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Smart attack

CHALK HILL MEDIA

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Carrying out some research into smart cities, I came across a story that got me thinking about how important it is to put people first when implementing technology. It concerned Santa Maria Tonantzintla, which was set to be one of Mexico's first smart cities. However, some residents considered it an attempt to leave heritage behind and create an environment that was more suited to tourists than residents.

This is a salient reminder that there's more to creating a smart city than simply filling it full of internet of things (IoT) based devices – it should also complement a location's history and inhabitants' ways of life. When this approach is taken, what can be achieved is truly astonishing and in this issue Russell Poole of Equinix looks at what must be considered when interconnecting the smart city. **CLICK HERE** to read his thoughts.

Unless you've been living under a rock, you will have noticed that passive optical networks (PON) are something of a talking point – the question is why? PON's origins go back over two decades and it was, and is, a key factor in the development of fibre to the home (FTTH). However, its influence is now starting to be felt in the LAN and to establish the reasons behind PON and POL's current popularity we've asked a panel of experts to examine its advantages and disadvantages, and what the future has in store. **CLICK HERE** to read their comments.

Good containment is as vital as ever and Domenic Trapassi of Ortronics/ Legrand looks at how the retail sector is benefitting from edge computing and what to consider when selecting a cabinet for this type of environment. Meanwhile, as rack ready architectures remain the foundation of today's critical IT applications, Marc Garner of Schneider Electric looks at why customisation is key. **CLICK HERE** for Domenic's article and to read Marc's **CLICK HERE.**

In addition to all this, we have a special feature dedicated to AIM, IIM and network management. **CLICK HERE** to read Rahul Rathod of Nexans' views on the benefits of AIM and **CLICK HERE** to find out why Olivier Alquier of CommScope thinks the best cabling infrastructures are the ones you never notice.

I hope you enjoy this issue of Inside_ Networks. Don't forget that if you'd like to comment on any of these subjects, or anything else to do with enterprise and data centre network infrastructures, I'd be delighted to hear from you.

Rob Shepherd Editor

Inside_Networks
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MADE TO CONNECT

72 per cent of enterprises have majority of employees accessing cloud based applications and data via mobile devices

Zscaler's Digital Transformation Report EMEA 2019 has found that 72 per cent of organisations have a majority of their employees accessing applications and data in the cloud or the data centre on their mobile devices, with 29 per cent of companies claiming that number to be more than 75 per cent across the UK, Germany, France and the Benelux region.

This high rate of mobility coincides with the top drivers for digital transformation initiatives, which include enabling greater flexibility for employees (37 per cent) and implementing more efficient processes (38 per cent). When asked about the biggest obstacle to digital transformation, however, security topped the list across all four regions.

Companies embarking on digital transformation initiatives are beginning to recognise that the traditional way of providing remote access connectivity to their applications residing in the cloud or corporate networks are riddled with security risks. With the extension of the perimeter to the internet, segmentation on application level is needed to strengthen the security posture in the cloud era, when mobile employees, consultants, and third parties require access.

Stan Lowe, global CISO at Zscaler, said, 'With applications moving to the cloud, and users connecting from everywhere, the perimeter is long gone. It's therefore time to decouple security from the network and use policies that are enforced anywhere applications reside and everywhere users connect. Ultimately, as applications move to the cloud, security needs to move there too.'

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Research reveals rising IT budgets are insufficient to meet strategic and security needs for a quarter of IT leaders

Research conducted by Node4 has found that despite four in five (81 per cent) IT leaders expecting their budgets to increase across 2019, 23 per cent still believe that this will not be enough to meet their strategic ambitions. In addition, a third of IT leaders (32 per cent) are concerned that they will struggle to maintain cyber defences on current budgets.

The Node4 Mid-Market IT Priorities Report, which surveyed 300 mid-market IT decision makers revealed that of those who would like additional IT funding, two thirds (65 per cent) believe they would require a budget increase of up to 15 per cent to ensure that they are able to meet the needs of their business.

Paul Bryce, chief commercial officer at Node4, commented, 'The vast majority of mid-market IT leaders expect to be working with greater budgets in 2019, and this is no surprise as businesses move to more digital futures. However, not all believe that this amount of budget will be enough to fulfil their ambitions.'

Wi-SUN Alliance marks a year of strong growth in membership and 91 million devices awarded globally

Wi-SUN Alliance has marked a year of strong growth in its membership and a number of major milestones, including the launch of its FAN certification program and the first FAN certified products.

Global membership – which includes service providers, product vendors, utilities, municipalities, local government, academia and other enterprises – has grown with 50 new members joining in the past 12 months, taking total membership to 227. Rethink Technology Research estimates that companies in the Wi-SUN ecosystem will see compound annual growth of 20 per cent, as mesh network technology reaches into new verticals, including telecoms, and different business models emerge.

Phil Beecher, president and CEO of Wi-SUN Alliance, commented, 'We have been quietly going about our business for many years, but this past 12 months has seen much of this work come to fruition. With higher IoT adoption rates, particularly with smart city and utilities increasingly rolling out applications such as advanced metering infrastructure, distribution automation, and smart home automation, Wi-SUN Alliance members are seeing growing demand for their products.'

Phil Beecher

63 per cent of decision makers see sustainability as a key driver for video conferencing deployment

The latest survey from StarLeaf shows that 63 per cent of UK IT decision makers see reducing their environmental impact through minimising travel and supporting remote working as one of the key drivers for implementing video conferencing technology.

However, unreliable video conferencing technology may undermine these sustainability objectives. If staff cannot communicate seamlessly, instantly, and in high quality video and audio with their colleagues, organisations will struggle to convince them to adapt to the cultural changes associated with remote working.

William MacDonald, chief technology officer at StarLeaf, commented, 'There is a growing drive from the business community to implement successful sustainability initiatives. Technology has a crucial role to play in enabling organisational cultural changes, such as moving towards remote working, which can deliver enormous tangible benefits and sustainability improvements.'

VLC technology is the latest development in the smart home and city revolution

Visible light communication (VLC), modulated with G.hn technology, is set to be the next major innovation in realising the full potential of both the smart home and the smart city, according to HomeGrid Forum. This continues to demonstrate the tremendous flexibility of G.hn technology to run over any medium. Wireless joins the ranks of powerline, coax, twisted pair and plastic optical fibre (POF) as a G.hn medium.

'VLC has great potential for smart homes with high density connectivity needs, especially where sensitive data needs to be transmitted between multiple connected devices within one room, because the light spectrum provides low latency and avoids the kind of interruption that can sometimes happen with radio frequency spectrum during congestion time,' said Livia Rosu, marketing chair of HomeGrid Forum. 'It supports larger bandwidths, it can act as both a source and receiver, it has low power consumption, enhanced security and is easy to install.'

Livia Rosu

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Rittal, SICP and WestfalenWIND IT win German Data Centre Award

A new project called WindCORES++, which was developed in cooperation between WestfalenWIND IT, Rittal and SICP, won in Category 1 of the German Data Centre Awards. The prize is awarded for pioneering ideas and solutions aimed at increasing energy efficiency in data centres.

WindCORES++ is concerned with maximising the footprint of servers in wind turbine towers. Rittal and WestfalenWIND IT will in future be responsible for consulting and planning the implementation of the project and Rittal will also provide the entire data centre infrastructure including three security rooms, IT racks, air conditioning, UPS and monitoring. As many as 50 IT racks to be used for cloud operation can be installed in just one wind turbine, which means it makes better use of the space available as the racks are installed on several storeys. This compact installation raises the cost effectiveness per wind energy turbine significantly.

Michael Nicolai

Michael Nicolai, Rittal's head of sales IT Germany, said, 'Smart concepts for data centres, such as WindCORES++, show how sustainably operable IT infrastructure works. Being on the podium at the German Data Centre Awards ceremony is confirmation of this.'

Equinix appoints Eugene Bergen Henegouwen as EMEA president and acquires Switch Datacenters' AMS1 facility

Equinix has appointed Eugene Bergen Henegouwen as EMEA president, who will oversee the business in the region, ensuring alignment across all functions to achieve regional business objectives. He will manage the country managing directors, the regional corporate development team and regional business development teams to ensure the company continues to drive high returns on its investments and accelerates interconnection growth.

Eugene Bergen Henegouwen

Henegouwen said, 'I am looking forward to working with the more than 2,500 employees that make up our amazing regional team to pursue our collective goals. By pressing our unique advantage, by bringing our best efforts to the company every day, and serving our customers, we can continue to build a company of historical significance.'

Equinix has also announced that it has closed a transaction for the purchase of Switch Datacenters' AMS1 business in Amsterdam, in an all-cash transaction for €30m. The facility, which will be renamed Equinix AM11 International Business Exchange (IBX) data centre, is in close proximity to Equinix's existing campus in Amsterdam and will help meet growing demand for digital infrastructure connectivity in the Amsterdam and broader European markets, as businesses continue to build out their digital edge strategies.

NEWS IN BRIEF

The FTTH Council Asia-Pacific has been appointed as chair of the FTTH Council Global Alliance (FCGA) for 2019. This global platform combines the strengths of six regional FTTH Councils, enabling the exchange of research studies, information and the latest market developments, as well as the opportunity to share findings with members and other stakeholders.

Xilinx has entered into a definitive agreement to acquire Solarflare Communications.

Recognising its ongoing efforts to accelerate mass adoption of the internet of things (IoT) through standardisation, oneM2M – the global standards body for IoT – has been awarded the Top IoT Standards Body of the Year at the seventh Compass Intelligence Awards.

Aerohive Networks achieved record Q1 revenue across Europe, the Middle East, and Africa (EMEA).

CERTAINTY

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The rise of IoT has made data access and connectivity vitally important.

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Time for a **cha**

Hi Rob

Whatever the size of an organisation, there is a high chance that it is already putting digital transformation projects in place or, at the very least, thinking about doing so. It might even be your job to make sure your organisation is thinking more digitally with the future in mind.

However, it is also very possible that you are reducing your chances of success by placing an all-encompassing emphasis on the role of technology and not enough on people, process and company culture.

Research from Telstra's Disruptive Decision-Making report, which surveyed 3,810 senior decision makers from 12 industries in 14 markets around the world, found 77 per cent of UK respondents felt their organisation was making technology decisions 'well' or 'extremely well.' However, for those that showed the greatest digital maturity, their common factor was a greater focus on people and processes, rather than the technology.

The results show that from a best practice point of view digital transformation is not about technology – it's about people. It requires the right culture, the right employees and the right processes to not only support upskilling, but also change employee mindsets, adapt structures and ways of working. It's about creating teams that can maximise the new technologies that are so vitally important.

Collaboration is also another crucial element that affects digital transformation success. Of those surveyed, 15 per cent said they outsource as much of the process as possible, with only a staggering 31 per cent having a whole of company digital transformation strategy. Such neglect of people, process and collaboration is causing a huge disconnect between digital transformation performance and priorities.

The same research also revealed organisations rated their top three digital transformation priorities as optimising technology to help them move faster and more agile, managing risks and compliances, and protecting digital assets from cyber threats. Yet, when it came to decision making performances, these priorities sat amongst the lowest of those looked into. This is symptomatic of the fact that businesses are not taking the right approach to digital transformation and this is hitting them where it hurts - their bottom lines.

A quarter of businesses invested more than $1m in digital transformation products and services in 2018. And this is set to increase with 24 per cent of respondents saying their company's total spend on digital transformation would grow
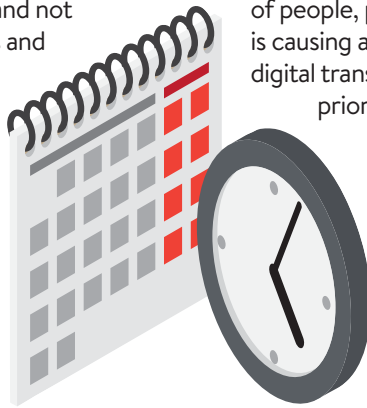
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by more than 10 per cent in the next three years.

The message is clear. Companies that are serious about successfully implementing digital transformation need to ensure they are working hard to empower their people, strengthen their processes, instil the right culture and ensure digital transformation is a company wide initiative.

