THAT IS NEEDED FOR THE MOST DEMANDING APPLICATIONS AND USE CASES.'

MANFRED BERGER

SENIOR BUSINESS DEVELOPMENT MANAGER AT WESTERN DIGITAL

Technology is critical to helping people stay connected now that so many are having to work remotely, while continuing to communicate and collaborate regularly. IT teams have been tasked with leading this transition by managing data systems, mobile computing devices and applications, as well as taking on new security challenges so employees can be connected and productive at home.

Most companies today already have part of their employee base working from home, but it's an entirely different scenario when hundreds or thousands of people are connecting remotely to virtual systems at the same time. Almost overnight, video conferencing and collaboration apps have gone from important to essential in order to enable workers to do their jobs.

Naturally, when more locations are connecting to core data centres from multiple locations, the pressure is that much greater and puts a strain on network bandwidth. Subsequently, if the data processing is hampered, employees will have a sub-optimum service and their ability to work efficiently will be impacted.

To relieve pressure on core data centres to enable them to process and store data effectively, enterprises are considering a move towards edge data centres. Their implementation means that companies can minimise the distance employee data has to travel to a data centre and can help spread the load across more servers. This reduces latency and allows for a better quality of service.

What's more, the built-in redundancy of edge data centres means that data can be automatically rerouted to avoid costly single points of failure. This is made possible when edge data centres link together to form mini-networks that have a higher overall capacity, and a smaller chance of failure due to more distributed workloads.

With the increase in demand for access to corporate data and applications by those connecting from home, enterprises may look to edge data centres to keep operations running smoothly. However, businesses will also need to ensure that their storage infrastructure is optimised to support these developments. Each use case and application has unique challenges and different storage requirements, whether it's a focus on the highest performance, integrity of data, or environmental needs. All these must be taken into account.

'MOST COMPANIES TODAY ALREADY HAVE PART OF THEIR EMPLOYEE BASE WORKING FROM HOME, BUT IT'S AN ENTIRELY DIFFERENT SCENARIO WHEN HUNDREDS OR THOUSANDS OF PEOPLE ARE CONNECTING REMOTELY TO VIRTUAL SYSTEMS AT THE SAME TIME.'

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OS2	—	—

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Schneider Electric updates its Opportunity Registration Program in Europe

Schneider Electric has released updates to its Opportunity Registration Program (ORP) to help European based APC IT channel partners increase profitability with new discounts and greater profit margins. The updates will also offer IT channel partners a simplified program and process, alongside inclusion of new products and services to diversify solution offerings and support the specification of digital transformation technologies.


David Terry

IT channel partners who are first to identify new opportunities, independently add value via expert consultancy or services and close new deals will be rewarded.

Improvements to the discount structure will create greater opportunities for them to boost their profitability with better margins, while discounts will vary according to the value of the proposed solution and the IT channel partners' status within the program.

'Our IT channel partners are fundamental to the success of our business,' said David Terry, vice president IT channels at Schneider Electric. 'With these updates to the ORP, we are rewarding partner loyalty with increased support and greater discounts, while incentivising partners to follow our education paths, progress through the program and work with our alliance ecosystem to drive higher levels of profitability.'

Zyxel Networks launches new Campus Academy e-learning platform for network engineers

Digital transformation, new networking standards and the current business climate have all placed pressure on networking engineers to continually evolve, as well as keep on top of the latest technology and how it can drive business strategies. To support network engineers in this journey, Zyxel Networks has created a new e-learning platform – Zyxel Campus Academy.


Jean-Marc Guignier

Led by expert instructors with world class insight into technical and industry knowledge, the core modules cover level one security as well as switch, wireless and Nebula core competencies – all delivered via video and supporting ebooks, followed by a short quiz and certification exam.

'Traditional reseller training sessions hosted on-site can be expensive, both in terms of time and resources for resellers, but also aren't flexible or easy for resellers to manage,' commented Jean-Marc Guignier, executive vice president of EMEA at Zyxel Networks. 'The new online Zyxel Campus Academy is available 24/7 for resellers to attend wherever and whenever they can, at their convenience.'

Mayflex promotes the benefits of Secure by Default

With Avigilon the latest company to achieve Secure by Default certification across its product range, all four security camera vendors available from Mayflex – Axis, Avigilon, Hikvision and Mobotix, as well as video management system provider, Milestone Systems – now boast this designation.

Secure by Default is a standard set out by the Surveillance Camera Commissioner to ensure that the default configuration settings of a product have the most secure settings possible, thereby making it more likely that when the system is installed it will be left in a secure state. Secure by Default is part of Secure by Design, which ensures that a product has been designed from its foundation with security in mind – thereby providing confidence to the end user that introducing IP devices on to their network won't add any undue or additional vulnerabilities.

Tom Filce, director of sales – security at Mayflex, said, 'We aren't badge collectors but specialists in each of our vendor partners – hence our five largest security partners are all Secure by Default. Our security portfolio is made up of the leading brands who we feel provide the best solution for our customers.'

Centiel grows its UK sales team

Centiel UK has appointed Jay Rai as its newest sales engineer. He is responsible for key account management and hardware sales for London and the south, reporting to Louis McGarry, the company's sales and marketing director.


Jay Rai

Rai joins from Vertiv, where he spent a year as part of a graduate recruitment programme, and three years in the commercial and industrial uninterruptible power supplies (UPS) team. His UPS background, combined with his experience of sales and marketing, makes him an ideal fit for Centiel's growing sales and marketing department.

Louis McGarry stated, 'We are delighted to welcome Jay to the team as a field based sales engineer. He already has a demonstrable history of working within the electrical and electronic manufacturing industry, and he will now provide help with site surveys and customer contact as we generate and respond to new sales enquiries for our UPS solutions.'

Lande makes edge computing smarter and more environmentally friendly as part of Horizon 2020

Cooling systems consume an average of 40 per cent of the electricity in data centres, which has a major effect on energy efficiency. This effect is considered to be more perceptible for smaller scale latency and security sensitive edge computing systems. Lande Rack Cabinet has prioritised improving energy efficiency by detecting and answering dynamic cooling needs for edge computing systems, as part of the European Commission's Horizon 2020 programme.

Cagatay Yilmaz, innovation manager at Lande, said, 'The result of this activity is the ECO-Qube project. It aims to develop an artificial intelligence based augmented holistic management system that enhances energy efficiency and cooling performance by orchestrating both hardware and software components.'

ECO-Qube's data driven approach utilises valuable data from IT components instantaneously to create a computational fluid dynamics (CFD) supported zonal heat management system for enhanced cooling performance. Moreover, ECO-Qube realises smart workload orchestration to keep central processing units (CPU) at their most energy efficient state and maintain the thermal equilibrium to reduce overheating risk.

CHANNEL UPDATE IN BRIEF

CubeLogic has hired David Baker as group chief technology officer and John Harris as chief operations officer for the Americas region.

Forescout Technologies has formed a strategic partnership with Arista Networks to reduce cybersecurity risks brought on by explosive growth of internet of things (IoT) devices, increased network complexity and propagation of malware. They will develop a unique open ecosystem that embeds security within the network fabric and delivers full visibility and enforcement of critical enterprise assets.

Ciena has appointed Pete Hall as its new head of Middle East and Africa (MEA) region and subsea sales in Europe, Middle East and Africa (EMEA).

Nutanix has launched a first of its kind joint innovation lab in collaboration with Intel. The Nutanix-Intel Joint Innovation Lab will dedicate both products and engineering resources to the continued exploration, adoption and productisation of Intel's latest innovations in compute, networking and storage, with the Nutanix software stack.

Peter Uelen has joined the Asperitas management team as chief commercial officer.

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Rack to the future

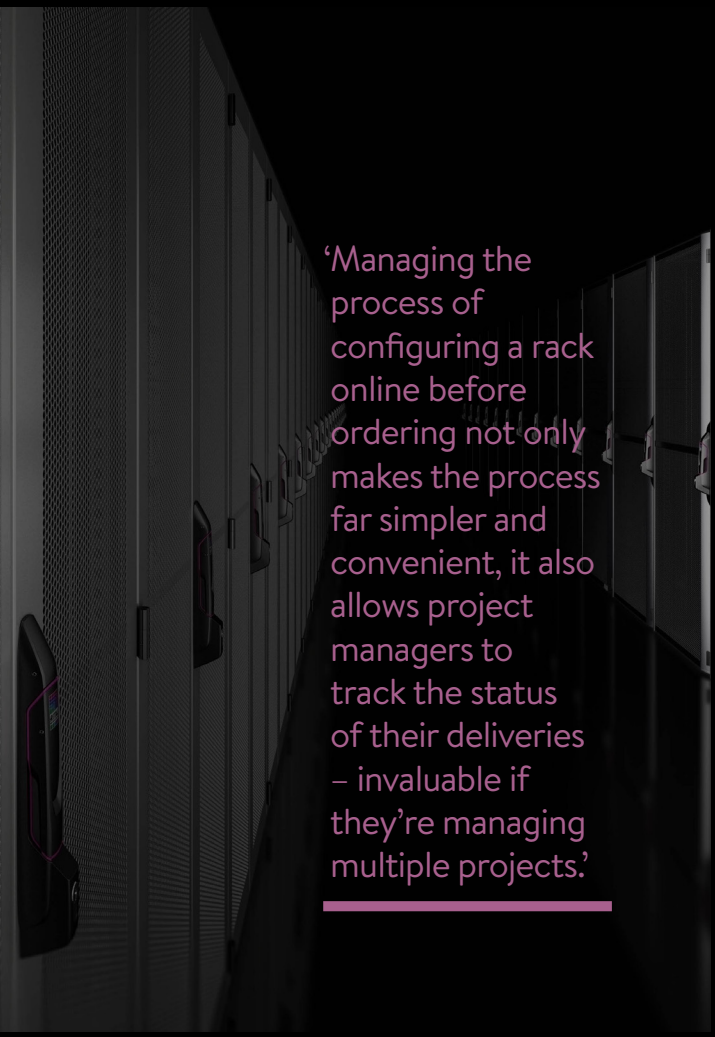
Emma Ryde of Rittal explains how modern enclosures, racks and cabinets are meeting the needs of the many

Demand. You can quantify it however you wish, but there's no doubt that there is increasing pressure to satisfy a growing need for high-quality streaming services, anywhere and anytime. In response, we're seeing a wealth of market innovations that are changing behaviours at home and at work.

