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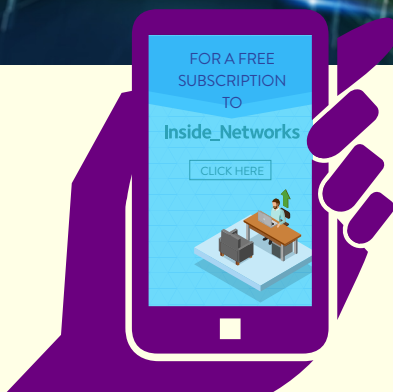
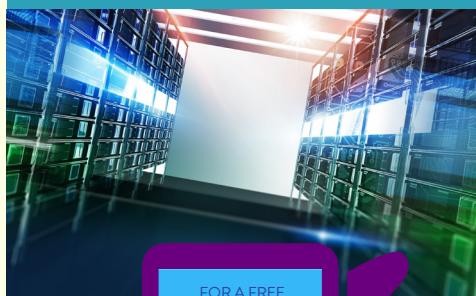
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During 2020 the cloud experienced a surge in popularity, so much so that with a growing number of enterprises deciding to use it as part of their digital transformation strategies, it has been suggested that the days of the corporate data centre are numbered. This, however, wouldn't be the first time such a claim has been made, so what, if anything, is different now? In order to get a sense of perspective on the issue, in this month's Question Time a panel of experts offer their views and predict what the future has in store.

While corporate data centres face their own challenges, colocation facilities have to ensure that they have infrastructures that are flexible, agile and can cater for the ever changing needs of their clients. Alberto Zucchinali of Siemon evaluates the different infrastructure solutions available to colocation providers to help speed-up service provision in challenging times. Meanwhile, Assaf Skolnik of RiT Tech and Joe McCaffrey of Duke McCaffrey explain why data centre infrastructure management (DCIM) tools have an invaluable role to play when it comes to supporting a data centre's expansion, migration or retrofit.

With more copper cabling systems available than ever before, doing your homework before purchasing is well worth the time and effort. Mark Froggatt of BASEC explains the importance of third-party testing and certification in making sure structured cabling systems are reliable, efficient and meet the demands placed on them.

Copper cabling system technology is also evolving at a rapid pace, with the use of modular plug terminated links (MPTLs) becoming more prevalent. However, it's important to recognise exactly where MPTLs are better suited for connecting devices instead of traditional outlets, faceplates and equipment cords, so we've asked Yuna Shin of Leviton to provide an all you need to know guide to the subject.

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



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Coronavirus pandemic exposes global competition for data centre capacity

Major global data centre markets are at risk of seeing demand eclipse supply as coronavirus impacts construction productivity and exposes the fragility of the global supply chain, according to research from Turner & Townsend. The Data Centre Cost Index 2020 underlines the disruption wrought by the global pandemic, with 79 per cent of respondents reporting that it has decreased productivity and increased operating costs on data centre construction sites.

The research analyses construction input costs – including labour and materials – across 40 key markets, alongside industry sentiment and insight from a survey of 162 data centre professionals. In

2020, while Zurich remained on top at \$11.40 per watt, second place was taken by Tokyo (\$10.0 per watt), which leapfrogged Silicon Valley and New Jersey.

London has seen a substantial increase in relative costs, rising three places in the rankings. It is now the fifth most expensive global market to build a data centre at \$9.10 per watt, even with the ongoing Brexit uncertainty. Frankfurt, Amsterdam and Paris remain just outside the top 10, but European investment is expanding beyond these traditional hotspots to secondary markets including Berlin, Warsaw, Milan, Madrid and Vienna.

With data centres emerging as a priority market amid the global pandemic, 71 per cent of survey respondents now consider it to be a recession proof industry – up from 50 per cent last year. Data centre

construction demand is slated to rise further next year, with 85 per cent of those surveyed predicting higher demand in 2021. The challenge now is whether there is capacity in the industry to meet the pace of this demand. 68 per cent now see speed of delivering data centres as more important than build cost, with hyperscale construction schedules needing to be reduced markedly from the current 15-18 month average to remain internationally competitive.