Tom Homer
Telstra

Editor's comment

The research that Tom references backs up what many of us know already, which is that digital transformation should focus on the people who are to benefit from it, rather than focusing purely on technology. Ultimately, it is the only way to ensure that any activities in this regard achieve their full potential.

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Once upon a time

With its ability to bring optical fibre cabling all the way to the end user, passive optical networks (PON) have always had great potential and it seems that they are finally gaining in popularity. Inside_Networks has assembled a panel of industry experts to examine why the there has been a surge of interest in PON and its impact on the local area network (LAN)

▶ PON is not a new thing – in fact its origins go back over two decades. For most of that time it remained a niche interest and only really attracted any significant interest with the development of fibre to the home (FTTH) networks. Even though and its influence is starting to be felt in the LAN. It is argued in some quarters that it offers a more effective way to structure a LAN because it's not limited by the distance and bandwidth constraints of twisted pair networks; simplifies

> AS NOTHING PARTICULARLY NEW, WHAT ARE KEY DRIVERS BEHIND THE RAPID GROWTH AND POPULARITY CURRENTLY SURROUNDING PON? WHAT ARE THE MAIN ADVANTAGES AND DISADVANTAGES OF PON AND WHAT DOES THE FUTURE HOLD FOR IT WITHIN THE LAN?

then it remained a slow burner but in the last couple of years things have started to change, as legacy copper networks are de-commissioned and replaced with fibre.

So what is PON? Put simply, it is a cabling system that uses fibre optics and optical splitters to deliver services to multiple access points. It is called a passive network since it does not require power equipment to amplify or process signals. As well as offering service transparency, cost effectiveness, energy savings, and higher security over other access networks, the most obvious advantage of a PON network is the elimination of the outdoor active devices. All the signal's processing functions are completed in the switches and the user's premises equipment.

PON is no longer just a FTTH technology

moves, adds, and changes (MACs) and provides substantial savings in capital and operational expenditure when compared to legacy LAN designs. PON does have some disadvantages too though – perhaps the most notable of which is its inability to facilitate power over Ethernet (PoE).

As PON based LANs – or POLs – start to become more commonplace within the enterprise space, what does the future hold for it? Inside_Networks has assembled a panel of experts to discuss the key drivers behind the popularity currently of PON, its advantages and disadvantages and what to consider when adopting it.

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

RICHARD EDNAY
TECHNICAL DIRECTOR AT OPTICAL TECHNOLOGY TRAINING

In many territories around the world PONs have been deployed extensively for FTTH networks. In the UK we have been very slow to deploy FTTH but now, at last, we do meet the entry criteria for this year's FTTH Council's league table, albeit we're in last place.

This is because we have a lot of catching up to do – we should be deploying PONs very rapidly in the coming years if we are to move up the league table into second place by 2025 as the FTTH Council suggests!

So, PONs have been entered the consciousness of the UK at last! This growth in the market for FTTH systems has dramatically reduced the cost of transceivers for connecting to singlemode fibre. Gigabit PON transceivers are now available for less than £8 each.

Now that this stumbling block of transceiver cost has been removed, we can make the most of all the other benefits that POLs bring. These benefits include a dramatic reduction in the amount of equipment, space and power required to deliver high speed connectivity. Another benefit, of course, is the ability to support higher and higher data rates without any upgrades to the cabling infrastructure, so you can deploy at 1Gb/s data rates today and upgrade to 10Gb/s and beyond very

readily. All of this can be delivered over extended distances of up to 20km, so can cope with the largest industrial sites.

Of course, like all fibre systems if you want electricity then that needs to be provided separately, so if you're a fan of PoE then it's not for you.

Like any technology, it is important that you know what you're doing. There are a few things that are different abut PONs when compared with point to point fibre, particularly when it comes to testing and troubleshooting. If you're keen on following standards, then be aware that the international standards for premises cabling have not embraced PON technology at all, although they are a part of the US TIA premises cabling standards.

> 'Like any technology, it is important that you know what you're doing. There are a few things that are different abut PONs when compared with point to point fibre, particularly when it comes to testing and troubleshooting.'

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There is no single answer to this question. It can be put down to two main reasons – capital and operational expenditure (CapEx and OpEx) savings, each one of which can be broken down into multiple factors.

Before that, we need to look at some unique features not available in traditional LANs. Gigabit passive optical networks (GPON) have dynamic bandwidth allocation as part of the ITU GPON standard, which is not present in traditional shared LANs. Therefore you can give power users the opportunity for 'bursting bandwidth rates' when required.

The second factor is they are future enabled, as they are based on singlemode fibre. Whilst providing ultimately flexibility, you can design an installation that will support both 1Gb/s and 10Gb/s at the same time and only upgrade the users that require the higher speed when needed. This could be as simple as updating the firmware at both the optical line terminal (OLT) and optical network terminal (ONT) in a matter of minutes from the central OLT, without doing anything at the physical layer.

Let's look at the CapEx argument. Without active devices in the distribution layer, it leads to the following savings, which includes, but is not limited to:

- Removal or, at the very minimum, a reduction in the requirement for intermediate distribution frames (IDF)/ telecommunications rooms (TR) on each floor. This leads to reduced equipment costs, along with the related power/ HVAC requirements and costs.
- Reduction in the need of pathways and cable trays etc.
- Faster deployment and reduction in labour costs.
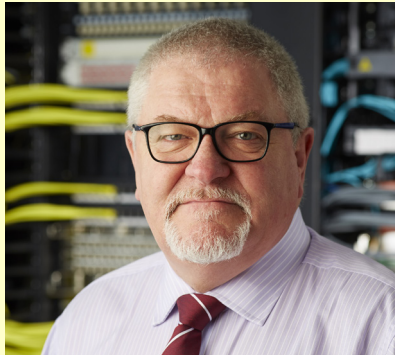
OpEx savings can be even more convincing, as some case studies claim in excess of 60 per cent savings per annum over a traditional LAN. This includes, but is not limited to:

- Reduced power requirements with the removal of the distribution layer.
- The removal of the related HVAC requirements to cool the TRs/IDFs.
- Maintenance upgrades are far easier to deploy as they are all centrally managed.
- Better efficiencies when deploying PoE, as the smaller lengths of and fewer copper cables are not affected in the same way as large deployments in traditional LANs.

This is all before you start to consider that PON is based upon carrier grade equipment, designed to operate for a minimum of 25 years, whilst providing the level of security unheard of in traditional LAN.

> 'Whilst providing ultimately flexibility, you can design an installation that will support both 1Gb/s and 10Gb/s at the same time and only upgrade the users that require the higher speed when needed.'

JAN MIDDELDORF
SENIOR PRODUCT MANAGER AT NEXANS

Compared to a traditional LAN infrastructure, a passive optical LAN, based on singlemode fibre optics, offers some important benefits. The amount of fibres and active equipment in the central office can be reduced, for example. Longer distances can be covered with optical cabling and the need for floor distribution rooms – a necessity in a traditional LAN infrastructure – is eliminated. Combined with improved energy efficiency, this may result in significant savings, while passive splitters can be placed anywhere in the midspan of the fibre network.

However, like any PON, a POL is a point to multipoint infrastructure. A shared medium is used for communication, which raises several issues:

- From a security perspective, sharing multiple connections on a single fibre is less than ideal.
- Available bandwidth is split into an existing ratio – either 1:16, 1:32 or 1:64.
- Limited flexibility during rollouts may result in over specifying. For example, you might only require one port in a specific location but will have to install 16. Upgrades will affect every connected client, and it is impossible to upgrade one single client.
- PON is based on singlemode fibre optics, which requires bidirectional optical transmission technology to filter the used wavelength. Using more cost effective multimode optical fibre is not possible.
- The shared fibre and splitter act as a single point of failure for all connected ONT and clients. Risk of failure is normally mitigated by introducing redundancy topologies. However, this is not possible with PON/POL installations.
- The active technology in a passive installation is highly complex. To ensure all features are supported, the OLT and ONT should be sourced from a single vendor, which limits choice.

These disadvantages are avoided with point to point optical LAN infrastructures. Fibre to the office (FTTO), for example, offers performance equal to or surpassing PON. Besides lower energy usage and support for sustainability enhancements, FTTO offers high bandwidth reserves, advanced redundancies and easier rollout, management and maintenance.

POL offers several benefits over traditional copper based LAN infrastructure. However, when designing and specifying a solution, it is vital to take a number of disadvantages into account, related to security, bandwidth and update scenarios. If the benefits of a POL solution don't outweigh the potential drawbacks, a point to point solution may be preferable!

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'If the benefits of a POL solution don't outweigh the potential drawbacks, a point to point solution may be preferable!'

JASON JAMES
TECHNICAL DIRECTOR AT HELLERMANNTYTON

There has been substantial growth in the deployment of PON and until very recently this growth was all in the FTTH market. POLs are the indoor equivalent of the FTTH PON network and the traditional LAN industry is starting to recognise some of the benefits of migrating this established technology into the traditional LAN space.

There are several notable advantages to PON/POL deployments including increased reach length, deployment speed and simplicity. However, in my opinion the main advantage is the benefit that the physical layer will bring to not only the deployment of gigabit speeds of PON (GPON) but 10Gb/s and 40Gb/s advances that will see PON networks operating at speeds similar to Ethernet networks. The large scale deployment of fibre in the physical layer – depending on final network configuration – will also enable the migration of PON to Ethernet and the coexistence of several protocols on a shared physical layer.

Whilst advantages can be clearly demonstrated, there are also several disadvantages to a PON/POL style deployment model. At present there are only a few manufacturers of PON hardware and many of the big names in LAN switching hardware do not produce PON equipment.

The need to utilise singlemode fibre as the physical layer for PON/POL distribution will mean something of a rethink for many traditional installation companies, especially as the quantity of physical infrastructure is likely to reduce. Another big disadvantage is the need to deploy optical network units (ONUs) at the end of each fibre to manage the receiving and transmission of data over the physical network. If every desk location requires this additional piece of hardware, which is already incorporated into desktops and laptop for Ethernet transmission, then this will negatively impact deployment costs, as well as possible space requirements and maintenance.

Part of me wonders if the current interest in POL technology in the enterprise space is being driven by the saturation in the market of suppliers, and if POL is simply a strategic way of differentiating a company in order to illicit conversations with new and existing customers. However, PONs will continue to grow in popularity in some markets where the benefits outweigh the drawbacks. This technology will steadily increase the deployment of fibre in traditionally LAN environments and, of course, PON in the FTTH arena will be the mainstay for perhaps a generation or more.

'At present there are only a few manufacturers of PON hardware and many of the big names in LAN switching hardware do not produce PON equipment.'

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JOHN COLTON
TECHNICAL DIRECTOR AT THE FIBREOPTIC INDUSTRY ASSOCIATION

The key driver for the growth in popularity of PON deployment is efficiency. The PON access network design is not the optimum full fibre solution for the ultimate capacity (bandwidth) and flexibility, but it makes the most efficient use of assets.

It minimises the fibre count in cables and the equipment required at the head-end/ exchange, whilst providing the subscriber with the potential for assured speeds that only fibre can support in the last mile. It does this by using splitters in the outside plant to achieve a 1-32 or 1-64 broadcast service to multiple subscribers.

Minimising the fibre count in a cable is important to incumbent network operators, as it minimises the cable size and hence the space required in existing ducts, whilst also ensuring that the cables back to the exchange building are manageable. This has been a very important consideration for traditional operators, as they have legacy equipment and services that can't just be abandoned to free up space for the next generation of fibre access network.

Having rapidly gained popularity with large incumbent operators, the PON equipment on the ends of the fibres, optical line terminal (OLT) at the exchange and optical network unit or terminal (ONU/ONT) at the home/premise, has been manufactured in huge quantities. PON equipment has thereby benefited from economies of scale in production, together with competition between vendors for the market reducing the costs to ensure that PONs are the lowest cost fibre access networks to deploy.

There is currently a land-grab, as operators recognise the need to be first to deploy full fibre access networks in an area. This comes at a cost, so the lower capital costs with PONs are a key advantage. The main disadvantage of a PON is that testing through a splitter from the head-end is more difficult, but modern PON equipment has more self-diagnosis capability than earlier versions, which has eased fault detection and investigation concerns. Other disadvantages include distance issues and contention with several users effectively sharing the available bandwidth, but the equipment manufacturers have ensured these factors are well mitigated.