SHIFT WORK

One fairly clear-cut example is the emergence of smart factories which use internet of things (IoT) enabled equipment. It is symptomatic of a dramatic and rapid shift in industrial practices, and one that is driving the demand for more IP connected devices. Added to which, of course, there is the challenge of keeping up with individual needs, particularly when these are multiplied many millions of times over.

Businesses across the IT supply chain are working hard to meet all these demands. Each organisation faces different pressures based on the services they provide and,



'Managing the process of configuring a rack online before ordering not only makes the process far simpler and convenient, it also allows project managers to track the status of their deliveries – invaluable if they're managing multiple projects.'

The process of evaluating risk starts with a consideration of the rack and an appreciation that specifying a new rack can create problems, as well as solve them. A rack's fundamental core purpose remains to house and protect delicate components, so it needs to be strong, well designed and robustly constructed. It should also be able to protect cooling solutions, ensure good cable management and offer high security locking and monitoring systems. Just as importantly, it needs to be adaptable to ensure it can respond to any changes in its surroundings.

Overall, an operator's choice of rack could make a major difference to their organisation's adaptability and avoid the need for costly replacements a few years down the line.

inevitably, much of this is passed on to IT equipment manufacturers and suppliers.

GET THE BALANCE RIGHT

Data centre operators and those providing cloud services have a balance to strike between responding to the demands of their customers and protecting critical infrastructure. Every market innovation brings its own risks and these must be weighed against the benefits it might bring.

SUPPORT STRUCTURE

While the protection of critical infrastructure is the primary aim of data centre operators, installers have other priorities – not least making sure that work is completed on time and within budget. IT system installations are a complex business, involving many products and components typically from a variety of sources. Added to which, there a recognised shortage of skilled workforce in the sector, which means the pressures

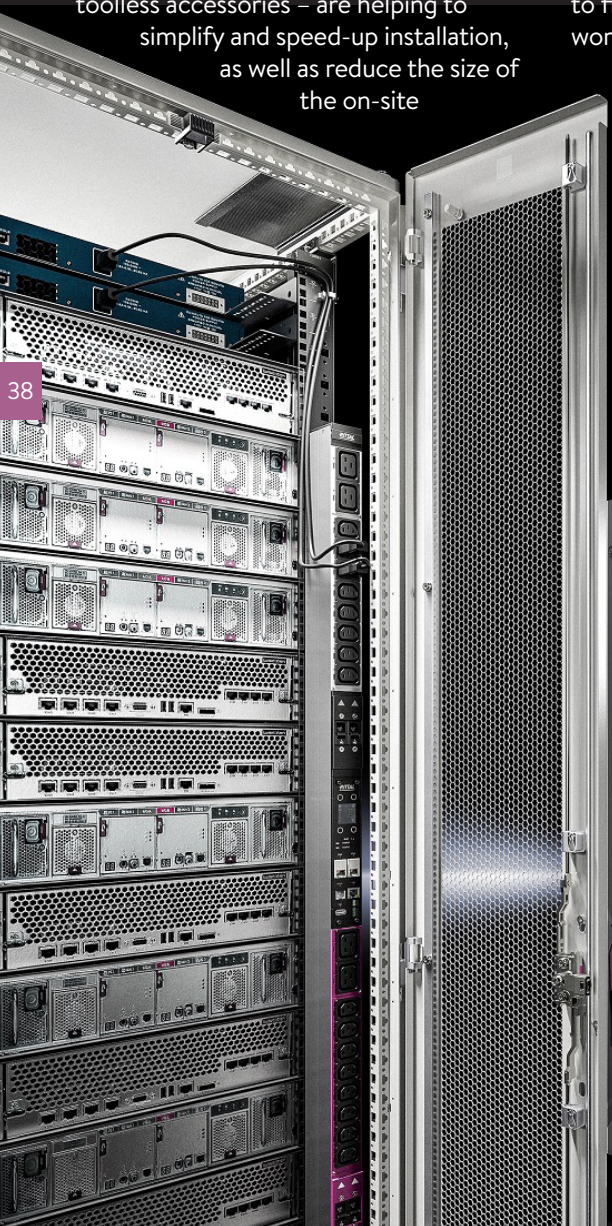
on installers are rising.

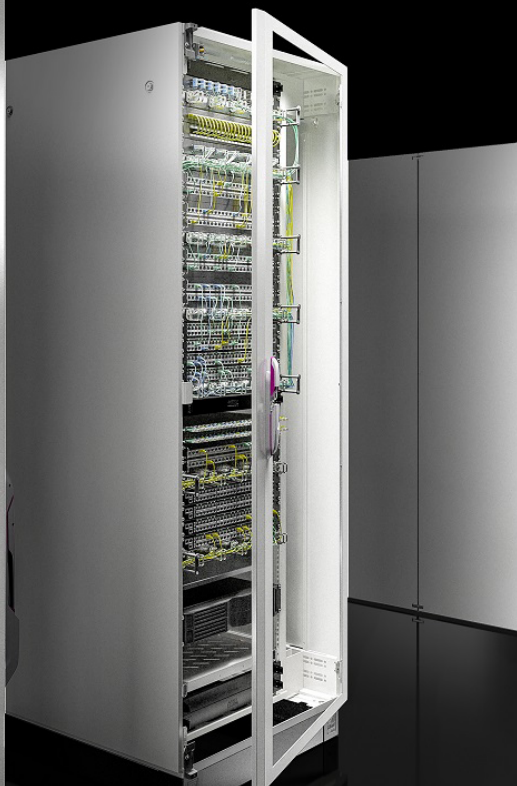
At the very least, installers need manufacturers to deliver products on time and, in many cases, at short notice. Time and resource saving strategies equate to money in the bank, so the latest advances in preconfigured racks – some also with toolless accessories – are helping to simplify and speed-up installation, as well as reduce the size of the on-site workforce.

Technical back-up and support is vital for installers. While they are highly skilled at integrating IT products from multiple sources, many rely on manufacturers' advice and guidance for a smooth installation – and not just in terms of how to fit the systems. Manufacturers can also work with installers to explore solutions that deliver other benefits including more efficiency, greater functionality and cost savings to the end user.

HELPING HAND

Project managing an installation requires a significant amount of organisation and coordination to ensure everything is delivered on time. Reducing risks and having tight controls in place minimises the risk of going





overbudget or adding lengthy delays.

If a project manager can reduce the number of decisions installers have to make, they can speed up the installation and lower the cost. The consultation period, which takes place before a brick is laid in a new data centre or IT room, should consider all potential obstacles posed by, and around, the hardware. Addressing these concerns early on will make for a smoother build and future proof the installation.

Changes as the build progresses are another issue that project managers must wrestle with. Racks with standard platforms that can be configured with accessories allow project managers to adapt quickly and easily to any bumps in the road, as the build progresses.

FORWARD THINKING

The advances in pre-configured racks tailored to an individual project's requirements have been a major step forward. Meanwhile, managing the process of configuring a rack online before ordering not only makes the process far simpler and convenient, it also allows project managers to track the status of their deliveries – invaluable if they're managing multiple projects.

There is still a pressure, however, to offer a quick turnaround on rack orders – long lead times and special builds equate to more time and money. This is particularly true where a project manager is refitting an existing location, although it's typically less of an issue for new builds where the racks are often specified early in the process.

UNDER PRESSURE

As we can see, pressures are mounting and they vary greatly across the IT supply chain. Being agile enough to adapt to these changes is the only way the sector can adequately respond and satisfy the needs of the many. ■

EMMA RYDE

Emma Ryde is Rittal's product manager for industrial and IT enclosures. She has a wealth of experience gained over 20 years, developing technical sales in a range of industries including food and beverage, automotive and transport. Her remit extends across support for Rittal's customers in existing markets, as well as developing new opportunities as they arise.