Key to accelerating delivery will be how the sector tackles the global skills shortage. 84 per cent of survey respondents think that meeting data centre demand will require the rapid upskilling of local workforces

around the world. This extends to growing secondary regional markets and expanding cloud regions across Africa.

Dan Ayley, global head of hi-tech and manufacturing at Turner & Townsend, said, 'Demand for data centre capacity has remained on its steep upward trajectory. Meeting this vast opportunity for expansion will mean guaranteeing quicker delivery of data centres in every region. Key to this is securing and bolstering supply chain capability – the pandemic has shown that we can no longer afford to rely on flying-in specialist expertise and a small pool of talent to service a huge global market. Building future resilience rests on investing in regional training strategies, building local skills bases and boosting available capability on the ground in every market across the world.'

Siemon announces appointment of Henry Siemon as new president and CEO

Henry Siemon has become the latest president and CEO at Siemon – the fifth member of the family to hold this position since it formed 118 years ago. He joined the company in 2017 to serve as global director of supply chain, and his career includes working for Apple and Deloitte Consulting.

Carl Siemon, who had served as president and CEO since 1982, will continue to be on the board of directors and work with the leadership team as a strategic advisor. He stated, 'We are fortunate to have a fifth generation Siemon family member willing and able to steer the company into the future. I know that our commitment to quality and innovation will be advanced by Henry.'



Henry Siemon

Having seen him in action under fire, creatively solving problems caused by the global coronavirus pandemic, I know the company is in good hands and I look forward to going where he leads us.'

Henry Siemon commented, 'Carl and I often talk about stewardship, and how important it is in a family business for the chief executive to also be chief caretaker and to

always be mindful of our responsibility to continuously improve and to have fun along the way. I am fortunate to take the reins of such a healthy organisation and look forward to serving our company, customers and partners in the years ahead.'

Half of businesses using temporary IT staff to cope with the workload caused by coronavirus

Research from Zoho Corporation has revealed that 47 per cent of IT teams in large and medium sized UK businesses are using temporary staff to cope with the sizable workload caused by the coronavirus pandemic and remote working. The research comprised a poll of 200 decision makers.

The findings also revealed that over two-thirds (70 per cent) of businesses are planning to outsource key IT functions in 2021, in an effort to cut costs during the

pandemic. However, despite cost cutting initiatives, 51 per cent admitted that their

IT budget is scheduled to increase next year, in an effort to cope with continued remote working during the pandemic and beyond.

Sridhar Iyengar, managing director at Zoho Europe, commented, 'Coronavirus and remote working placed unprecedented demand and pressure on IT teams, as businesses rushed to install and maintain remote working software, and cloud and IT infrastructure.'



Sridhar Iyengar

UK leading the charge towards hybrid cloud adoption

Nutanix has released its third global Enterprise Cloud Index survey, which shows how UK companies compare with the rest of the world when it comes to hybrid cloud adoption. The predominant interim model is one of a non-integrated mix of data centres plus clouds (public and/or private), with 26 per cent of global respondents reporting this approach. In the UK, by contrast, the mixed model was found to be employed already by almost half (43 per cent) of companies surveyed, second only to Germany (52 per cent).

Reliance on a traditional data centre as a principal IT resource is declining faster in the UK than elsewhere. Only nine per cent of UK companies are still clinging to this

model compared to 18 per cent globally. Given the present rate of change, this puts the UK a good 12 months ahead of the game, with non-cloud enabled data centres set to disappear entirely within five years.

‘It comes as little surprise to find UK companies embracing hybrid cloud ahead of those in many other countries,’ commented Dom Poloniecki, general manager sales, western Europe and Sub-Saharan Africa region at Nutanix. ‘However, it’s important to understand that it’s a marathon not a sprint. The real prize comes from building a flexible, scalable and agile infrastructure to meet both the day to day needs of the business and any unexpected challenges that come along.’