'The PON access network design is not the optimum full fibre solution for the ultimate capacity (bandwidth) and flexibility, but it makes the most efficient use of assets.'

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Protect installations with cable management solut

▶ The issue of cable management is becoming more noticeable within data centres, where the need for high density installations means that there is an abundance of copper, optical fibre and power cables that can be installed within walls, under the floor, suspended from the ceiling or in overhead containment.

Managing cable efficiently can present a plethora of challenges. Many factors need to be considered during the installation planning phase in order to ensure that cables are mapped, routed and organised in the most effective way.

If insufficient consideration is given to cable management as part of the planning process, problems can occur post-installation. Investment in robust cable management solutions during the planning and implementation stage of an installation can help to ensure that a system is easy to both maintain and develop moving forwards.

The future of data centre cabling is forecast to predominantly lie with singlemode fibre and passive optical network (PON) installations.

> **CLICK HERE** to read more about the Future of Fibre and the Rise of PON in our selection of white papers.

The fragility of fibre cabling means it is critical that any chosen cable management solution provides enough support over long runs and maintains optimum bend radius to prevent over extension of the cable, ultimately prolonging the lifetime of the installation.

Some of the most important factors to consider when selecting a fibre cable management system are:

• Cleanliness

Any contamination in the fibre connection can cause failure of the component or failure of the whole system. Even microscopic dust particles can cause a variety of problems for optical connections.

Aside from taking necessary precautions when installing the fibre using appropriate cleaning methods, the cable management solution can play an important role in continuously protecting the system throughout its lifespan.

The Excel Enbeam Fibre Duct Trunking System is supplied with covers to keep dust particles and contamination away from the cable.

• Stress relief

To ensure system longevity, it is important that any fibre optic cable maintains its optimum bend radius, without excessive strain on the cable. As soon as this is compromised the whole network could be adversely affected.

> For more insight into the importance of fibre cleaning **CLICK HERE** to view Excel's Infographic and **CLICK HERE** to read the Fibre Cleaning Guide.

Excel offers many 'within rack' cable management solutions that can help to alleviate strain. An angled V-Shaped patch panel and angled keystone jack solutions create the ideal angle and bend radius for the patch cords,

effective
ions

removing any stress on the cable and helping to maintain high performance levels, whilst also negating the need for additional front-facing cable management within the rack, increasing available rack space.

Front-facing solutions in the form of cable manager bars or magnetic management solutions can be used to ensure patching cables are uniformly installed and controlled into a fibre panel, and are designed to maintain the correct bend radius to ensure maximum performance. These solutions can be supported by the use of Velcro cable ties to bundle cables together efficiently.

In addition to 'within rack' cable management solutions, choosing an effective fibre ducting system is vital. Reducing strain by choosing a system with pre-defined elbow joints that can be easily suspended above the racks and out of the way of through traffic will guarantee the longevity of the fibre installation.

• Future proof
In a data centre environment, where cable is running from cabinet to cabinet and the network infrastructure is constantly evolving, there is likely to be a need for additional racks to be installed without disturbing or damaging the existing cabling.

To ensure a system is fully future proof from the moment it is installed, it is worth investing in a system that provides side access modules and segmented pieces of trunking, which allow installers to quickly and easily add new routes into the existing network.

• Flexible
Piecing together in individual segments, Excel's Enbeam Fibre Duct Trunking System is flexible and adaptable to an endless array of installations. A range of unique trunking segments in a variety of bend radii and lengths connect together in an infinite number of ways, allowing users to create a fibre storage solution that is fit for purpose. The dynamic nature of this flexible fibre ducting system makes it an effective choice for an environment, which continuously evolves.

CLICK HERE to view the complete range of trunking segments in the Enbeam Fibre Trunking System catalogue.

• Life expectancy
Excel offers Excel Partners a comprehensive 25 year warranty, demonstrating its confidence in its cable management solutions. This confidence echoes through to the end user, who can be safe in the knowledge that providing the criteria of the warranty is met, their installation will continue to operate in accordance with the original specification.

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Rack 'n' roll

Rack ready architectures remain the foundation of today's critical IT applications and Marc Garner of Schneider Electric looks at why customisation is key

▶ Today's hybrid IT environments are becoming ever more complex. Prolific data generation, coupled with increased use of virtualised applications, means today's businesses require high density compute, superfast connectivity and greater levels of local processing. Gartner predicts that by 2025, 75 per cent of enterprise generated data will be created and processed outside of a traditional data centre or cloud.

MAKING A MOVE

For many businesses, the evolving adoption of edge computing continues to be a complex reality – one that brings with it brings with it a myriad of challenges including uptime, management, latency and application availability.

As more companies succumb to the challenges of digital transformation, the outcome has seen a change in the IT ecosystem. Moreover, many of today's businesses require a combination of smaller, localised, on-premise edge computing solutions, mid-sized colocation facilities and cloud services from internet giants to digitise and drive growth into new markets or regions.

A shift in customer expectations has also seen an explosion in industry collaboration, with infrastructure vendors, original equipment manufacturers (OEMs), IT providers, software specialists, managed service providers (MSPs) and systems

integrators becoming dependent on one another's skillsets. This integrated approach has become key to predictable, cost effective IT deployments.

Here, no one solution fits all and whilst many fundamentals remain the same, standardisation, modularity and reference designs play a critical role in helping businesses transform – regardless of their choice to own, outsource or combine a multitude of data centre services.

JOINING FORCES

Another consideration is how one chooses to maintain a more distributed IT environment. This might include how to address skills shortages, or the ability to manage and monitor a greater number of physical locations. One thing is clear – it's neither cost effective, nor possible, to have a maintenance specialist on-site at every edge site. Therefore a collaborative approach to design, pre-integration and deployment, in addition to the use of cloud based management software, has become crucial when aiming to ensure minimal downtime.

Often overlooked as one of the most basic IT requirements, a rack system's primary goal is to create the base on which a scalable and repeatable architecture is built. Once the

foundations are laid, it provides what will inevitably become the building blocks of a company's future IT environment.

CLOSE TO THE EDGE

One of the drivers of edge computing has been the explosion in digital traffic and with it the resulting phenomenon of big data. IDC has predicted that by 2020 there will be 44ZB of data created in Europe alone, based on the assumption that the same amount of information will potentially double every two years.

With more information being generated by connected devices, predictability and speed of response remain vital. The rapid surge in data creation and the consequent demand for more distributed edge solutions is causing the industry to diversify along two routes.

In one instance, data centres have become bigger, ensuring huge capacities are available from centralised hubs. In another, smaller single rack solutions have moved to the edge of the network, bringing data closer to the point of consumption, simplifying internet traffic and reducing latency for bandwidth intensive applications.

As the internet of things (IoT) continues to grow many of these smaller data centres are expected to deliver same levels of security and resilience as their larger counterparts. They are often built on the same standardised
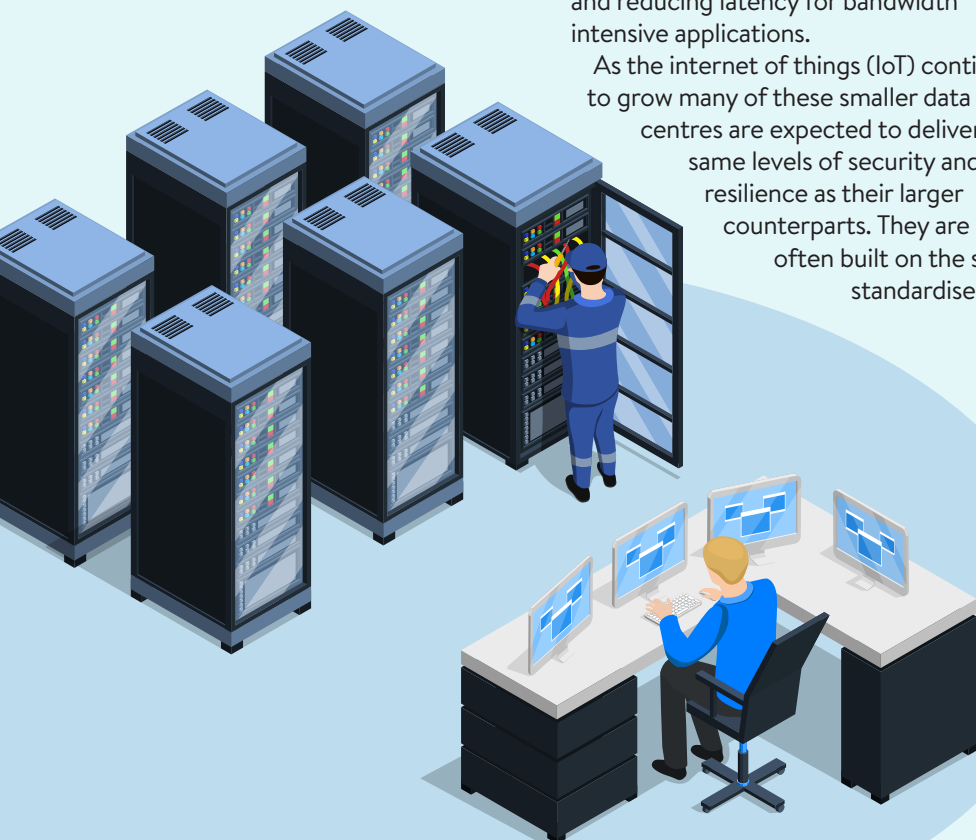
technology and many of today's rack architectures are not only used to facilitate edge solutions, but are found inside the white space of colocation facilities.

DIGITAL WATCH

In the era of digital transformation, collaboration within an ecosystem of vendors, OEMs and service providers is essential. No single technology company can deliver all of the components required by an end user. Therefore, interoperability and speed of response are crucial for the creation of these scalable and quick to deploy edge computing solutions. System integration also remains an important aspect, as the way a solution is built, pre-tested and pre-configured is absolutely critical to its success.

Within the edge computing space, micro data centres are typically built on a single rack enclosure complete with integrated power, uninterruptible power supply (UPS), power distribution, cloud based management software, environmental monitoring and cooling. Where required, hyperconverged software can also be combined with servers, storage, networking and

physical security to create a repeatable and predictable, self-contained, secure computing environment.

However, the ability to customise the design is also important for the end user. One should remember that the type of server, storage, rack, power and cooling remains the choice of the customer. Therefore, utilising standardised rack based reference designs, in addition to digital configuration tools, enable the decision maker to preconfigure, test and cost their desired IT solution, prior to making the final selection.

SIZE MATTERS

For larger colocation and hyperscale data centres, the ability to accommodate rapid growth is a key part of the customer decision making process. In today's market,

'Rack systems must provide a customisable architecture and deliver flexibility for those looking to embrace digital transformation.'
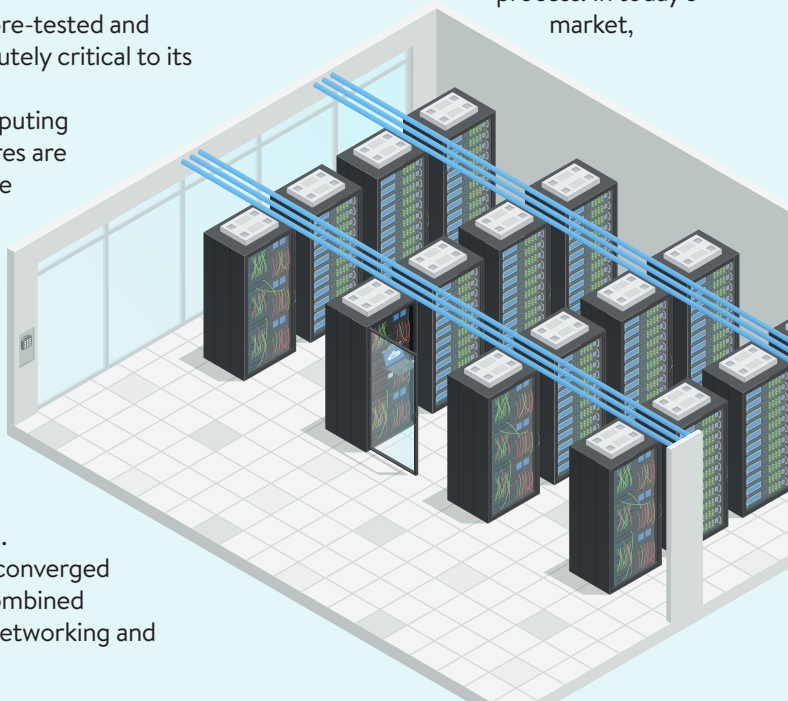
prefabricated modular blocks can solve many of these challenges and typically include all of the racks, power, cooling, management and IT, deployed together as a pod, which is defined as groups of racks arranged in rows and sharing common infrastructure elements.