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Lande Rack Cabinet is the largest 19-inch cabinet manufacturer in Turkey. The company was established in 2012 by individuals with over 25 years' experience in cabinet manufacturing. With its head office in Istanbul and a state-of-the-art manufacturing facility in Eskisehir, Lande produces 1,000 cabinets per day, with approximately 75 per cent of its production exported globally.

Lande has a corporate culture based on quality, customer satisfaction and innovation. Its dedicated and enthusiastic staff are focused on offering a wide range of solutions for the ever-changing IT, data communications, broadcast, audiovisual and telecoms sectors.

The company has fast and efficient shipping to the UK and its approved national distributors offer ex-stock solutions – from standard wall cabinets, IP rated SAFEbox wall and floor cabinets, DYNAmic comms, server and studio cabinets, soundproof and industrial cabinets, plus a full range of optical distribution frames (ODF).

CLICK HERE for further information or to send an email to Chas Luchford, Lande's UK country manager, **CLICK HERE**.

www.lande.com.tr

EDP Europe

EDP Europe's RackANGEL Co-Lo is a flexible and scalable colocation rack solution for multi-tenant or shared customer environments. Combining bespoke racks with an advanced access control system, biometrics and in-rack CCTV, RackANGEL Co-Lo provides the ultimate managed colocation rack offering.

As standard, RackANGEL Co-Lo cabinets are available with two, three or four compartments, in widths of 600mm or 800mm and heights of 42U, 47U or 50U, depending on the required configuration. Custom built cabinets can be designed to meet your exact requirements without any minimum order quantities or extended lead times.

Each compartment is completely independent with protected cable management, removable side panels that are locked from the inside, vented shelves for better airflow management and can be supplied with power distribution units (PDUs) and grounding installed. RackANGEL Co-Lo is delivered with IP addresses pre-configured ready for you to plug and play on your network.

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

www.edpeurope.com

Comtec

Lande Rack Cabinet's DYNAmic data and server cabinets are available now from Comtec. Providing optimum performance, they offer a rigid structure, pagoda style roof and many other features as standard.

The 600 series is stocked in heights from 12U through to 42U and the 800 series in 26U to 42U heights. Both are available in a choice of depths. Each cabinet is supplied as standard with a glass front door, steel rear door and lift off steel side panels, all of which are lockable. The server range is available in 26U to 47U heights and up to 1200mm deep.

All cabinets are supplied fully assembled and quality checked by CHH CoNeX in Birmingham, part of the Comtec Group. Fully supported by a wide range of accessories, Comtec can also configure the build to include power distribution units (PDUs), uninterruptible power supplies (UPS) and cable management.

Speak to our team on 01480 415000 or **CLICK HERE** to view the range online.
www.comtecdirect.co.uk

Corning Optical Communications

Corning's optical splice enclosures – OSE-RXD – help to manage the transition between high fibre count outside plant ribbon cables, such as the Corning RocketRibbon cable family, and fire retardant indoor cables in fibre optic networks. They are ideal for use in data centre interconnect applications.

The OSE-RXD was developed with simplified cable entry and management in mind to support reduced installation times for network applications with extremely high fibre counts. Unlike standard splice enclosures, it holds vertically integrated 288-fibre splice trays that allow for a single incoming cable leg length, resulting in ease of installation and enhanced time-savings over traditional splice enclosures for the installer.

The splice enclosure ships with splice trays providing capacity for up to 6,912 spliced fibres – or up to 13,824 with the RXD-HD – and all accessories for wall-mounted or 19-inch equipment rack applications. The OSE-RXD is available with or without a lock.

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

Vertiv

Vertiv listened to frustrated IT and data centre managers and developed an innovative power distribution unit (PDU) that accepts the most common plug types in a single strip, in any combination.

The latest Vertiv Geist Rack rPDU series comes with a new 2-in-1 combination outlet and universal input socket. This allows for flexible plug connectivity and easy cable management, while simplifying inventory management and enabling rapid deployments worldwide. The unit can access all the devices in the rack to remotely monitor and control these via one single point. Moreover, the Vertiv Geist rPDU series benefits from the Vertiv Distribution Assurance service package.

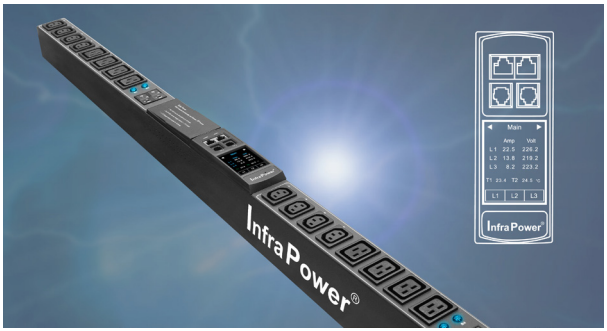
Regardless of whether you are in charge of colocation, enterprise or edge

sites, a solution like the Geist rPDU with combination outlet can enable you to get up and running faster – and with fewer headaches.

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

Austin Hughes

Austin Hughes' InfraPower intelligent rack power distribution units (PDUs) integrate environmental sensors with intelligent rack power strips, allowing parameters to be set to monitor temperature and/or humidity fluctuations, as well as PDU data. Current (amp), voltage (volt), power (kW), energy consumption (kWh), and the power factor of the entire PDU is displayed locally via a colour touchscreen or a connected display mounted to the outside of the rack, and is also available remotely.



Power usage data can be assessed, having been collated and reported using a web-based graphic user interface (GUI) or integrated into an existing building management system. This data can also be used for interdepartmental billing or in colocation data centres as a revenue stream, providing accurate billing data to clients, with meter reading accuracy of the PDU at +/-1 per cent.

Access to data without site attendance has become particularly crucial in 2020 whilst the world deals with the coronavirus pandemic.

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

Excel Networking Solutions

Excel's comprehensive range of Environ racks, cabinets and open frames offers exceptional quality. They are suitable for a wide range of applications in the enterprise, data centre and security markets, as well as for everyday cabling systems.

To complement the Environ range, Excel offers the Environ Locking Solution to provide an ergonomic and stylish solution for environments where security is paramount. Bringing intelligence and monitoring right down to the lock level of a rack, the Environ Locking Solution provides ultimate access control.

The full range, which is available for free next day UK delivery, can be viewed in the dedicated Environ digital catalogue.

Excel's Specialist Support Services include pre-configured cabinets and on-site rack assembly to offer customers a flexible service that is proven to reduce installation cost and time whilst providing a fully tested, fully traceable and 100 per cent inspected product.

CLICK HERE for further details.
www.excel-networking.com

Siemon

Siemon has expanded its family of cost effective open rack and cable management solutions with the Value Vertical Cable Manager (VVCM) system. Specifically developed to integrate with Siemon's 2-Post Value Rack, 19-inch Rack-Mount Horizontal Cable Managers and pathway support accessories, VVCMs simplify both the deployment and long-term management of critical network cabling infrastructures.

Assembled in as little as five minutes, the 45U VVCMs are available in widths of 4-inch (10cm), 6-inch (15cm), 10-inch (25cm) and 12-inch (30cm). They are offered in both single and double-sided versions to enable a broad range of infrastructure topologies, simultaneously supporting cord management for high-density patching fields, efficiently routing horizontal cables, mounting power distribution units (PDUs), and routing equipment power cords.

Unlike most vertical managers, which utilise difficult to operate snap-on covers, the Siemon VVCM line features dual hinged doors with one finger spring release clips at each corner. This user friendly design allows the doors to be opened in either direction to improve pathway accessibility and are much easier to open, close, remove and reattach than snap-on covers.

For more details on Siemon's new VVCM, including a brief overview video, bill of material generator, spec sheets and instructions **CLICK HERE.**
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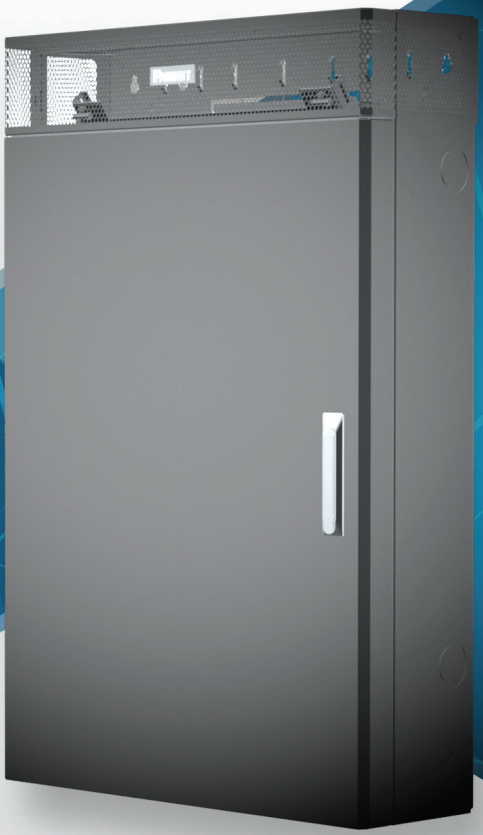

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It's a brave new world

Justin Bewick of Dataracks examines how the enclosures, racks and cabinets sector is reacting to the increased use of cloud based platforms and video conferencing software

Coronavirus is still transforming everyone's perception of normal. Whilst there are new normals we must consider such as wearing masks or quarantining upon our return from holiday, one thing that hasn't changed over recent months is our appetite for data. Undergoing explosive growth and with new technologies such as 5G just around the corner, data is most definitely king.