2021 IT budgets set to soar in effort to support remote working

More than half (61 per cent) of EU businesses expect IT budgets to rise in 2021 to manage the coronavirus pandemic and enable employees to work from home, according the State of Business IT 2020 report commissioned by 3stepIT.

The average increase in European IT budgets will be just over 21 per cent from 2019 levels. The largest increases are anticipated in Norway (37 per cent) and Germany (27 per cent), with the lowest increases in the UK (16 per cent) and France (15 per cent). 54 per cent of businesses

cited coronavirus as the top factor driving spending changes in the next 12 months,

as IT strategies focus on facilitating social distancing (47 per cent) and increased home working (46 per cent) in 2021. Given that the average IT budget is shown to be

£2.7m across EU businesses, this could mean an additional investment of over £800,000 in new technology.

Carmen Ene, CEO at 3stepIT, said, ‘Priorities for businesses across Europe have shifted dramatically this year and our research shows that, for the most part, companies have successfully responded to the

challenges of remote working forced upon them by coronavirus.



Carmen Ene

Occupational Qualification Structure for network infrastructure industry goes live

The network infrastructure industry's Occupational Qualification Structure leading to Electrotechnical Certification Scheme (ECS) Card recognition is now operational. Developed by an industry wide working group formed of the Electrical Contractors' Association (ECA), Joint Industry Board (JIB), SELECT, CNet Training and a large group of employers, it follows the launch of the Network Cable Installer Apprenticeship Standard.

All new initial applications must comply and cards are already available that recognise all levels of network infrastructure based occupations including Network Infrastructure Assistant and Network Infrastructure

Installer Gold. From 1st July 2021 all card renewals will also need to meet the requirements of the new Occupational Qualification Structure.

Martin Smith, international lead network infrastructure at CNet

Training, said, 'The introduction of the Network Cable Installer Apprenticeship means that the long awaited defined educational routes for both new starters and existing workforces are now in place. A formidable

collective effort has gone into this Occupational Qualification Structure and its introduction will help to deliver the necessary skills and qualifications to lead the network infrastructure industry into a new era.'



NEWS IN BRIEF

Juniper Research has found that there will be almost 13.5 billion smart home devices in active use by 2025, compared to an expected 7.4 billion at year end 2020. Smart entertainment devices take the bulk of revenue attributable to smart home devices, at over \$230bn in 2025.

Proximity Data Centres has announced the immediate availability of three more high quality facilities. The new sites in Liverpool, Chester and Coventry add a further 8MW of IT load capacity and more than 80,000ft² of net technical space to the company's UK network of edge data centres.

Kao Data has formed a partnership with Megaport. The agreement expands Kao Data's capabilities to provide on-demand cloud connectivity from major hyperscale providers including Amazon Web Services (AWS), Google Cloud, Microsoft Azure and many others.

Elizabeth Denham has been announced as the winner of BCS, The Chartered Institute for IT's prestigious Society Medal 2020. It recognises Denham's outstanding contribution to making digital technology good for society.

Survival of the **fittest**

Hi Rob

The way in which we use the internet is continuing to advance, bringing with it growing user demands for more services and capacity. Connectivity touches almost every part of our life and the telecommunications sector has arrived at a crossroads on the technology front. In order to continue our digital transformation journey, a new approach to network infrastructure is needed.

While it's easy to maintain the status quo of simply adding more IP protocols and expanding networks, this design requires manual management and is error prone. Network providers are looking for a way to not only provide more capacity, but to meet growing performance requirements. By leveraging new software intelligence, networks can be built in a way that is automated, open and lean – adapting to ever-changing user demands.

There's no denying that traditional networks are struggling under the immense pressure of growing data and rapid innovation. In addition, the events of 2020 placed even greater pressure on the network, as organisations across the world moved to a remote workforce strategy almost overnight. With lockdowns taking place across the world, we also had a fundamental shift in our internet consumption, with more people streaming services online. Demand is a huge driver of

change and so, much like Charles Darwin's theory of evolution, networks must adapt to our changing environment in order to survive.