Other uses of pod style architectures include rack ready data centre systems, which enable the user to preconfigure all cabling work overhead to allow flexible and fast scaling. In this scenario, pods can be used in hot or cold aisle cooling configurations to allow greater choice when considering how to cool the IT component, which is simply pre-integrated and rolled into place when required.

CASE IN POINT

Recent analytical studies by Schneider Electric's Data Center Science Center, based on standardised reference designs, provide an overview of the savings in both the time and costs that can be achieved when using a pod frame.

Taking the example of a 1.3MW IT load distributed across nine IT pods, each containing 24 racks, a comparison was made between deploying the racks using an IT pod frame, as opposed to a traditional deployment. The findings of the study showed that capital expenditure was reduced by 15 per cent and speed of deployment reduced by 21 per cent when a pod was used, compared with traditional methods of deploying rack based data centre systems.

IN CONCLUSION

Predictability and reliability remain key considerations for today's IT environments. With the increase in collaboration, edge solutions have become more standardised, pre-integrated and tested, to exceed customer expectations and meet faster deployment times. Rack systems must provide a customisable architecture and deliver flexibility for those looking to embrace digital transformation. Whether using an IT pod frame, deploying a hyperconverged IT application or an edge computing solution, rack technology provides the essential building blocks for rapid scalability, enabling significant and predictable cost savings when deploying new IT resource. ■

MARC GARNER

Marc Garner is vice president of Schneider Electric's Secure Power Division in the UK and Ireland. He is a 13 year veteran of Schneider Electric, having joined the company after graduating from the University of Sunderland. Garner is tasked with continuing the successes of Schneider Electric's integrated power, cooling and software solutions for data centres, server rooms and edge computing installations.

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The Hexguard is the cable pathway for the patented Mighty Mo 20 Cable Management System.

BENEFITS

- Provides passage for up to 48 CAT6 cables
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- Shortens overall cable lengths between racks
- Maximises cable passage

MIGHTY MO 20 CHANNEL RACK

EASY ASSEMBLY

MOUNTABLE INSIDE

COPPER

FIBRE

FEATURES

EASY SNAP FIT ASSEMBLY

- Assembles to newly installed cable bundles or snaps over existing cable bundles
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INSIDE MOUNTING

- Can be installed in half sections for single sided protection
- Creates 360° of protection for cable bend radius
- Mounts to inside or outside of channel rack
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COPPER PASS THROUGH

- Accommodates large copper bundles without disturbing existing cables
- Directs cable pathway throughout the channel
- Available in black and white

FIBRE PASS THROUGH

- Accommodates large fibre trunk bundles without disturbing existing cable
- Maintains proper fibre cable bend radius

L legrand®

Excel Networking Solutions

Excel Networking Solutions' Environ racks, cabinets and open frames offer exceptional quality. This comprehensive range is suitable for a wide range of applications in the enterprise, data centre and security markets, as well as for every day 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. This offers customers a flexible service, which is proven to reduce installation cost and time whilst providing a fully tested, fully traceable, 100 per cent inspected product.

To find out more **CLICK HERE.**
www.excel-networking.com

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Nexans

Data centre pathway systems are complex and need to support multiple services, which include cooling and power in addition to copper and fibre optic cabling. It is therefore considered best practice that fibre cabling should be routed in separate pathways, away from other heavier power or copper cables.

Nexans' FIBREROUTE is a modular trunking system, which provides a dedicated, rigid fibre optic pathway. It protects cables and helps maintain high speed transmission, while adaptors that connect channels and fittings control the bend radius of fibre cables and MPO trunks. Moves, adds and changes are easy, as fibre cables are separated from larger horizontal copper bundles. Expansion and interconnection with channels of different sizes can also be executed quickly.
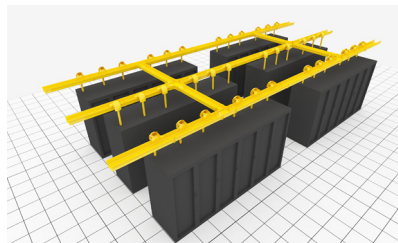
In addition, Nexans has launched FIBREROUTE Planner, a software tool that makes it possible to create FIBREROUTE trunking system layouts to scale. Designers can quickly and efficiently create professional data centre layout drawings showing racks and trunking designs.

CLICK HERE to discover Nexans' FIBREROUTE trunking system.
www.nexans.co.uk/LANsystems

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Comms Express is a reseller and distributor of computer networking and data centre equipment. Established in 2002, Comms Express is a major outlet and first choice for supplying the trade and IT professionals with high quality networking equipment.

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We can also support your requirements with a vast range of accessories including cable management, cooling units, data centre equipment, power distribution and more.

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Chatsworth Products (CPI)

Chatsworth Products (CPI) has announced UK stock availability of its second generation EF-Series EuroFrame Cabinet. The EuroFrame Gen 2 is a cost effective cabinet solution that is designed to minimise deployment time and resources by offering a quick and easy to install storage solution, whilst still providing the high performance and quality associated with the CPI brand.

Launched in 2017, EuroFrame Gen 2 manages and protects cabling and equipment in a simple and reliable, yet affordable way. Its progressive design allows for scalability and network upgrades, whilst supporting airflow and cable management best practice, as per EN 50600 recommendations.

This cabinet solution has been constructed to meet today's data centre requirements for high density switching and server applications. The cabinet is available in several standard configurations including 42 and 47 rackmount units, 600mm and 800mm widths and 829mm, 1029mm and 1229mm depths, as well as options with patented Vertical Exhaust Ducts. The product has also undergone a recent 'facelift' and is now supplied with a curved front door design for improved airflow and aesthetics.

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

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HellermannTyton

HellermannTyton provides a complete end-to-end range of fibre to the X (FTTX) solutions, delivering fibre from the point of presence (PoP) to the building and through to the customer termination point.

HellermannTyton's new range of MDU fibre distribution enclosures strengthens its FTTX product portfolio. Adding the new MDU enclosures allows the company to offer a full end-to-end 'last mile' fibre solution providing installers, engineers and network designers with a one-stop-shop of products for every step of the fibre network.

There are three new MDU enclosures in the series. The MDU-S5 is the larger enclosure presenting up to 96 connectorised fibres or 432 fibre splices. It provides a number of options, giving the installer total flexibility. The smaller MDU-S3 offers up to 96 fibre splices and is built with a loop storage basket option. Finally, the MDU-S1 can be pole, facade or wall mounted with eight connectorised fibre drops, making it perfect for smaller buildings.

All MDU enclosures are stylish, compact and come with an IP54 rating.

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

Excel Networking Solutions

Excel Networking Solutions has a host of products in its Environ rack portfolio that are specifically designed to help with the installation and management of cabling components.

This diverse range of cable management solutions is compatible with the complete suite of Environ racks, cabinets and open frames, providing the end user with flexible options, whichever enclosure they choose to install.

The selection of cable management solutions comprises metal and plastic management bars and rings, vertical finger management units and trunk cable management solutions, among other products.
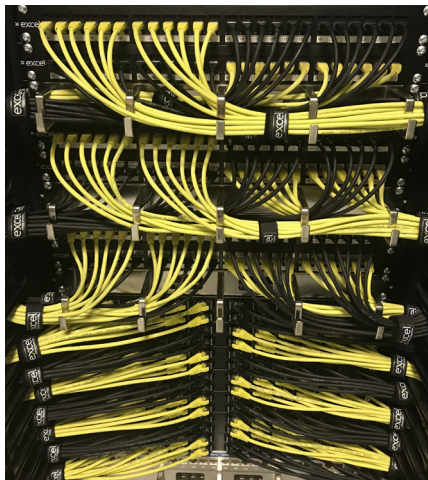
This selection of solutions allows for the concise management of cables into the sides or the back of a rack, giving the same features and benefits of an open frame within an enclosed rack profile.

With so many options available, the Excel Environ solution provides simplicity, flexibility and specification by design, allowing the end user to create bespoke configurations for their applications.

For further information **CLICK HERE.**
www.excel-networking.com

EDP Europe

Aisle containment, as part of an airflow and thermal management strategy, improves cooling optimisation and thermal performance, and delivers potential energy efficiency gains at computer room air conditioning (CRAC) unit level, by removing operational inefficiencies caused through poor airflow management.

EDP Europe's hot and cold aisle containment solutions are fully flexible, customisable and cost effective, and can be utilised in new build data centre projects or retrofitted within existing/legacy environments.

Bespoke design capability enables us to deliver a solution that is tailored to a customer's requirements and is independent of cabinet manufacturer. It can be designed to fit any configuration of rack heights and widths, aisles with varying widths, obstructions or aisles that are offset or have empty rack positions.

EDP Europe's containment offering includes metal, Perspex or polycarbonate infill panels; PVC curtains; fixed, passive and active drop away roof systems; and double or single clear path soft closing sliding doors.

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

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Retail
therapy

Domenic Trapassi of Ortronics/Legrand looks at how the retail sector is benefitting from edge computing and what to consider when selecting a cabinet for this type of environment

▶ Over the last two years, we have seen plenty of discussion about edge computing. The basic principle around this involves getting computing power closer to the end user in order to decrease latency of computing from the user back to the data centre, and then back again. There are many areas of our daily life that are viewed as perfect opportunities for edge type applications – some of these include banking, hospitality, office spaces and medical. However, none are more obvious to our daily lives as the retail environment.

SHOPPING AROUND
Retail spaces include many areas such as coffee shops, shopping centres, large stores, smaller boutiques, pharmacies, and grocery stores. We are touched by these businesses multiple times daily and there is a growing expectation from patrons

that the spaces be more technologically fresh and create an exciting, yet simple, experience for them.

The edge environment offers a unique opportunity for retailers as well as customers.

CUSTOMER EXPERIENCE

Let's look at the customer first. Some of the areas that customers are benefitting from edge are self-ordering stations in retail locations for fast food and coffee shops, as well as self-checkout lines at grocery stores and pharmacies. Some retailers are even offering customer satisfaction feedback kiosks in these locations. This provides the customer with a chance to voice their opinion in real time and create a possible area of change.

Customers may also be interested in interactive signage and O2O terminals. These allow the customer to enhance their in-store shopping experience using online tools. Customers can research product listings on the spot. All these things need to be performed quickly for the experience to be beneficial to the customer.

BUSINESS BENEFITS

Retailer and/or franchisees are also benefitting from the speed and simplicity of edge computing. Retailers can gather information about their specific location on demand, while daily sales and performance trends can be analysed on the go to help increase sales. With computing power close at hand, the manager or franchisee can manage inventory easily and adjust it based on daily sales trends. Heat mapping can be used to see where customers are spending their time.

These areas can be used to fortify the items that are selling well, but also help to create sales of low selling items. The use of inventory management is simplified and mobile reports can be generated daily to give multiple franchise owners precise locational information.

Managers can also use local systems to manage energy consumption and monitor cooling devices to save inventory. Temperature controls, lighting controls

'Temperature controls, lighting controls and other user environment enhancement features all require advanced computing. Even in-store digital signage and advertising can create and stimulate sales within a single location.'

We are seeing edge computing installed in managers offices, hallways, back rooms, and even in customer facing areas, whether at eye level or on poles above. This means that the computing equipment needs to be housed in a smaller type of cabinet.

Wallmount cabinets are becoming an important part of the trend towards edge computing in retail. They are small, easy to deploy, easy to access and can be set up to be secure and self-contained.