SKY HIGH THINKING

The almost overnight switch to remote working saw an exponential increase in the use of cloud based platforms and video conferencing software. For example, Zoom went from 10 million users in December 2019 to 300 million daily meeting participants in April. Post lockdown, all technology – both business and personal – has seen a tenfold increase in infrastructure demand and created a permanent reshaping of how we use and store it.

Just five years ago the average density per rack was around 5kW. Now we're talking 11kW up to as high as 17kW and with new energy hungry chips, 5G and artificial intelligence (AI), density per rack can only increase. Many companies are planning to install three phase power units in anticipation of meeting future density demands.

As existing data centres struggle for space, rack designs are consistently being strengthened to accommodate demand for heavier components such as high powered

‘Just five years ago the average density per rack was around 5kW. Now we’re talking 11kW up to as high as 17kW and with new energy hungry chips, 5G and artificial intelligence (AI), density per rack can only increase.’

server switches and mega computers that, in turn, require three phase 400V intelligent power distribution units (PDUs) and uninterruptible power supplies (UPS), whilst also needing to be mindful of lightweight components to assist with installations. Manufacturing footprints from channelled steel and racks from extruded aluminium address these issues, but it’s key that we future proof the building of new data centres to ensure they’re capable of taking on the rapid changes in demands, workloads and new technologies.

STAY COOL

Whilst it’s key that the industry looks forward, we also need to keep our eye on the here and now. Security is a data centre imperative, along with the industry’s ubiquitous need for innovative cooling processes, especially in colocation sites.

Whilst cold aisle containment configurations work well when dealing with rack power densities of around 10kW, anything much above 15kW pushes such air cooled systems to their limits. With airflow management crucial to energy efficiency and operational resilience, the subject has

become its own form of science and must be considered at the heart of any new data centre development, or when changes to rack configurations are being planned. Whilst easy to do in a new centre, the challenges are significant when it comes to reconfiguring an existing data centre, nano data centre or comms room.

With rack density only set to increase, the advantages of liquid cooling come to the fore. Growing in popularity, the liquid cooling market exceeded $900m in 2019 and is expected to grow at 19 per cent compound annual growth rate (CAGR) between 2020 and 2026, according to Global Market Insights. It also offers significant reductions in the region of 25-30 per cent in operating expenses compared to costly conventional cooling infrastructures such as computer room air conditioning (CRAC), chillers and raised floor environments.

STRATEGIC DIRECTION

In January this year Forbes Insight published The Modern Data Centre, which identified that very few organisations are preparing to rethink their data centre strategies and evolve operations over the next five years. Alarmingly, the report confirms that just 11 per cent of c-suite executives and one per cent of engineers think their data centres are ahead of the curve and primed for higher data volumes.

It went on to state that, overall, 44 per cent of those surveyed feel their data centres are updated regularly and only 29 per cent believe that their data centres meet current needs. The report says, 'This suggests that most organisations are not ready for the onslaught of data and connectivity – and they won't have adequate processing power to leverage the edge and 5G unless they commit to

planning for future requirements.'

On drilling down, almost half of respondents confirmed security is most in need of upgrade, a view shared by the c-suite (48 per cent) and engineers (41 per cent). Bandwidth/speed (43 per cent), the very heart of the challenge and opportunity, is also in need of an upgrade. In this area, engineers express more concern over the situation – 48 per cent believe that their data centres are not ready for the future, compared to 39 per cent of the c-suite.

HEAT OF THE MOMENT

There are some, however, such as Dror Shenkar, senior architect at Intel Data Center Management Solutions, who believe that today's data centre management solutions, which are all designed to improve decision making, can equip a data centre manager overseeing a high density computing environment with the necessary data to enable raising the overall setpoint temperatures of the room. This can significantly lower annual cooling costs across an organisation's entire data centre footprint.

There are also a host of innovators taking different approaches to cooling. For example, Microsoft has been operating a sustainable, highly efficient and very cool data centre 117 feet underwater for the last couple of years. Located under the waves, the environment provides natural cooling to enable processors to run at consistently higher speeds without requiring energy to be pumped in to power fans or complex liquid cooling systems. And returning to coronavirus, a Microsoft underwater data centre currently based in the Orkney Islands is processing workloads for an international, distributed computing project to understand the viral proteins that cause Covid-19 and design therapeutics to stop them.

But underwater or locating to cooler climes isn't for everyone. Facebook bucked this trends with its StatePoint Liquid Cooling (SPLC) system, which enables it to base its data centres in locations where direct cooling isn't viable. And according to the company, its SPLC system cuts water usage by more than 20 per cent for data centres in hot and humid climates and 90 per cent in cooler areas.

TIME FOR ACTION

So, there's lots the industry needs to be thinking about and one solution won't fit all. Innovation, future proofing and security are the imperatives we all need to be acting on right now. ■

JUSTIN BEWICK

Justin Bewick joined Dataracks as director in March 2020. He has over 15 years' experience in the industry, gained as managing director of R&M and working with both Anixter International and Raritan.

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Which Fiber Termination Method is Right For You? is a blog from Siemon. CLICK HERE to read it.

The European Data Centre Association (EUDCA) has published a white paper titled Abatement Techniques for Reducing Emissions and Improving Air Quality for Stand-by, On-site with Gas Oil Emergency Generation. To download a copy CLICK HERE.

R&M has produced The Colocation Migration Handbook, which can be downloaded by **CLICKING HERE.**

Cabling System Planning and Design for Smart Buildings is a white paper from **Leviton.** **CLICK HERE** to obtain a copy.

Bend-Insensitive Fibres: A Key Component of Future-Proof Networks is technology guide from **Draka/Prysmian.** To download a copy **CLICK HERE.**

Databarracks has published its 2020 Data Health Check. It questioned over 400 IT decision makers on critical issues relating to IT resilience, cybersecurity, cloud and remote working. **CLICK HERE** to read it.

Is LAN-as-a-Service The Answer to Today's Network Challenges? is the question posed in a blog from Marcel Reifenberg of **Nexans.** **CLICK HERE** to find the answer.

Sound and vision

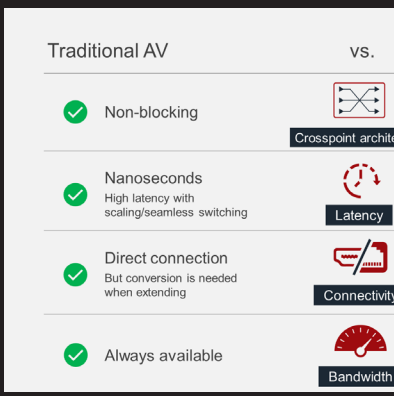
In a world where everything seems to be moving to internet protocol (IP), certain audiovisual (AV) applications are no exception. Lee Funnell of Siemon and Phillip Meese of Lightware UK provide insight into the different application scenarios and highlight the importance of making the right cabling choices

With the rapid advancement of IP technology, we are now seeing many uses for it in everyday life. Phones are switching to voice over IP (VoIP) because of the higher cost of maintaining ageing copper wires and switching to fibre optic cabling. Both businesses and residential properties are now adopting VoIP – even removing landlines because people are increasingly using mobile phone based apps.

HORSES FOR COURSES

For AV applications, the scenario is slightly different because both traditional AV and AV over IP (AV/IP) have their own pros and cons, and adoption of either one largely depends on the need for different applications. But let's first take a look at traditional AV and AV/IP from a technology standpoint.

Physically, there are similarities, since the medium used for both AV and AV/IP is copper or fibre optic cabling. However, traditional AV uses a transmitter/receiver and a matrix switcher, whereas AV/IP requires a encoder/decoder and network switch. For both options Video Graphics Array (VGA), Digital



Visual Interface (DVI), High-Definition Multimedia Interface (HDMI) and DisplayPort (DP) connectors will be used, but these can also be considered traditional AV. Therefore, it is not the connector that makes the difference – the difference is the method by which the data is transferred.

READING THE SIGNALS

The transmission method for traditional AV is to convert the binary representation of each colour into an electrical representation of highs and lows. Then, to reduce electrical interference, an encoding process called transition minimised differential signal (TMDS) is used.

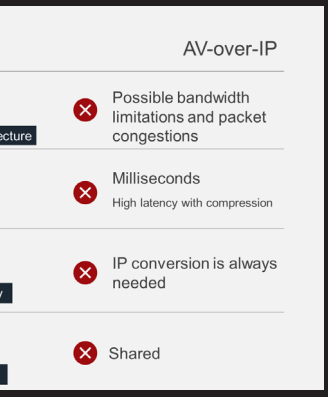
A well-known AV technology is HDBaseT, which uses the same medium as IP, but it doesn't have the IP layer to direct the message to an IP address. It uses the 10 Gigabit Ethernet layer packetising protocol, which is not an IP protocol, and a special encoding process called pulse amplitude modulation (PAM).