Historically, network infrastructure was never built to sustain the current levels of the 'anywhere, anytime' connectivity we see today. As the speed of innovation ramps up, new technologies such as 5G, the internet of things (IoT), edge computing, automation and artificial

intelligence (AI) create different network requirements. This means the traditional, IP-centric way of building networks is now simply unsustainable.

Network evolution is not about adding

more protocols or upgrading IP boxes. It's about how to most efficiently connect users to content and the speed at which the network can adapt to new application requirements. It's about flexibility, cost efficiency and performance – a network with capabilities that are adaptive. An entire end to end network must be agile enough to enable compute, storage and networking resources, when and where required, by leveraging programmable resources that don't require physical reconfiguration to accommodate evolving service demands.

In addition, driven by the need to bring data closer to the user, we are seeing a move towards edge cloud. Now, a new



generation of cloud native applications is emerging in many industries from entertainment through to manufacturing and retail. Many of these use cases will be more compute intensive and latency sensitive. As a result, compute and storage cloud resources need to move closer to the edge of the network, where content is both created and consumed.

All of this points to a network that is changing and adapting. As we become ever more reliant on connectivity there's a world of opportunity awaiting. However, it is important as an industry that we take steps to build an agile and adaptive

network that can meet today's demands. It's crucial to prepare the network for the next generation of innovation.

Jürgen Hatheier
Ciena

Editor's comment

If there's one thing that has been brought into sharp focus over recent months it's that agility is fundamental to a successful network. As Jürgen clearly points out the need for 'flexibility, cost efficiency and performance' offers new and exciting opportunities.

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Inside Networks

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

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

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

Playing the Hanbury Manor PGA Championship Course:

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

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

Live Scoring sponsorship is available.

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

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Onwards and upwards

Hi Rob

As the world moved online in the face of the coronavirus pandemic, the criticality of data centres and the unrelenting reliance on them across all walks of life became an enduring storyline of the crisis. This reality will manifest in new ways in 2021, as the data centre and the information ecosystem orbiting it emerge from the pandemic with a fourth utility criticality – complete with all the expectations and responsibilities that implies.

Data centres have long been held to high availability standards, but the shift toward utility like status will be noticeable in two ways. Firstly, those high expectations for network availability will extend deep into rural and remote areas, bringing critical applications to more of the population. This will increase pressure on data centres to maintain connectivity even at the outer edges of their networks. Secondly, any distinction between availability and connectivity will be erased, as the ability to ensure and protect connections across increasingly distributed hybrid networks becomes as much of a requirement as any traditional measure of data centre uptime.

The pandemic has effectively established a new baseline for digital infrastructure, as the industry adjusts to, and eventually moves beyond, the global shutdown. Against this backdrop, coronavirus will have a lasting effect on the workforce and the IT ecosystem supporting the new work from

home model. The pandemic motivated investment in IT infrastructure will continue and expand, enabling more secure, reliable and efficient remote working capabilities.

Remote visibility and management will become paramount to the success of these work from home models. Already, remote service capabilities have emerged to minimise the need for on-site service calls, and those practices are likely to continue long after the pandemic.

Any cautious steps taken early in the crisis will be accelerated as the pandemic pushes into 2021 and

organisations should accept these changes not as a temporary detour, but rather a permanent adjustment to the way we work and do business. Over time, what is done in person versus remotely will change, and the change will be driven by customers looking to minimise their on-site presence. That places a premium on connectivity, remote monitoring, data analytics, and even artificial intelligence to make decisions.

Gary Niederpruem
Vertiv

Editor's comment

As the dust begins to settle, the true impact of the coronavirus pandemic on our working and lifestyle habits will emerge. Gary's argument about the data centre sector's position as a 'fourth utility' is a persuasive one and how it responds to the pressure will be interesting to say the least.





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The sky's the limit

The growth and popularity of the cloud have led to suggestions that the days of the corporate data centre are numbered. [Inside_Networks](#) has assembled a panel of industry experts to offer their views on whether this is really the case

▶ The public cloud is a highly convenient means of storing and accessing data, as well as offering valuable services and applications. According to Gartner, the global public cloud services market was worth nearly \$258bn in 2020.