Strategic direction

Traditional IT personnel may not be part of the long-term strategy for upgrades and maintaining edge computing cabinets. This is particularly true at franchise locations, where the home company may be many miles away and only loosely in charge of the IT equipment. The store manager or local IT person may be required to do some of the maintenance on these in-store cabinets.

If the system goes down at that location, there is no time to waste and steps need to be followed to get the store up and running. Consistency becomes an important part of the deployment.

The corporate IT department wants to know that the edge computing boxes, which are out of their sight, are all set up the same and all have the same equipment. This becomes important when creating troubleshooting guidelines and making installation as easy as possible.

and other user environment enhancement features all require advanced computing. Even in-store digital signage and advertising can create and stimulate sales within a single location.

Trend setting

Facilitating the emergence of edge technology is the difficult part, as all this computing power and technology needs a space saving, secure and rugged environment. But with retail locations, large and small, needing to take advantage of every square foot to create retail sales, space is at a premium. Many retail locations do not have space set aside for traditional data closets or computer rooms.

SIMPLIFIED **EDGE**

make the product more consistent and reliable.

Weight and see

Look for things like UL load ratings that refer to the payload only and do not include the weight of the cabinet. Make sure there are considerations for non-rackmount equipment, as many of these local area networks are made up of many different parts. Collaboration on design will make for a solution that provides the computing needs of the network and future expansion for an even better customer experience and increased sales analytics. ∎

Selection procedure

There are four major key elements to an edge computing cabinet that should be considered during the selection process – security, compact size, weight load rating, and ease of connectivity.

Not every location and situation will fit any single cabinet, therefore, choosing a vendor that has a robust product offering is vital. Cabinets from a power company or from a connectivity company may not be the best solution. There is no need to choose a product that is just 'good enough'.

A complete product solution for a single branded edge computing system will include a well engineered, fully tested wallmount cabinet. But it will also include a delivered on-site integrated solution consisting of power, cooling, connectivity, and security. That will make ordering simple, take the integration off local IT, and

DOMENIC TRAPASSI

Domenic Trapassi is product manager racks and cable management at Ortronics/Legrand and has been in this position for the last three years. Prior to this he held various positions at Legrand including in the sales department, where he worked with a number of customers in developing custom applications.

Saving time and money on network troubleshooting

▶ ISG Technology specialises in rapid digital transformation services with expertise in the retail, automotive, hospitality, quick service restaurant and ICT and telecoms sectors.

New and improved

The company's network and cable test equipment must provide a fast and simple solution. 'Time pressures are always a factor,' explains Justin Hill, senior engineer at ISG Technology. 'Customers want to get up and running as quick as possible and avoid downtime – and we want to get the job done as fast as we can.'

Although the company's previous testers met many of their needs, the cost of the equipment and support was proving extremely expensive. ISG wanted an option that performed as well, if not better, than their existing network troubleshooting testers, but at a more competitive price. This led them to IDEAL Networks' NaviTEK NT Pro.

NaviTEK NT Pro delivers features needed for a wide range of ISG's services, such as port information, IP address, VLAN service detection and power over Ethernet (PoE) tests. IDEAL Networks also ensured that the software for the tester supported all the switches that ISG's maintenance engineers commonly need to work with.

The company purchased seven NaviTEK NT Pro testers in total as well as fibre kit accessories.

Light work

Whether working with copper or optical fibre cable, the lightweight handheld NaviTEK NT Pro is easy to transport across large sites and makes working in confined spaces simple.

'It is a more convenient and efficient alternative to network troubleshooting using a laptop or software tool,' explains Tim Widdershoven, IDEAL Networks'

IDEAL NETWORKS

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marketing director. 'Plus, a single tester can meet multiple needs, from checking a device is on the right VLAN to detecting the IP information or checking cable length for compliance with standards. This means less equipment is needed for efficient troubleshooting.'

Finding fault
ISG's engineers can now identify faults from one place on-site, rather than moving between different locations. This not only simplifies testing and troubleshooting but also saves a significant amount of time – especially on big commercial sites.

'As the tester can locate cable breaks, shorting pairs and incorrect wiring, we no longer have to trace the cables manually,' says Justin Hill. 'You also don't need to plug in to both ends of the cable unless you're doing a wiremap, which makes troubleshooting much easier. Before, our testers provided limited connectivity details, so we'd frequently need to ring up network departments in large organisations to get hold of certain information. Now we can get the

information we need more independently, which saves a lot of time. We're also able to quickly find out when an issue is not related to ISG's part of the job, so we can simply pass it on to the relevant team to fix before we start.'

Feature and benefits
NaviTEK NT Pro offers several features to help boost on-site efficiency, such as the VLAN detection feature, and port and network information can be easily identified to make sure that devices are correctly configured. Cable tests also make it simple to tell whether a device is using PoE or not, and if it is getting enough power.

'The display on the NaviTEK NT Pro was instantly better than on any of the products we have used before, with a bigger, easier to read screen,' states Justin Hill. 'We had some telephone support at the outset to learn how to do exactly what we needed to and IDEAL Networks has always been there for us at the end of the phone.'

Proof positive
Some customers want a report on the performance of the cable to prove it is working as intended and more easily identify the cause of any future faults. Using the free IDEAL AnyWARE app, the NaviTEK NT Pro provides excellent reporting and Justin Hill concludes, 'We are now able to export reports from the tester and send them to clients from our mobile phones.'
For more information **CLICK HERE.**

www.idealnetworks.net

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Leviton celebrates success at the Fife Business Awards

Leviton Network Solutions Europe was recently awarded the prestigious Outstanding Business Award at the Fife Business Awards. The award recognises the company's longstanding history as a successful global cable manufacturer with its roots based in Fife. Leviton Network Solutions Europe, formerly Brand-Rex, has been designing and manufacturing advanced cable and connectivity solutions from its head office in Glenrothes since 1972.

L-R Altany Craik, Ian Wilkie and Fred MacAulay

Alan Mitchell, chief executive of Fife Chamber of Commerce and judge, commented, 'What particularly impressed us was the ambition the company has to be a major player on the global stage, and the investment that it is making in the Glenrothes site and its workforce to achieve these international ambitions. The longstanding Go4SET project with Kirkcaldy High School was a very vivid demonstration of its commitment to create a sustainable, long-term future in Fife and improve future career opportunities for young people.'

Ian Wilkie, managing director of Leviton Network Solutions Europe, who received the award, said, 'To receive the Outstanding Business Award in Fife is a testament to all of the employees who work hard to serve our global customer base from Glenrothes.'

Excel Networking Solutions appoints new Australia territory manager

Glenn Rockley has joined the Excel Networking Solutions team in Australia, with specific responsibility for the New South Wales (NSW) and Australian Capital Territory (ACT).

Working alongside, and reporting to, John Carrier, the Excel country manager for Australia, Rockley will help build on the success since the brand was launched in the country in 2018. Excel is distributed through L&H, A Sonepar Company, which has a network of over 150 branches across Australia.

Glenn Rockley

Rockley commented, 'I'm delighted to join the team. The opportunity for the Excel brand is huge in Australia and I'm excited to work with John and L&H, A Sonepar Company, to help promote Excel and help grow the sales across my specific regions.'

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HellermannTyton signs strategic supplier agreement with CityFibre

HellermannTyton has been awarded a strategic supply framework agreement with CityFibre for the provision of passive network components for use in CityFibre's £2.5bn investment programme to rollout full fibre to five million homes across the UK.

The agreement, which includes a multimillion pound order, strengthens the existing relationship, which has seen HellermannTyton supply network components to CityFibre for many years. As part of the new deal, HellermannTyton has produced a range of solutions specifically designed to meet CityFibre's requirements, including street cabinets, underground fibre closures and aerial fibre nodes. A significant proportion of component manufacture and all product assembly will be based in the UK, providing employment security and opening opportunities for UK manufacturers.

Matthew Hunter

HellermannTyton's managing director, Matthew Hunter, commented, 'It's an exciting time in the UK for fibre deployment. For HellermannTyton to be involved in CityFibre's rollout plans provides benefits to both companies, cements our longstanding relationship and sets the foundations for it to continue long into the future. The agreement also represents a commitment to product quality through UK manufacturing, providing a responsive approach to customer needs.'

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CHANNEL UPDATE IN BRIEF

Pinacl has become the first Cisco Premier Partner operating in the small to medium sized enterprise space to achieve the Cisco IoT Authorization certification.

Bluepoint Technologies has acquired SDC Hosting and Support. The two companies will share offices at Colchester Business Park, but main operations will be kept separate. Bluepoint has also become a Systimax Select Installation Partner in CommScope's PartnerPro Network.

CommScope has completed its acquisition of ARRIS International.

EkkoSense has appointed Adrian Barker as its key account director.

Partners of Avaya in Ireland have signed more than twice the number of Powered by Avaya IX seats for unified communications over the past six months than were signed in the first six months after the product's launch in February 2018.

Quick clicks

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

Singlemode Fiber is On Rise. Are You Ready? is a blog from Mark Mullins of **Fluke Networks.** **CLICK HERE** to read it.

The World Wide Web Turns 30 – What's Next? is the question posed in a blog by Steven Vermeulen of **Nexans.** **CLICK HERE** to read it.

Seeing The Light – How Smart Lighting Will Shape Our Workplaces For The Better is a blog from Matt Salter of **ExcelRedstone.** **CLICK HERE** to read it.
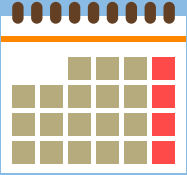
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CFD is Changing the Way we Design Data Centres is a blog from **Sudlows.**
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High Power Remote Powering Revisited is a white paper from **Excel Networking Solutions.**
CLICK HERE to obtain a copy.

Hitting
the target

A network infrastructure must meet current requirements and be ready for future challenges. The documentation and administration of networks is essential to this and Rahul Rathod of Nexans explains how automated infrastructure management (AIM) tools can help

▶ Networks everywhere, already struggling to keep up, are under increasing pressure. Trends driving this include exploding bandwidth demand, wireless technology developments, a threefold increase in power over IP networks, and convergence, as more systems interconnect on IT Ethernet infrastructures.
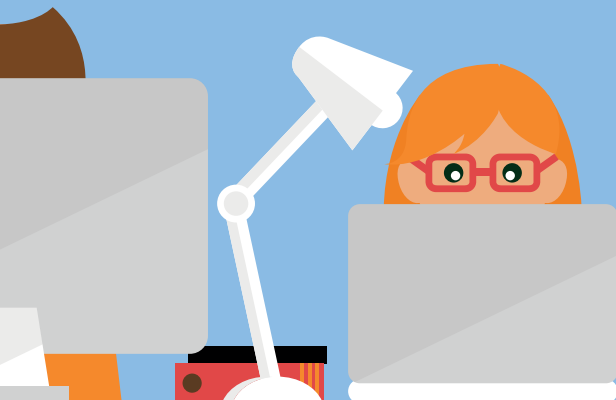
ON THE MOVE
In this fast moving environment, IT managers are required to meet high expectations, often with fewer resources and staff. Services need to be deployed rapidly by in-house or external teams. Switch and port utilisation must be optimised in order to maximise return on investment and avoid overspending or under-utilisation.

An up-to-date, full overview of physical infrastructure, including all devices, ports and structured cabling, make it easier to use and control the network more efficiently, and manage costs. For capacity optimisation and security, you need to know which device is available where, and

Detect   **Log**   **Map**

whether it has been authorised. Switches need to be mapped accurately to network outlets, and this information must be current and easily accessible for planning, troubleshooting and repairs.

MIDDLE MANAGEMENT
Tasks need to be automated and centrally managed. This reduces operational costs, improves asset management and

utilisation, and makes deploying new services easier. Most traditional methods such as spreadsheets, Visio, SharePoint and software documentation tools don't have the capability to diagnose and quickly resolve problems. They also increase the risk of error, which could have serious consequences for organisations in terms of higher costs, lost business, reputational damage or poor customer service.

Troubleshooting also takes significantly longer, as ports need to be traced to outlets, and implementing and testing moves, adds, and changes (MACs) can be extremely challenging, especially as port densities and the number of physical connections increases. 80 per cent of the time spent on problems is spent finding the problem. This extends downtime unnecessarily, leading to high mean time to repair (MTTR) and increased risk of disconnecting devices or applications.