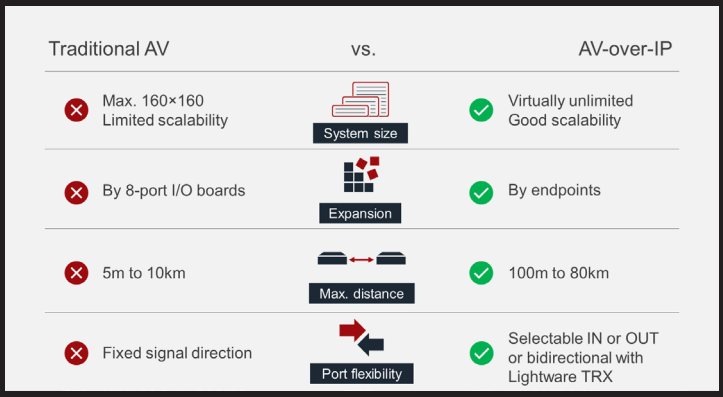
Conversely, AV/IP uses the IP packetising method that is used in IT. The protocol is similar to opening up a web browser and searching a website. It uses IP to find the website and then shows the information on the screen. For AV/IP it uses a TCP/IP layer that contains the destination/source address with the AV content. By using this IP layer, packets can be sent to any IP address that sits on the network, making it possible to add as many endpoints as necessary, as long as the network switch provides a sufficient number of ports.

TWO'S COMPANY

There's a choice of two transmission methods. The two diagrams below compare the pros and cons of traditional AV and AV/IP. On the left, traditional AV is the winner for high bandwidth and low latency. On the right, AV/IP clearly is advantageous for scalability and distance.

Whether traditional AV or AV/IP, it comes down to the application, environment and experience that is desired. Traditional AV enables pixel perfect transmission and minimal latency, but because of the symmetrical system flexibility is limited. AV/IP loses certain pixels in the process but as it can be an asymmetrical system it provides extra flexibility. This means that an AV/IP system can be designed by its endpoints, creating a system that





efficiently matches the need.

It is worth mentioning here that HD has a bandwidth of 4.45Gb/s and UHD@60 is 17.8Gb/s. These bandwidths will be compressed to fit through a 1Gb/s or 10Gb/s network switch and decompressed. So, if AV/IP is put on the same IT network it can result in certain applications running slowly because of the amount of data that the switch is trying to process at once. Typically, with a 10Gb/s network switch, there is no need for concern. Another option is to have a separate dedicated AV network switch.

'It is recommended that Category 6A/Class EA shielded cabling should be the minimum twisted pair cabling deployed for any AV installation.'

DEEP SPACE

Now we are starting to see where each application might be better suited. In huddle rooms or events spaces, where an AV ecosystem is confined to that room and content shared on the screen needs to be clear, traditional AV should be used. In spaces where the same content is shown as digital signage or as a video wall, quality can be compromised.

Live events typically use traditional AV as they need uncompressed images and low latency. However, as uncompressed 20Gb/s AV/IP solutions become available, the live events industry could start thinking about the advantages of having pixel perfect transmission and an asymmetrical system.

TWIST AND SHOUT

A system requires reliable cabling that will transmit the information without artefacts/degradation. High performance shielded copper cabling best matches the requirements of AV systems and it is recommended that Category 6A/Class EA shielded cabling should be the minimum twisted pair cabling deployed for any installation. Structured cabling standards including TIA and ISO recommend Category 6A/Class EA as the minimum cabling for all new installations.

The reason behind this is simple. Shielded cabling provides the best support for 10 Gigabit Ethernet transmission, offers increased headroom, noise immunity and better crosstalk performance for clearer, reliable AV signal transmission. Category 6A/Class EA or Category 7A/Class FA cabling, for example, is required to support HDBaseT to a full 100m and for any current or future uncompressed 4K video signal.

POWER RANGER

A growing number of video displays are powered via cabling infrastructure using remote powering technology such as power over Ethernet (PoE) and power over HDBaseT (PoH). Remote power delivery, however, leads to a rise in temperature inside the cable bundles, which has a negative adverse effect on cabling that leads to power and efficiency losses and performance degradation.

Shielded Category 6A or Category 7A cabling provides superior heat dissipation and thermal stability. These cables are qualified for mechanical operation up 75°C, which eliminates the need to reduce bundle sizes or de-rate the length of the channel to support necessary signal margin. This is especially important since newer protocols including software defined video over

Ethernet (SDVoE) require higher power levels of 90W PoE.

Remote power delivery can also lead to reduced connecting hardware reliability, so it is not just the cable but also the connectivity that must offer superior remote powering support. If video displays and other devices are connected to and from the network under remote powering current loads, electrical arching can lead to damage on connectors and plugs.

LOOK AHEAD

AV is an important part of any company's communications and collaboration agenda. Ensuring best in class applications, equipment and infrastructure is fundamental to enabling long-lasting solutions that will deliver value now and in the future. Partnerships that deliver a 'one solution' approach will help organisations reach their goals in a more systematic way and could potentially reduce deployment costs significantly. ■

LEE FUNNELL

Lee Funnell is technical services group manager at Siemon. He manages a team supporting Siemon customers across EMEA and is a member of the CIBSE Intelligent Building Council.

PHILLIP MEESE

Phillip Meese is a technical support engineer for Lightware UK. He has experience in troubleshooting complex AV systems, as well as detailed knowledge of the technology used.

Mayflex

Mayflex is a leading distributor of converged IP solutions including infrastructure, networking and IP security solutions. With a move towards convergence and the internet of things (IoT), far more devices are connected to the network, improving efficiencies, safety, health, use of time and energy, while reducing costs.

Mayflex offers expertise and a portfolio of products from leading vendors. At the heart of the network is structured cabling to allow power over Ethernet (PoE) driven devices such as wireless access points, door access control and IP CCTV cameras to be installed across a single IP network. Intelligent power distribution units (PDUs) and monitoring devices help manage and control the network.

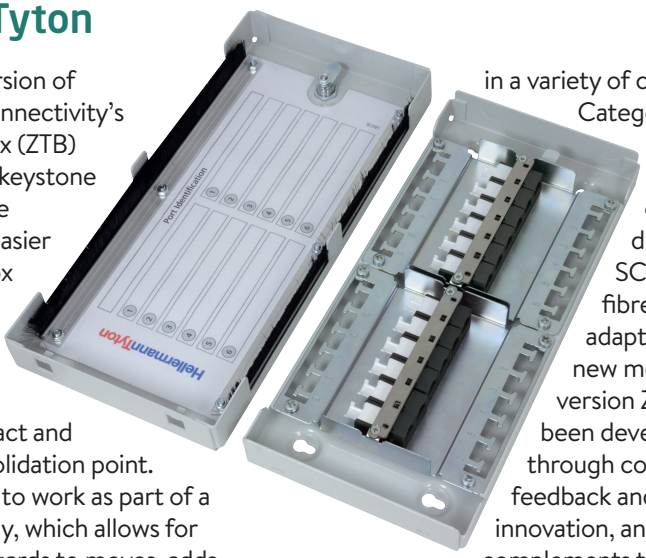
Converged systems provide rich and deep data that IT and facilities managers can obtain, in both real-time and historic formats.

To find out about the full portfolio of products from Mayflex **CLICK HERE** or call sales on 0800 757565.

www.mayflex.com

HellermannTyton

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



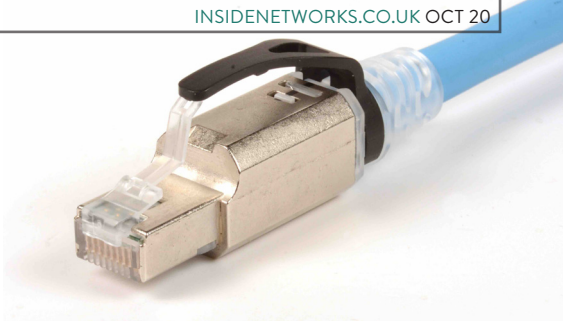
The ZTB is a compact and robust internal consolidation point. It has been designed to work as part of a zone cabling topology, which allows for more flexibility in regards to moves, adds and changes (MACs) within a structured cabling network.

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

For more information **CLICK HERE.**

www.htdata.co.uk

Siemon



Siemon's Z-PLUG Category 6A Field Terminated Plug is leading the way in supporting advanced IP-based, power over Ethernet (PoE) technologies. In the era of the internet of things (IoT), virtually every device is, or can be, connected to the network cabling infrastructure. Z-PLUG enables the seamless connection of lights, wireless access points, security cameras, audiovisual (AV) equipment, distributed antenna systems (DAS), building automation systems (BAS) and more to the network via plug terminated links.

Exceeding all Category 6A performance requirements, Z-PLUG can be terminated to shielded, unshielded, solid and stranded cables. Its design eliminates the need for work area outlets and patch cords, enabling custom length cables that can be terminated on-site for quick connections directly to the end device.

Z-PLUG's intuitive outlet style termination process results in best in class termination time and repeatable performance. When combined with a robust, low profile design and the option to eliminate or shorten the boot, Z-PLUG is the ideal solution for a variety of installation applications including end devices with limited space such as security cameras and access points.