Share   **Optimise**

NO GUARANTEES

Traditional documentation tools do not guarantee the efficiency and 100 per cent accuracy of updated physical layer documentation provided by AIM.

AIM provides a link between the physical and logical layer of the network. It automates cabling infrastructure documentation and offers an accurate, up-to-date overview of what is connected where on the network and allows fast and easy detection, monitoring and provisioning of connectivity, while reducing downtime. Non-automated solutions don't provide this clear picture of the current network status and history including all connected devices.

AIM doesn't replace network management systems, which don't drill down to the level of structured cabling and individual switch ports. Instead, AIM can work together with network management, allowing fast and easy monitoring and managing, benefitting end users and service providers. AIM ensures network managers are completely aware of how the network is physically laid out and can manage and control the network remotely, improving performance in identifying errors and significantly reducing failures.

LOOK BEFORE YOU LEAP

Here's what you should you look for in an AIM system:

• Compliance

Until recently there was no precise definition of what an AIM should be capable of. With the publication of ISO/IEC 18598 there is now a clear definition of AIM systems. This not only defines the scope of AIM but also addresses the requirements for a management solution to be called an AIM solution. Furthermore, the ISO/IEC 14763-2 standard recommends electronic record keeping in certain types of installations. An AIM solution should guarantee compliance with these standards.

• Documentation

IT is the most frequently outsourced service, but often cabling infrastructure

management is disregarded. Cabling only works as intended if you have a uniform way of storing and transferring information. Introducing AIM means always having current info about every network device, as well as a useful (historical) database.

Faults are easier to trace, as there is an accurate record of the condition of the infrastructure before the fault occurred. When an incident is resolved it is documented, making auditing less time consuming and costly. What's more, knowledge of cabling infrastructure documentation doesn't leave with a person or team. Decreased mean time to repair (MTTR) means staff can focus on key tasks, helping improve overall efficiency and productivity.

• Network port utilisation
Poor network overviews can mean excess capital and operational expenditure. Organisations may spend a lot of money on purchasing and managing new network switches each year and, if they're outsourcing IT, pay for management of unused switch ports. If ports are forgotten, unused or overpopulated it can take a lot of time and effort to find circuit information and identify end locations when provisioning new IT services or carrying out network maintenance without disruption.

'AIM can work together with network management, allowing fast and easy monitoring and managing, benefitting end users and service providers.'

• Security and automatic routing suggestions
Existing management software or network management systems are not designed to identify the exact physical location of a device. They can only detect the connection and provide information about rogue devices at the logical level through IP address and MAC addresses. This intrusion detection capability is performed at the logical layer of the network. The user can always decide to authorise the new connection or investigate further if it is deemed a rogue connection. With AIM, when rogue devices crop up, you'll know their precise location on the physical layer!

Get clear directions from port to outlet
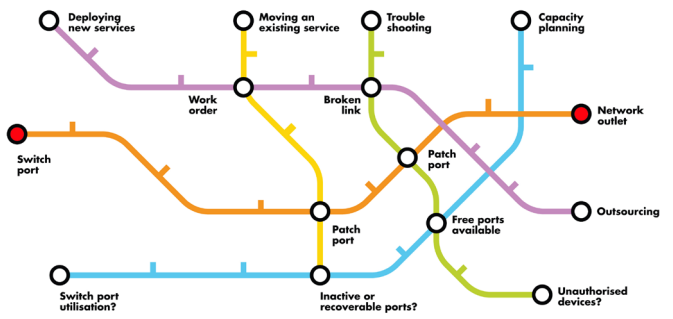
DEFINING MOMENT
During MACs the IT administrator often needs to provide services by complying with a service level agreement (SLA). For this to happen, the IT admin must be aware of the network details such as VLAN,

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availability of switch ports or end user outlets at room or desk level, as well as the available capacity of infrastructure resources etc. Network management systems and switch management software cannot suggest routing paths between physical cabling infrastructure during MACs and can't define critical circuits.

An AIM solution should allow you to automatically detect (dis)connects on the network, log current network changes, map end-to-end circuits to locations, share network documentation and optimise port utilisation. A single dashboard should show new and unauthorised devices, illegal patches, unused patched ports and instances of multiple devices on ports.

DIFFERENT STROKES

With AIM, IT managers benefit from real time physical layer documentation and can remotely monitor infrastructure performance. MACs can be planned, downtime reduced, security enhanced and IT resources efficiently utilised for troubleshooting. Also, reports and dashboards enable informed decisions to reduce capital and operational expenditure.

Data centre managers can trace circuits end-to-end, flag disconnects, find available rack space and make sure redundant and load balancing circuits are connected. Service operators and teams benefit from the fact that they can access dashboards and receive notifications easily and conveniently across different platforms and devices. Change logs and work orders are recorded, making audits and troubleshooting easy, while knowledge transfer and provisioning also become simplified. Meanwhile, end users enjoy faster service response, reduced MTTR, increased network availability, improved security and data process compliance support.

MUST HAVE

Complex, constantly evolving systems need to automate monitoring, control, asset management and utilisation, and service deployments. To satisfy compliance and legal requirements you also need status reports, trend analyses and audit trails. AIM can help realise this and makes it significantly easier to make informed decisions about expansions. What's more, centralised server, network and storage management means faster and easier maintenance and shorter response times. Material and energy consumption can be optimised and you can save resources.

In short, AIM is no longer a 'nice to have', but a 'must have' for managing and controlling physical networks. ∎

RAHUL RATHOD
Rahul Rathod is product manager at Nexans Cabling Solutions for LANsense, Nexans' AIM solution. Before this, he worked in a technical and business development role related to power, cooling, and data centre infrastructure management (DCIM) for Schneider Electric.

Nexans

LANsense AIM from Nexans is a management tool that automates the documentation of your physical network and allows you to manage it more efficiently.

It gives you 100 per cent up to date documentation of your network from port to outlet. Its dashboard provides real time info on unused switch ports, circuit disconnects as well as new and unauthorised devices – this will resolve network issues much faster and save on IT downtime costs.

LANsense is made of intelligent hardware and software elements. The hardware package comprises analysers, panels with sensor pads and patch cords equipped with a ninth pin. The software is a 64-bit web-based application that can even run on a smartphone.

Nexans new LANsense system complies with ISO/IEC 14763-2 and ISO/IEC 18598 international standards. It is fully compatible with current LANsense next generation analysers and all existing LANsense hardware.

CLICK HERE to discover the new LANsense range.
www.nexans.co.uk/LANsystems

Get clear directions from port to outlet

Deploying new services · Moving an existing service · Trouble shooting · Capacity planning · Work order · Broken link · Switch port · Patch port · Network outlet · Patch port · Free ports available · Outsourcing · Switch port utilisation? · Inactive or recoverable ports? · Unauthorised devices?

Excel Networking Solutions

Managing networks is such a vast term – it could mean anything!

When covering so many facets, what you get in reality is different people looking after different sections or parts of the network system.

One of the key areas that needs to be correctly managed is the physical layer of the system – the equipment. At the end of the day it is the first layer of the ISO model. The best way to manage physical equipment is to keep it secure and the Excel Environ Locking Solution allows customers to protect each and every device within data centres and comms rooms at rack level.

Environ Locking Solutions from Excel provide an ergonomic and stylish option for environments where security is paramount. The solution can be standalone, networked, integrated into access control systems and BMS, and can include biometrics.

Take a step towards making the management of your network devices simpler and easier, by ensuring only authorised personnel have access at all times.

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

Schneider Electric

Schneider Electric's EcoStruxure IT Advisor delivers a simplified way to deploy data centre management that is accessible anywhere and at anytime.

Leading the next phase of Schneider's expansion of the EcoStruxure IT platform, IT Advisor focuses on making data centre management and operations more efficient. This cloud based planning and modelling tool enables data centre operators of large data centres and colocation facilities to reduce operating expenses and maximise uptime by optimising capacity, analysing business impact, and automating workflows.
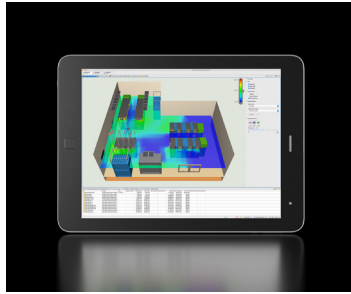
EcoStruxure IT Advisor's key features and benefits include:

• Asset management for accurate inventory. Data is shown within the physical layout for instant access to accurate device details and asset attributes.

• Risk planning for proactive incident management. The Impact Analysis report indicates how incidents may impact devices and infrastructure.

• Change management for all asset moves, adds and changes. Workflow automation ensures human error is reduced and best practices are deployed.

To find out more **CLICK HERE.**
www.schneider-electric.com

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R&M

R&M's R&MinteliPhy continuously and automatically monitors each connection in one or more data centres or local networks and a (remote) central server records the cabling status. It is an easy to retrofit system, requiring no special cables or patch panels. Updates are automatically generated when new devices are integrated or changes are made, and unused patch panels and ports in active equipment are immediately detected.
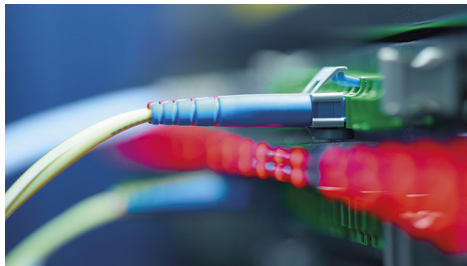
R&MinteliPhy Monitor and R&MinteliPhy Manage are two pillars of the AIM solution from R&M R&MinteliPhy Monitor consists of a small number of components that can be retrofitted:

• RFID tags for connectors
• Sensor strips for patch panels
• Analyser for network cabinets

R&MinteliPhy Manage is the client-server solution with central database in a LAN or in a cloud. It offers numerous functions that can be automated plus routing and planning tools and extensive libraries for the management of cabling and IT infrastructure.

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

Out of sight but not out of mind

Olivier Alquier of CommScope explains the benefits of investing in comprehensive network infrastructures and explores three key areas

▶ Let's face it, technology is sexy. The idea of using incandescent light as a wireless medium, the reality of foldable smartphones or 1Tb/s transmission speed is exciting and newsworthy, and people love it. Network infrastructure, on the other hand, can be a tougher sell.

MONEY MATTERS

The fact is, the only time an enterprise's local area network (LAN) infrastructure makes the news is when it goes down. Enterprise network managers do not get plaudits for maintaining 99.9 per cent uptime – they do, however, get called out on that 0.1 per cent when the network goes down. In today's business climate, the cost of an unplanned outage is enormous – about $3.86m per incident according to estimates from the Ponemon Institute.

Furthermore, in 2017, a typo at one of the world's largest cloud services providers took a large swathe of servers offline for four agonising hours. According to one estimate, it cost S&P 500 companies $150m and US financial services companies $160m in lost revenue.

Of course, the hit to a company's bottom line is just part of the damage. Any unplanned outage also affects business productivity, stakeholder relationships, supply chain logistics and everything else. The point is, network reliability and business continuity go hand in hand – it is a cause and effect. In addition, a reliable network infrastructure also helps with in-building wireless communication, stable connections between IoT devices, and support for today's variety of building management systems.

Therefore, a resilient and intelligent

network infrastructure can go a long way toward minimising the chances of an unplanned outage and maximising productivity across a business's entire enterprise.

INVISIBILITY IS KEY

Key to running a successful and trusted LAN infrastructure is a system that operates 'invisibly'.

understanding of how the various areas of a network infrastructure can upon impact network reliability. These infrastructures can be broken down into three key areas – automated infrastructure management (AIM), modular scalability and fibre network convergence.

• AIM

AIM systems give those responsible for network infrastructures visibility at the port device level. They constantly monitor all the physical layer connections and alert personnel to any changes or potentially disruptive circumstances that may affect network status.

AIM systems can deliver a holistic view of networks and their connectivity, in real time. Intelligent software combined with network controllers and accessories allow users to locate and identify the equipment and ports they are responsible for, as well as track any network changes.

This physical layer management solution provides instant visibility to unauthorised physical intrusion activity and automatic

Like a referee during a football match, or any other sport you care to mention, the best cabling infrastructures are the ones you never notice. So how do you make your building's LAN network invisible? It's not magic. It just takes some good old-fashioned planning, as well as an

documentation of all changes. The results are increased asset utilisation, reduced troubleshooting time, faster service turn-up and improved network security.

• Modular scalability
Every successful network is continually evolving. Being able to adapt to change with minimal impact on business continuity requires a scalable infrastructure and modular components. This enables those responsible for network infrastructures to simply switch out pieces to support new technologies and faster speeds.

• Fibre network convergence
Fibre network convergence refers to the combination of multiple services within a single access network. In other words, a single pipe is used to deliver all or multiple forms of communication services. For example, fibre to the home (FTTH) networks have an extensive footprint that is perfect for supporting fast growing mobile applications such as distributed antenna system (DAS), small cell and Wi-Fi

'Like a referee during a football match, or any other sport you care to mention, the best cabling infrastructures are the ones you never notice.'

backhaul and/or centralised RAN front haul. Through fibre network convergence, a service provider could deliver a wider range of services, adopt new business models, offer innovative services and enter new markets.

The process of fibre network convergence is primarily driven by the development of enabling technologies, user demand and a service providers' capabilities. Large incumbent service providers have both wireline and wireless operations, so converging on to a single network and

maximising asset utilisation makes excellent business sense. Real life examples have occurred where an FTTH network was built and several months later the same construction crew dug up the same street to lay fibre for a cell site, which is wasteful and disruptive. Network convergence would mean one build out that could be utilised for multiple service delivery platforms.

ALL FOR ONE

For smaller telcos, utilities and municipalities, addressing multiple market segments, adding revenue streams and de-risking the business case may be critical elements in network convergence. A city may have a project to fibre up schools and government offices, another project for traffic lights and security cameras, one for Wi-Fi in the city centre and one for residential high speed internet. By converging multiple applications on to a single fibre network, this project now has more stakeholders, more sources of funding and greater economies of scale.

One challenge is that obtaining dark fibre for wireless applications can often be a lengthy and costly process. With cell diversification accelerating and 5G on the horizon, the availability of fibre becomes a potential bottleneck. The demand for fibre based backhaul and front haul will only continue to increase in wireless networks, however. This is an aspect of network convergence that needs greater collaboration and foresight.

HERE TO STAY

A resilient and intelligent network infrastructure can go a long way toward minimising the chances of an unplanned outage and maximising productivity across an entire enterprise. Through the rollout of efficient network infrastructures, companies across the globe are now beginning to realise their vision for smarter, more productive buildings and workspaces. ■

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OLIVIER ALQUIER
Olivier Alquier, vice president of enterprise, leads sales across Europe for CommScope and is responsible for helping partners and customers design, build and manage their wired and wireless networks. He is responsible for mobilising his teams to help customers solve their connectivity challenges in large buildings, venues outdoor spaces and data centres.

Colt Data Centre Services' Welwyn Garden City facility recertified with M&O accreditation

Colt Data Centre Services' flagship facility in Welwyn Garden City has been recertified with a Management and Operations (M&O) accreditation stamp of approval.

M&O validates the critical facilities management and operations practices of a fully functioning data centre. It is a standalone assessment that covers day-to-day operating activities including an audit of daily operations and an assessment of staffing levels and competencies, upstream planning and decision making and full lifecycle asset management.

Colt DCS exhibited high standards, with staff and management working collaboratively across functions with incumbent maintenance partners.

In September 2018, it was announced that six new data halls were to be built at the data centre as part of the first phase of a major expansion project at the site, which will comprise in total 10 new data halls. In addition, a major power upgrade is underway that will see the site almost double its utility power, by adding an additional 30MW. On completion, the project will bring the total IT power supply to more than 40MW.

Leviton's new packaging streamlines installations and reduces material waste

IT network managers constantly seek more efficient and cost effective options for large jack installations. To support these efforts, Leviton has expanded its offering of integrator friendly bulk packaging to include new GreenPack bulk packs for select Atlas-X1 and eXtreme jacks.

GreenPack bulk packs hold 12 jacks in individual, clear pockets. The jacks can be removed quickly, one at a time, with remaining jacks and components well organised and easily counted. The packs offer an environmentally sound alternative to individually packaged jacks, and the corrugated cardboard sleeve and PET plastic packaging is 100 per cent recyclable.

Leviton is dedicated to conserving resources to preserve the environment for future generations, and it has a history of supporting customers with recyclable, integrator friendly bulk packaging.

Huckster London connects boundaries with Zyxel

Huckster London is an immersive 5,000ft entertainment and hospitality space, which is spread out over multiple levels and offers a variety of food, drink and entertainment environments.

The space sees upwards of 6,000 people daily. As part of its fast growing popularity and high volumes of traffic, it needed to bolster its network to better support the space to provide top class customer experience and better support staff, no matter where they are in the complex.

Following a full site survey, the recommendation was to deploy Zyxel's range of switches, access points and security gateways. This enabled Huckster London to connect all its restaurants, bars and entertainment space on one centralised platform. It also provided separate networks for staff and customers, as well as dedicated channels to manage systems such as tills, phones, VoIP and to stream music, which requires considerable bandwidth and needs to run seamlessly without interruption.

PROJECTS & CONTRACTS IN BRIEF

Infinera and XL Axiata have announced the expansion of XL Axiata's South Sumatra terrestrial network and its Singapore to Jakarta subsea network via B2JS – Jakarta-Bangka-Batam-Singapore – with the Infinera XTC platform, leveraging Infinera's Infinite Capacity Engine (ICE4).

Excel Networking Solutions' Category 6A screened S/FTP cabling has been used in the new Arena d'Aix en Provence to enable large deployments of wireless access points for next generation Wave 2 Wi-Fi connectivity.

Luceco recently supplied an energy saving LED lighting upgrade to several campuses at Edinburgh College including Sighthill, Milton Road, Granton and Midlothian.

Equinix has completed the most recent phase in the evolution of Platform Equinix, with expanded connectivity options that help enterprises, cloud providers and network providers interconnect their global business at the digital edge. It has expanded its connectivity service delivered via Equinix Cloud Exchange Fabric (ECX Fabric) to now support connections between all of its 37 ECX Fabric markets located across five continents.

Life in the fast lane

Justin Jenkins has been at the sharp end of the colocation data centre sector for over 10 years. Rob Shepherd recently caught up with him to find out more about his life and career, and his views on what customers are now looking for in these types of facilities

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

JJ: I was appointed CEO of NGD in 2018. Previously I had been COO and, prior to that, CTO. Before joining NGD 10 years ago, I held posts with a number of entrepreneurial technology businesses and was with Sony Computer Entertainment for several years in a variety of IT and infrastructure roles.

RS: How and why did you decide to embark on a career in the data centre sector?

JJ: It was a natural evolution from being in IT to move into data centres. I had spent the early 1990s in IT and facilities management and started to appreciate that IT and data storage wouldn't remain on premise forever, but in an increasingly wired and connected world would move online.

While back then no one could have predicted the pace of technological change and with it the exponential rise in data we are now experiencing, it was already clear to me that data centres were going to become increasingly important, bringing numerous day-to-day and longer-term challenges to resolve.

RS: What excites you about the sector at present?

JJ: It's not yet a fully mature industry and operates in an increasingly dynamic marketplace. The critical infrastructure, space, power and connectivity needs of

the hyperscalers has been driving massive growth in the sector for some time now and is set to continue for some time to come. At the same time high performance computing (HPC) is emerging, bringing its own specific data hall design, mechanical and electrical, power and cooling challenges.

The bottom line is that modern data centres are the bedrock of our digital economy and essential for making it and businesses tick. Whether consumer, business, bank, retailer, utility, government, research or educational institution, all are beholden to data centres somewhere, somehow. This carries a huge responsibility for the sector but for those ready and willing to respond swiftly and innovate there are unprecedented business opportunities.

RS: What differentiates a good data centre from a not so good one?

JJ: Some may say there's no such thing as a 'bad' data centre. On first look it can appear as a commodity market, after all, all facilities offer space, power, cooling, security, and connectivity. But this couldn't be further from the truth. Sure, the tiering system of 1-4 helps identify resilience levels, and Power Usage Effectiveness (PUE) ratings serve as a guide to energy efficiency credentials, but there are other and perhaps more relevant criteria to differentiate excellence from mediocre.

For example, industry recognised

certifications governing operational, security and environmental competencies; current and forwards power availability; service level agreement track records; the calibre of engineering personnel; and the choice of high speed geo-diverse connectivity available. But in the final analysis it all comes down to uptime track record. After all, people want to entrust their data and IT to a facility that is safe, secure and well connected, and also 100 per cent reliable.

Ensuring a data centre is always on makes maintaining continuity of power supply mission critical. However, with some 97 per cent of UK power outages occurring in the distribution network this poses a significant challenge for many facilities. Very few have end-to-end control over the entire power supply via direct to grid connection and their own diverse links and circuit breakers.

It also calls for more than the common N+1 approach. The best facilities will have more than double that with an N+N electrical infrastructure, where both powertrains are completely separated with no common points of failure. They will also place a huge emphasis on engineers being well trained and, critically, having the confidence and experience in knowing when to intervene and when to allow the automated systems to do their job. They will also be skilled in performing concurrent maintenance and minimising the time during which systems are running with limited resilience.

'Achieving much higher power to space ratios will therefore be a major game changer in the immediate future, segmenting facilities that can from those that can't.'

Predictive diagnostics, watertight support contracts and carrying sufficient on-site spares are further prerequisites.

Being totally confident of critical infrastructure also requires rigorous testing, the ultimate being black testing. Some data centres will have procedures to test their installations but still rely on simulating total loss of incoming power. This isn't
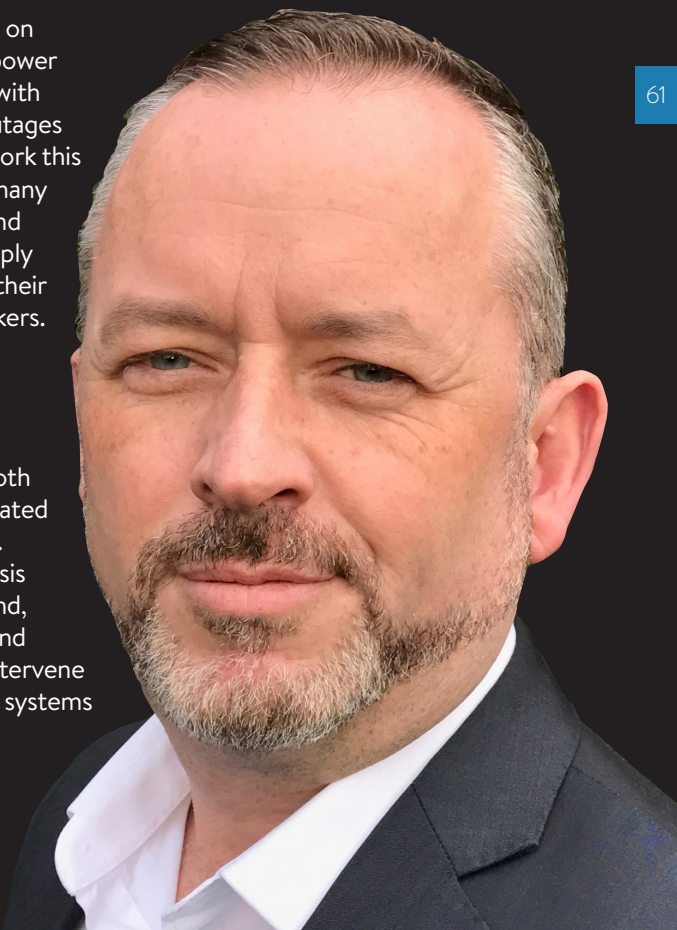
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'I would always welcome a standards based, modular, building block approach to hardware design in the interests of optimising costs and facilitating speed of IT deployment to floor. After all, why reinvent the wheel just for the sake if it?'

completely foolproof, as the generators remain on standby and the equipment in front of the UPS systems stays on, while the cooling system and the lighting remain functioning during testing.

RS: Does NGD still believe that a Power Usage Effectiveness (PUE) rating of 1.0 is possible?