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

EDP Europe

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

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

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

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

IANOS is available from stock at EDP Europe. For more information call 01376 510337, **CLICK HERE** to send an email or to visit the website **CLICK HERE.**
www.edpeurope.com

Trend setting

The cloud, software as a service (SaaS), 5G, the internet of things (IoT), edge data centres and intelligent buildings have changed the network landscape. Andreas Rüsseler of R&M explains what this means for LANs and data centre design, construction and maintenance

LAN trends are currently being driven by the need for intelligent building infrastructure. A wide range of functionalities can be managed and monitored over a converged network, which needs to be capable of powering large numbers of remote data gathering and processing devices such as sensors and peripheral equipment, preferably with data and power integrated. As LANs merge with building automation, a new kind of connectivity is emerging.

WINNER TAKES ALL

IP is becoming a common medium to connect previously disparate systems. Structured cabling increasingly transports data along with power, lighting, security and more, with building technology and building management devices communicating over Ethernet and internet protocol (IP). Ethernet is increasingly used to network ever-increasing numbers of devices, while power over Ethernet (PoE) can inexpensively power more end devices over data cables, enabling advanced lighting and sensor applications.

All over IP enables digital building automation using IP. This provides high levels of standardisation, availability and reliability, with the LAN providing the physical communication layer and PoE. IP devices and networks speak the same language end-to-end and don't need 'translation' between servers, operating systems, cabling and devices – buildings can be connected and controlled digitally throughout. The all over IP approach is enabled by RJ-45 and PoE, and is supported further by Single Pair Ethernet (SPE) based on xBASE-T1.

SINGLE LIFE

In a connectivity landscape that is becoming increasingly standardised and unified, with IP as a common medium, SPE is ideal for connecting large numbers of small sensors and actuators. Devices and systems that work with Ethernet/IP technology are comparatively inexpensive. In theory, IPv6 can allocate some 1,500 IP addresses per square metre. In practice, there is no limit to the number of devices that can be addressed.

Using SPE without interfaces to replace the traditional fieldbus can help realise high connection density required for the networks of today and tomorrow, and makes installation faster and easier. SPE works with 10BASE-T1 to 1000BASE-T1, offers 15-1000m link ranges at Gb/s transmission rates, and can supply terminal equipment with up to 50W with power over DataLine (PoDL).

TWIST AND SHOUT

SPE based on xBASE-T1 protocols uses a single twisted pair for data transmission. LAN is compressed into a thin two-core cable with miniaturised connectors, making it possible to significantly increase terminal equipment connection density. IT and fieldbus components are integrated, installation and maintenance simplified, and the costs of material and operating expenses reduced.

Compared to traditional Ethernet cabling, this approach offers a significantly higher number of possible connection points. Connection to the LAN is done with switches either centrally in the floor distributor or distributed in the zone at the service outlets. Ethernet/IP transmits large quantities of complex data faster than fieldbus systems, allowing the collection and distribution of data from the entire network. Synergies reduce operating expenses and manufacturer neutral standard products can be used.

DIGITAL CEILING

An all over IP approach also makes application neutral and manufacturer independent digital ceiling concepts possible. Smart converged data networks

can be extended through ceilings, making it possible to connect devices to building automation via pre-installed overhead service outlets.

This approach extends the data network through an entire building's ceiling in a 'honeycomb' fashion, making it possible to connect devices to building automation via zones with pre-installed overhead connecting points. All you need to do is plug in network switches, sensors, controls, wireless LAN access points and other distributed building services.

'The introduction of smart, converged networks means new energy conserving technologies and applications can be introduced, such as the intelligent management of building space, resources and LED lighting.'

ONE TIME

PoE makes it possible to connect applications with just one cable. Some manufacturers' contacts and connectors are ready for this, supporting passive optical LAN (POLAN). This optical fibre cabling for extended systems such as airports, malls, resorts and hotels delivers virtually unlimited bandwidth for miles.

The introduction of smart, converged networks means new energy conserving technologies and applications can be introduced, such as the intelligent management of building space, resources and LED lighting. PoE can power LED lighting throughout entire buildings and address each LED via its own IP address. Infrastructure companies can integrate more and more devices in their systems, leveraging the benefits of a unified network.

IN AND OUT

When we consider data centre infrastructure, we need to look at developments taking place outside the data centre as well as inside. The number of fibres used for transport is increasing. Multimode applications of 40 and 100Gb/s require eight fibres in parallel pairs, while higher speeds require eight or 16 pairs.

Years ago, the traditional hierarchical network topology with core, aggregation and access level was already becoming too restrictive and slow. A leaf-spine architecture, however, considerably reduces latencies and ensures data and applications are available in real time at all times. Migration to 100, 200 and 400Gb/s requires higher density and more cabling in racks, with data centres containing

hundreds of thousands of ports and patch cords. IoT driven smart networks facilitate management of this complex infrastructure, unburdening humans, boosting efficiency and reducing mean time to repair by around 75 per cent. In future, artificial intelligence support may be added.

DRIVE TIME

Key drivers for change in data centre networks are also coming from other areas. Data centres are increasingly converging with the networks and functional requirements of the wider world. Statista Research puts the global installed base of IoT devices at 75.44 billion by 2025.

Technologies supporting these devices, such as 5G, and Wi-Fi 6, are changing the network landscape. 5G speeds could surpass 10Gbs – up to 150x faster than 4G, with 20x lower latency, down to 1ms. However, wireless solutions' inherent limitations mean optical fibre connectivity needs to be taken to each 5G connection point. Connecting 5G base stations using existing microwave links won't suffice – new active 5G antennas produce vast data traffic and existing technology can't handle such volumes fast enough.

A dense fibre backhaul network and ultra-high density edge data centres are needed to offer 5G quality of service and enable new 5G user experiences, with critical low latency applications in urban areas. Centralised RAN (C-RAN)-based solutions with multi-operator capability will optimise management and allocation of centralised base band resources. Wavelength division multiplexing (WDM) transmits services at different wavelengths, boosting network capacity, without adding extra fibre, and can cost effectively support fast growing requirements – offering flexible upgrade paths for different carriers and new service providers.

SHARING IS CARING

Tackling new trends and finding the best solution for a specific application can be challenging. As there's no single 'one size fits all' solution, sharing expertise and engaging in dialogue is more important than ever. ■

ANDREAS RÜSSELER

Andreas Rüsseler has been chief marketing officer (CMO) at R&M since 2012. He studied communications engineering at the University of Emden, Germany, and master of advanced studies in business administration and engineering at the University of St Gallen, Switzerland. He has a long history in fibre optics and communications and worked for Deutsche Telekom, Quante AG, 3M and Huber+Suhner before joining R&M.

Brightstar Group future proofs its telephony platform with Babble

When it moved offices, Brightstar Group needed a solution to future proof its telephony platform. Babble recommended that a hosted solution was implemented, before being rolled out across the entire estate, which enables calls to be transferred between locations free of charge.

Babble configured dedicated internet connections at each location. It also provided call data and recording facilities, and introduced mobile twinning applications so that each telephony user can work remotely whilst staying connected to the telephone system.

At a time when business resilience has never been more important, Babble's solution provides Brightstar Group with added disaster recovery procedures, allowing calls to be rerouted to different offices or to individual mobile users, protecting the business from downtime in case of any emergency. In addition, productivity at Brightstar Group has increased with 100 per cent of calls covered by the new remote, call recorded and audited system, compared to before lockdown.

EDP Europe, Bergvik and Critical Facilities Solutions install raised flooring system for National Grid

EDP Europe, Bergvik and Critical Facilities Solutions recently installed 400m² of Bergvik's Iso Floor raised access floor system in several power and plant areas for the National Grid.

The project is part of the IFA2 project – a major new energy infrastructure project linking the UK's electricity transmission network to France.

The link will enhance the security, affordability and sustainability of energy supply to both countries, with the interconnector capable of exchanging 1000MW of power between the UK and France – enough to power over a million homes.

Bergvik's Iso Floor uses up to 70 per cent fewer pedestals than a traditional raised floor system and allows for easier installation, which was a vital factor in this project with a tight timescale. The companies worked successfully with Morgan Sindall and ABB, enabling the floor frame installation to be easily adapted to facilitate the complex underfloor containment install.

Infinet Wireless installs network fit for the future in Istanbul

Millions of tourists and residents in one of the world's most historic locations in Turkey are now able to enjoy improved broadband connectivity after Infinet Wireless deployed a new wireless broadband platform.

Working closely with local partner, Radio Teknoloji, in Fatih, a large district of İstanbul, all of the area's legacy disparate networks such as CCTV, hotspot services, intranet, guest services, personnel information system, access control systems, surveillance cameras at parks and gardens, and security systems are now running over one Infinet Wireless infrastructure.

The new Infinet platform provides a backbone for the hundreds of CCTV cameras that operate across the municipality, many of which are deployed in the city's public parks. They can now instantly share their video streams with İstanbul police headquarters. Visitors to Fatih's many parks and open spaces also now benefit from free internet, which also extends into some municipal buildings.

PROJECTS & CONTRACTS IN BRIEF

CityFibre's main full fibre build in Stirling is now complete, passing more than 17,500 premises across the city. This brings the vast majority of the city's homes, businesses, public sector sites and mobile masts within easy reach of the gigabit speed network.

DCspine's network point of presence (PoP) is now also available in Greenhouse Datacenters' flagship facility in the Netherlands.

Nutanix has announced the general availability of Nutanix Clusters on AWS, extending the flexibility and ease of use of the company's hyperconverged infrastructure (HCI) software.

5G New Thinking, a consortium led by Cisco with the University of Strathclyde, has announced a first of its kind project to empower rural and poorly connected communities to build their own commercially viable and sustainable 5G wireless networks.

G-Core Labs has launched a new region of its public cloud in Ashburn, USA. Clients can use a multifunctional virtual data centre that allows them to scale their IT infrastructures in minutes, as well as significantly accelerate the development, testing and introduction of new products and services to the market.

Fusion Connect, HubOne, Kazteleport, Optical Networks, Thrive and TNS have been added to Fortinet's list of service providers and managed security service providers (MSSPs) that have chosen Fortinet Secure SD-WAN to deliver value added services to customers.

Light hearted

Richard Ednay has been a highly influential figure in the world of optical fibre training and standardisation for over three decades. Rob Shepherd spoke to him about his life and career, and his thoughts on the big issues currently affecting the sector

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

RE: I'm technical director of Optical Technology Training (OTT). At OTT we design and develop training and certification programmes in fibre optics and optical networking, which are then licenced to a network of training delivery partners around the world.

My role is to ensure that the technical content of the certification programmes is spot on and up to date. I analyse new developments to assess what needs to be incorporated into our programmes, and we work on making sure that our courses provide delegates with the knowledge and skills that they need to do their jobs efficiently and effectively. In the complex areas of optical networking this can be quite challenging. Simplifying things to an appropriate level without lying is a key skill that I have developed over many years.

I've also been heavily involved in standards setting in fibre optics. For a number of years I was chairman of the BSI committees on fibre optics and fibre optic systems. I've also been on a number of international standards bodies, including liaising between the premises cabling working group and the fibre optic systems group.

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

RE: I kind of fell into fibre optics many years ago. Straight from university, I was employed as a software engineer with a company that made fibre optic test equipment called York Technology. The company was a spin-off from the renowned Optical Research Centre at Southampton University, where a number of key fibre technologies have been invented, including the erbium doped fibre amplifier (EDFA). York Technology's test equipment was used by optical fibre manufacturers and cablers around the world.

After a while I moved into marketing with York Technology and then spent some time in a commercial role in the cable manufacturing industry at TCL, before setting up OTT back in 1989. That's when

> 'Anyone can call themselves a fibre optic installer and just go about messing up installations. There is plenty of evidence of appalling installation workmanship appearing on social media posts on a regular basis.'

we made the move 'up north' to work with the cluster of fibre optics companies in the Bradford area. Fusion splicers and optical time domain reflectometers (OTDRs) were manufactured by FTT, fibre installation was carried out by OCT under Mike Gilmore, and OTC calibrated all the kit. A lot has changed since then!

Right now, there are a lot of new developments with optical networking technologies that are being deployed to meet the challenges of providing the world's internet connectivity. Optical networks need to have enormous capacity, operate on a global scale and provide flexibility to cope with changing traffic patterns, whilst providing ever lower cost and energy consumption per Gb/s.

With the coronavirus pandemic, so many people have had to rely on the internet for so many things and, despite the unprecedented growth and change in traffic patterns, it's all worked! I think that's a really impressive testament to fibre optic technology and the networks that can deliver all this.

RS: As an optical fibre expert, how would you assess this area of the network infrastructure sector at the moment?

RE: Of course, having the core networks with fantastic capacity and capabilities is one thing but we all need to have access to it. The UK has been embarrassingly dismal in deploying fibre to the home (FTTH). At last things have stepped up a gear and lots of fibre infrastructure is now going in, but the task is really massive to achieve full coverage.

Unfortunately, we also have a very inefficient model in the UK, with urban areas getting maybe two or three overlaid networks, whilst many rural areas are left behind. I hope that targeted funding following the 'outside in' approach will help to redress this imbalance.

Other fibre network infrastructure sectors have different opportunities and challenges. The data centre environment is very interesting, with plenty of very high capacity links required for all this stuff that

everyone wants to put in the cloud. I think that the market for commercial office space and its supporting IT infrastructure is completely up in the air in the context of coronavirus and working from home, so this will be a challenging time for many who may need to adapt and change their network infrastructure businesses.

RS: Has optical fibre technology developed in the way that you thought it would and what have been the biggest surprises along the way?

RE: As a regular attendee of the world's major technical conferences on fibre optics – ECOC and OFC – I've always had pretty good visibility of what's coming down the line. Clearly fibre technology has developed to deliver more and more capacity, with data rates climbing from 10Gb/s to 100Gb/s, and now 400Gb/s compact pluggable transceivers are on the market.

For core networks the transition from direct detection to the very powerful combination of coherent and digital signal processing has unlocked tremendous increases in capacity and capability. This is a big a step forward, as the combo of dense wavelength division multiplexing (DWDM) and EDFAs were in the 1990s in increasing capacity and reach. I think one of the biggest surprises to me has been how much improvements in copper data cabling have allowed it to keep up for so long with these higher and higher data rates.

RS: What challenges do vendors of optical fibre based technology face at the present time?

RE: As I've already mentioned, there's a challenge facing our network operators and their equipment vendors in meeting our very high expectations for internet connectivity that is always available, with very high capacity at very low cost. The widespread deployment of 5G will add to the pressures on networks.

RS: Is it time that only those with appropriate training and skills were able to work on network infrastructures?

RE: As I often say, one of the problems with fibre optics is that it is pretty safe. If an incompetent person messes up an installation badly, then no one dies. It is not like those nasty dangerous things such as gas and electricity.

So, with no compelling safety grounds for regulation, we are unlikely to see any lead from government in the UK to introduce any form of registration scheme that would require a demonstrable form of competence to work on fibre optics. Anyone can call themselves a fibre optic installer and just go about messing up installations. There is plenty of evidence of appalling installation workmanship appearing in social media posts on a regular basis. Given the current demand for fibre optic installers in the FTTH arena, I don't see things changing soon.

'There's a facing ou operator their equi vendors i meeting high expe for intern connecti is always with very capacity low cost.'

Also, in the UK the quality of commercially available training in fibre optics is very variable. There is no guarantee that possession of a 'stiffycate' indicates a level of competence that is sufficient to perform the required tasks to an acceptable standard.

In some other territories around the world there are more tightly regulated environments, where there are formal requirements for certifications for working on fibre optics, especially on government owned infrastructure. This requirement

is often supported by comprehensive skills matrices and government approved training establishments to run comprehensive courses to provide the mandated skills levels.

I don't see anything like this happening in the UK, but every few years someone thinks it would be a good idea and starts making some noise about it, until they run up against the realities and complexities of trying to make it happen without any significant government or industry support.

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RS: Do you think trade associations have an important role to play and are they doing enough to promote the sector and make it a better place to operate in?

RE: In theory yes, many sectors have well-funded and professional trade associations that effectively represent their industry sectors and look after their members. The Electrical Contractors' Association (ECA) is a good example.

RS: You must have had many humorous and/or bizarre industry experiences over the years. Could you share one?

RE: Many years ago, I was arrested at customs in Cherbourg for attempted 'smuggling' of optical fibre. As a naïve young marketing engineer at York Technology, I was on my way to a workshop at a French distributor. As I left the office, I noticed a parcel that was ready for despatch to them, so I just said, I'm going there tomorrow, I can take that! But in the days before free trade across Europe it really wasn't that simple, as I learned from the French customs office. Maybe this is a timely lesson for what might happen post Brexit!

Also, another memorable moment was arriving at my first meeting of ISO/IEC premises cabling standards working group, having travelled to Buenos Aires. We were asked why we were there, as they were not discussing fibre optics that particular week. It's one of the reasons I received the IEC 1906 Award for fulfilling the 'challenging role' of liaison officer!

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

RE: Well, there's a few key principles that have guided developments at OTT. One is to always focus on doing the best that we can do, without getting distracted or wound-up by what others are doing.

Another favourite guiding principle is the quotation from Albert Einstein, that I had as a picture in my office. It said, 'Everything should be made as simple as possible, but no simpler.' So, we take great care not to make anything overly complicated – it is important to strip away unnecessary detail and to focus on the key learning objectives that are relevant to the task in hand. I also tried to apply this principle in the development of standards that I was involved with, whilst many others seemed to be on a mission to make everything seem as complicated as possible!

The third principle is summarised in this quotation by Helen Keller, who said, 'A bend in the road is not the end of the road unless you fail to make the turn.' Over the years there have been many external influences on the business. Training is very sensitive to changes in economic and market conditions, but we have changed and adapted the business on numerous occasions. And yes, coronavirus is another bend in the road. ■

CNet Training

CNet Training's five-day Certified Outside Plant Technician (COPT) program is suitable for those with 2-3 years' experience working in the network infrastructure sector and who wish to extend their knowledge, practical hands-on skills, qualifications and certifications in the deployment of fibre optic connectivity in the external environment.