JJ: We at NGD understand the laws of physics – clearly a technical PUE of 1.0 isn't possible. When it comes to the idea of commercially offsetting losses with power generated locally from other sources such as solar cells, NGD has commercially looked into this, but it doesn't (yet) cost in favourably for our customers. That said, we're always looking at ways to stay at the forefront of what's possible on energy efficiency, whilst striking a balance with resilience and leading on climate change and 100 per cent renewable sources.

Bear in mind that technical PUEs constantly get quoted by data centres but, by and large, they are misleading. This is because in most cases the theoretical PUEs achievable in most data centres don't get delivered because customers are way below 100 per cent IT load, but there are always some fixed losses in the system. On this point, NGD is focusing equally on encouraging efficient use from its customers and not selling more power capacity than needed.

RS: What opportunities does the Open Compute Project (OCP) offer?

JJ: I would always welcome a standards based, modular, building block approach to hardware design in the interests of optimising costs and facilitating speed of IT deployment to floor. After all, why reinvent the wheel just for the sake if it?

RS: What will be the next big game changer to affect the data centre sector?

JJ: Increasingly demanding and savvy customers, and continuous technological innovation are key drivers for change. Looking ahead, there is, of course, more than one game changer and in the data centre the impact of artificial intelligence (AI), machine learning and the internet of things (IoT) would be among them – for enabling predictive automated control and delivering improved uptime and plant efficiency. And let's not forget the move towards 5G, edge computing and micro data centres, and how these will interact with large centralised facilities.

However, there's something altogether more fundamental – achieving highly concentrated power to rack in ever smaller footprints is going to be critical to ensuring the future compute, storage and processing demands of the digital economy are met. Growing hyperscale cloud and HPC deployments are already driving up rack densities to unprecedented levels. While 15-20kW racks have been the norm, and we are now seeing densities rise to 40kW, 50kW, and even 100kW.

Achieving much higher power to space ratios will therefore be a major game changer in the immediate future,

segmenting facilities that can from those that can't.

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

JJ: Resistance to change. Looking back, the UK industry has, until recently, been slow to accept new business models, having been steeped for too long in a London-centric mentality born out of necessity back in the 1990s!

That's finally started to change in the past few years and I am particularly encouraged to see the penny has finally dropped – more and more good quality facilities and regional clusters are springing up the length and breadth of the country, offering more choice and affordability to a broader spectrum of customers.

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

JJ: Be honest and treat every penny of your customer's money as if it were your own. In this business we are entrusted with massive budgets, which need to be accounted for. Spending wisely builds customer confidence, trust and loyalty that, more often than not, results in further business. ■

Draka/Prysmian

Prysmian Group, the world's largest cable manufacturer, has announced the launch of the new UK manufactured Draka UC400 23 Category 6 U/UTP LSHF D64 Cca data cable.

The new cable has been designed and engineered by the Prysmian Group Multi Media Solutions business to comply with the Construction Products Regulation (CPR) to Euroclass Cca s1a d1 a1 fire performance rating. It provides a high degree of usability including deployment from a 305m Reelex box and delivers full Category 6/Class E compliant electrical performance. This has been achieved through a range of material engineering developments, optimisation of the cable construction design and fine-tuning of the manufacturing processes.

The new cable remains compact, with a diameter of just 5.9mm and a high degree of flexibility for easy installation.

To find out more **CLICK HERE.** **uk.prysmiangroup.com**
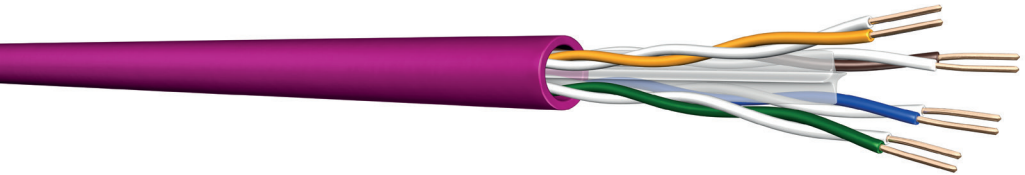
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Excel Networking Solutions

Excel Networking Solutions has published an A5 catalogue specifically to showcase the wide range of copper Category 6A and 6 products that are currently available in the USA.

The product guide clearly shows the full range available and provides a photograph, an overview, features and the part number information for each of the products available in the range. Each product set carries the UL certification and this is clearly marked throughout.

This handy A5 sized catalogue is a great tool for installers, particularly those new to the Excel brand. Excel is currently available in the USA via several of the Sonepar USA operating companies including Codale Electric Supply, OneSource Distributors, Viking Electric Supply, World Electric Supply, Cooper Electric Supply and Friedman Electric.

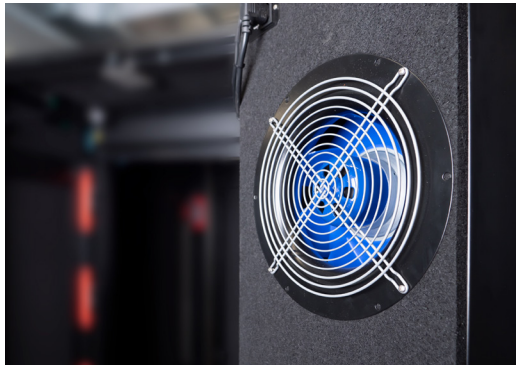**CLICK HERE** to download a copy of the Excel USA Product Guide.
www.excel-networking.com

R&M

The EdgeGo pre-wired soundproof micro data centre from R&M makes it possible to rapidly and effectively create infrastructures at edge sites.

A 42U ready for connection cabinet does away with the need to plan and build server rooms with raised floors and complex components. Application areas include industry, trade, banks, law firms, hospitals, authorities, transport and the military. Users simply add cabling and IT equipment and can start operating the micro data centre immediately. If a facility needs to de moved or expanded, EdgeGo can be easily disassembled and reinstalled.

EdgeGo features sound protection, cooling and a security camera. Active equipment noise can be reduced by 31dBA, corresponding to 99.9 per cent of the typical emissions of IT devices, making EdgeGo particularly suitable for noise sensitive environments. A temperatur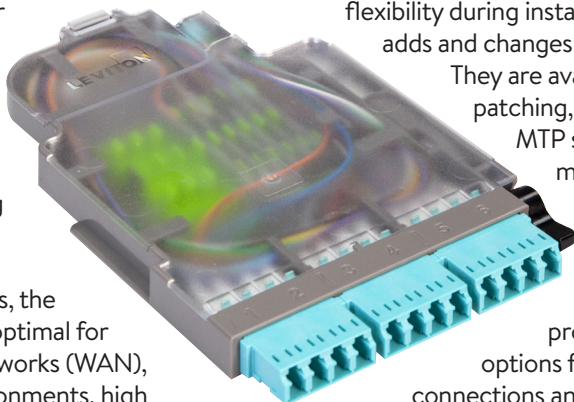e regulated controller regulates fan speed, while active cooling attains a best in industry performance of 12kW and passive cooling capacity is 2.75kW.

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

Leviton

The HDX Fiber Splice Modules bring field splicing to ultra high density networks, continuing Leviton's commitment to make fibre optic network deployment easier, cleaner and safer.

Merging the flexibility of field fusion splicing with ultra high density fibre networks, the modules are optimal for wide area networks (WAN), campus environments, high count riser buildings, government installations, data centres and central offices.

The modules include field termination capability in ultra high density footprint to minimise patching space and increase flexibility during installation and moves, adds and changes (MACs).

They are available for LC or MTP patching, making them the only MTP splice modules on the market – opening up network migrations up to 400Gb/s. Additionally, three MTP connectors provide patching options for 12- and 8-fibre connections and transceivers.

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www.leviton.com

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City slickers

Russell Poole of Equinix looks at what must be considered when interconnecting the smart city

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You would be hard pushed to find a bigger buzzterm than smart city. The phrase is brandished all around us in newspapers, magazines, movies and news channels. Despite this, the phrase is still little understood by many people – not least because they are often portrayed as Orwellian metropolises where robots reign supreme. But as exciting at this portrayal may be it isn't an accurate description at all. The modern smart city is focused on streamlining and automating everyday processes through gathering and sharing data from dispersed sensors, devices and machines. Think automated water sprinklers that are linked to moisture levels in the soil, as opposed to a robot police force with a sinister motive.

ALMOST HERE

Many industry experts and commentators believe that the truly smart city is just around the corner. And it's hardly a surprise when you look at the statistics around supporting elements. Cisco predicts that by 2022 the number of connected mobile devices around the world will reach 12.3 billion, up from 8.6 billion in 2017. Over 422 million of these are expected to be 5G capable, meaning they can transfer more data at increased speeds. In addition to this staggering level of personal use, governments all over the world are implementing connectivity in everything from streetlights to recycling bins, placing huge strain on legacy digital infrastructure.

How do we overcome this digital disruption? How do we prepare for the smart city data demands of the future? And what sort of technologies do we need to be trialling and implementing to ensure

'The growth rate of interconnection bandwidth – the private exchange of data between companies away from the public internet – will outpace the growth of internet traffic by nearly two times and will be 10 times the volume by 2021.'

smart cities can be rolled out all around the world?

DID SOMEONE SAY IOT?

The catalyst for all smart cities is the internet of things (IoT). The exponential growth of IoT devices means that connected devices cannot only link to the internet, but also to one another so they can share valuable insights. The insights gathered by IoT devices can then be broken down and analysed by machine learning (ML) and artificial intelligence (AI) platforms that analyse and then replicate the cognitive functions of humans – albeit at a significantly higher speed. These insights can then be used to shape and improve cities, through measures such as developing new and improved transport systems, or implementing waste and pollution solutions.

For initiatives such as these to be successful and allow a smart city to function, everything needs to be highly interconnected, so data can be collected and shared in real time. Because the data smart cities produce is highly sensitive, they require a secure digital infrastructure that physically links dispersed sensors, devices and machines, so they can alter systems and outputs as required without risk of hacking. This ensures maximum efficiency for the residents of the city.

WINNING STREAK

There are numerous examples of how this is working. For instance, signal controls deployed in cities like Pittsburgh use real time data to adjust the timings of traffic lights, so the flow of traffic can be managed more efficiently. This is enabled through data collected from strategically placed connected sensors that process information in real time, so traffic lights can be adjusted accordingly.

Improving traffic flow doesn't just have implications for motorists, it has tangible economic implications too. Decreasing congestion also saves on wasted fuel, which then reduces CO_2 emissions. In addition to that, less time sat in traffic on a daily commute increases levels of productivity. Win, win, win!

Another example of benefits to smart city residents can be found when taking a trip to the supermarket. In a smart city, we will no longer need to wander around the aisles – rather we will be presented with personalised suggestions of what items may be on promotion based on our stored preferences collected by AI software. This allows the user to have a better experience – in this case potentially gaining savings without having to collect physical coupons, and the retailer to have greater sales or insights on buying behaviours for future promotions.

ON THE EDGE

Many cities are beginning to adopt smart technology, but very few can claim to

be truly smart. This would require the majority of our everyday processes to be streamlined or fully automated. Alternatively, we are seeing smart

technology gradually being deployed in an urban environment, with processes being adapted to better serve the needs of residents, and ease the pressure on

local infrastructure.

The increased data traffic created by these smart devices needs to be managed effectively to guarantee the successful transference and processing of data, and to ensure latency issues don't impact the efficiency of the city. Local councils, government and companies, which deploy smart technology within their cities, can negate the risk of latency scuppering progress by hosting their data centres in close proximity to their partners and connected devices to create an ecosystem where all moving parts can directly connect to one another. This allows players to increase their speeds of data transfer as they bypass the public internet, and makes it easier to scale-up during spike periods, such as during rush hour.

LOOK AHEAD

To handle the influx of data generated by smart cities, we must begin to develop digital infrastructures that can seamlessly handle not just our current data demands, but also the growing demands of the future. This shift is alluded to in a recent market study published by Equinix's Global Interconnection Index Volume 2, which predicts that the growth rate of interconnection bandwidth – the private exchange of data between companies away from the public internet – will outpace the growth of internet traffic by nearly two times and will be 10 times the volume by 2021. ∎

RUSSELL POOLE
Russell Poole is managing director UK and The Nordics at global interconnection and data centre company Equinix.

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