Learners can take their existing network cabling knowledge and skills to the next level by gaining valuable insight into external fibre network distribution strategies, infrastructure components and installation methods. Passive optical networking (PON) features heavily as the primary delivery technology for fibre broadband to the home. Methods used for distribution will also be examined in addition to exploring the benefits and rationale behind the choice to distribute services underground or overhead.

Successful completion of the COPT program provides the learner with an internationally and industry recognised Level 4 BTEC Award, official COPT certification, use of a post nominal title and a digital badge. A digital badge can easily be shared via social media and downloaded to verify knowledge, skills and certifications gained.

To find out more **CLICK HERE.**
www.cnet-training.com

Excel Networking Solutions

Excel Networking Solutions has announced the immediate availability of its new Fast range of unscreened RJ-45 field terminated plugs, boots and tools.

The Excel Fast solution is easy to use and is compatible with both Category 5e and Category 6 cables, and available with or without blade style high-density transparent strain relief boots. Fast and easy installation is achieved thanks to the push through design of the plug body, as well as the use of a single tool to terminate the plug, position the boot when used and trim excess wires.

Stock is available now with products supplied in plastic free packs of 100 plugs only, or 100 plugs with boots, and tools that are available to purchase separately. The Fast range will replace the current 'standard' unscreened RJ-45 plugs offered by Excel.

A short video and data sheets have been produced to demonstrate the speed and ease of use of the Fast range. For more details **CLICK HERE** to contact the Excel sales team.
excel-networking.com

ShanCo IT Services

ShanCo IT Services is a professional services company specialising in:

- Voice and data structured cabling
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- Helping hands
- Hardware and product supply
- Deployment services
- Cisco TelePresence
- Site surveys
- Network audits

To watch the new ShanCo IT Services video **CLICK HERE.**

Alternatively, call our friendly team on 0800 8654471 to talk about your infrastructure needs and projects, **CLICK HERE** to visit our website, or to send an email **CLICK HERE.**

shancoitservices.com

R&M

R&M is launching a campaign that offers insights into preparing a fully integrated, flexible, and future ready basis for 5G networks.

'Devices need to be connected with high-speed, uninterrupted, extremely low latency and symmetrical bandwidth,' explained Thomas Ritz, market manager public networks at R&M. 'It is important to realise that this requires significantly more powerful networks behind the antennas.'


Thomas Ritz

He added, 'A successful approach to 5G largely depends on taking an integrated approach, looking at all of the elements in the network in conjunction. Expertise in all of these integrated links, including fibre optic cabling, is becoming increasingly important and we will be regularly sharing information and advice going forward. The first blog in our informative 5G series, which will appear shortly, takes a closer look at this.'

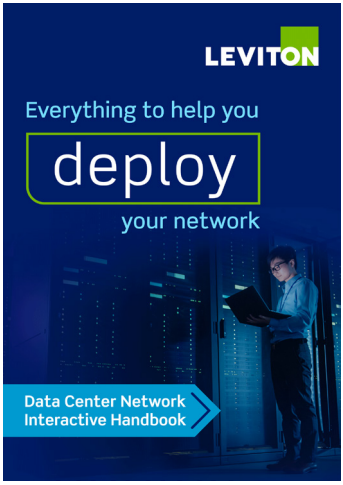
CLICK HERE to read the blog.

rdm.com

Leviton

Every data centre – from small enterprise to cloud hyperscale – has a unique set of network priorities. But all data centre managers are looking for cabling systems that can weather multiple generations of tech upgrades with minimal disruption.

The new Data Center Network Interactive Handbook from Leviton is loaded with tips and tactics for deploying, managing and upgrading your data centre network.



It takes a comprehensive look at the data centre Ethernet physical layer and offers helpful recommendations – covering typical cable architectures and topologies, fibre modes and connector types, installation and termination, as well as polarity recommendations and network migration strategies for 100Gb/s, 200Gb/s, and 400Gb/s.

To download your free 60 page interactive guide **CLICK HERE.**

www.levitonemea.com

All you need to know

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Sweet dreams are made of this

Louis McGarry of Centiel UK looks at how a flexible approach to uninterruptible power supply (UPS) specification will sweeten the pill in our post-coronavirus world

Since the coronavirus pandemic we have seen huge shifts in behaviour dramatically impacting both our work and social lives. Data based video and audio communications are now commonplace, even for the late majority, while online shopping, banking and even exercise classes are all now possible and 'normal'. As a result, the growth in data use seen over the past few years has accelerated even more rapidly.

NEW WORLD

These changes have all had knock-on effects. Some organisations have closed, some have made redundancies and some are consolidating their operations. Others have been able to reduce office space to save money, as they are tempted towards a more permanent homeworking culture. Some colocation data centres have lost clients that are struggling but have gained new innovative companies ready to take

advantage of changing trading conditions. As human beings we will continue to adapt to survive, however, some have been left wondering when life will be sweet again.

If 2020 has shown us nothing else, it's that no-one can be sure what's around the corner. Therefore, an agile approach to business is one that is most likely to have a successful outcome over the long-term. It's the same for UPS solutions. Constant rightsizing and adopting a pay as you grow infrastructure using a modular solution means you can be flexible with whatever market conditions evolve and, more importantly, only pay for what you need. Think of it as a pick-and-mix for your UPS needs!

MOVE WITH THE TIMES

Generally, UPS installations are designed and configured for a much greater load than is actually required. However, a system which is too large wastes energy, is inefficient and costly to run. It will also cost more than necessary to maintain due to its size. Over time, these costs mount-up and impact on the total cost of ownership (TCO) of a solution.

Installing a true modular UPS, where you have the ability to use a fully rated frame or empty carcass, provides the option to only install the required number of modules to suit the actual load from day one, plus add more only when needed. This is because all the individual modules are a UPS in their own right, all containing a rectifier, inverter and static switch, and all operating online in parallel with each other. A truly modular UPS removes the need for a large initial investment in a standalone solution and organisations can scale as their load changes up or down.

CASE IN POINT

We have just supplied a public sector customer that needed to protect the

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effective way.'

power for an emergency services call centre with two UPS with 5xIM25 (100kW N+1) and future growth capability of up to 200kW N+1 per frame. This set-up essentially provides the capacity for the load to double in size in the future and new modules can be added only when required – minimising capital expenditure and TCO.

With change comes opportunity. If organisations are looking to reduce office space, shrink, decentralise, centralise or take some data storage in house, these new ways of working offer the chance to redesign and re-plan UPS infrastructure to take advantage of a fully flexible solution at the same time. By using standard frames which can accept the same physical size and power rating of UPS modules across facilities, hardware can even be moved and reutilised elsewhere. So, if the sweet spot suddenly shifts, resources can be reallocated as rapidly as needed.

Modules can be redeployed between areas or facilities based on priority, to ensure load protection and redundancy is kept at the most critical locations. It also means that if a system needs to be maintained, modules can be hot-swapped to avoid any risk to the load and create zero downtime. In this way an agile critical power solution can support an agile infrastructure environment, maximising availability while minimising costs at the same time.

GET REAL

There's no point in sugarcoating this – an agile modular concept relies on true modular UPS technology that is robust and of high enough quality to withstand being shipped and moved around regularly. However, please keep in mind that not all modular UPS systems are designed to be hot-swappable, with the flexibility to relocate and reutilise. As well as needing standardised frames and a robust, quality

‘It’s hard to know when life will be sweet again, as it’s impossible to predict how coronavirus has changed working practices for good. However, one thing is for certain, it will be the agile, adaptable and flexible organisations that will survive and thrive.’

modular system, it is also necessary to manage the whole network closely.

This approach relies not just on a flexible UPS configuration, but a flexible battery set-up too. You will also need a flexible distribution chain and a manufacturer that is experienced in delivering these types of ‘agile’ projects. We believe any UPS installation is only as good as the company that backs it – a company that enables a client to understand the full potential ability of the system and can help them design the best solution for their particular circumstances.

Implementing an infrastructure with the capability to pay as you grow, and the ability to re-deploy modules according to load requirements, will require some intelligent analysis. However, with expert advice from a trusted manufacturer with decades of experience of implementing the most efficient solutions, it is possible to have the highest level of power protection in the most cost effective way.

SUGAR FIX

It’s hard to know when life will be sweet again, as it’s impossible to predict how coronavirus has changed working practices for good. However, one thing is for certain, it will be the agile, adaptable and flexible organisations that will survive and thrive. For those taking the opportunity to redesign their UPS suite and go the true modular route, our advice is to be sure you are backed by a manufacturer who can be just as adaptable. And even one who shares your appetite for a sweeter outlook on life to come! ■

LOUIS MCGARRY

Louis McGarry is sales and marketing director at Centiel UK. His experience in the UPS industry spans over a decade, with extensive knowledge of products that enables him to successfully design and deliver solutions for the critical power market. McGarry joined the Centiel team early in 2018 to assist in delivering the company’s technology to the critical power market and build the Centiel brand.

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