Given that data protection is now an area where failure is not an option, legal and regulatory compliance, as well as data loss and leakage risks, are often cited as barriers to cloud adoption. However, many of these fears and objections are unfounded – something borne out by the vast numbers of organisations opting to use it.

From a financial perspective, there are

no upfront server costs, no back-ups to create, no complex network routing, while software updates and hardware upgrades are carried out without any interruption to service. Users only pay for the computing power, storage and resources used.

So, as companies move their workloads into the public cloud in ever greater numbers, is this the beginning of the end of the corporate data centre? Inside_Networks has assembled a panel of experts to give us their thoughts

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

WITH A GROWING NUMBER OF ORGANISATIONS TURNING TO PUBLIC CLOUD SERVICES AS PART OF THEIR DIGITAL TRANSFORMATION STRATEGIES, ARE WE WITNESSING THE BEGINNING OF THE END OF THE CORPORATE DATA CENTRE? WHICH OPTION WOULD YOU ADVOCATE AND WHAT DO YOU THINK WILL BE THE SITUATION IN FIVE YEARS' TIME?



CARRIE GOETZ

PRINCIPAL AND CHIEF TECHNOLOGY OFFICER AT STRATEGITCOM

One thing is for certain in this industry, hype and marketing speak dominate conversations. Cloud is one of those overreaching terms that can be highly misleading.

Everything in IT is a tool in a tool kit. While public cloud certainly has role a play, it is really a tool, not a destination. While there are many companies looking to public cloud to

‘get out of the data centre business’, there are also companies that are going back to premise compute, either as part of the new move for colocation on premise or to bring some of their data back out of the cloud, as cloud costs and complexity have gotten out of hand.

Often we hear that a certain company has gone cloud, but that doesn’t mean they went to the cloud entirely. Sometimes they just moved part of their platforms to the cloud. In fact, I’m seeing more customers split things off of the public cloud in favour of a hybrid/multi-cloud approach. However, I fully agree that cloud can be a great leveller – it allows smaller companies and those with talent gaps to find technology to enhance their services. Cybersecurity is a great example.

With any cloud implementation, an understanding of the full ramifications of such a move is paramount. This includes



ingress and egress charges, additional charges for security services, databases, connectors, addressing and cache services, etc. I believe that companies are moving some applications to the cloud and adopting some natively in the public cloud, but I disagree with the cloud first mentality as a strategy without

examining the full organisational and assessment needs.

Each application will need its own strategy. With the growth of edge applications and the need to control latency, secret sauce data and the like, we will continue to see a blend of on-site compute, cloud and all things in-between. I am a staunch advocate of starting with the application. What does it need? Where should it sit? What are the one, three and five year implications? This approach allows one to begin to sort out the correct tool from the toolbox. Maybe cloud, maybe not!

‘I DISAGREE WITH THE CLOUD FIRST MENTALITY AS A STRATEGY WITHOUT EXAMINING THE FULL ORGANISATIONAL AND ASSESSMENT NEEDS.’



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JACKSON LEE

VP CORPORATE DEVELOPMENT AT COLT DATA CENTRE SERVICES

As a concept, the corporate data centre is outdated. It is very rarely practical or profitable for a business to own and run its own data centre. This is true for all types of business, whether a small, medium or large enterprise. Outside of the cost for the initial build, the capacity required to run a data centre accounts for between 70-80 per cent of the overall cost of running a facility, and this is constant.

Instead, for some time now, we have been seeing a huge number of businesses outsourcing their data storage and management. This trend has accelerated even further as cloud adoption has become a business priority.

By outsourcing data storage and management, businesses can take advantage of huge scalability opportunities, without incurring the cost of data centre upkeep. This works in the sense of scaling both up and down. We have seen the importance of the latter recently, with most of the globe hit by coronavirus induced recessions and restrictions.

The emergence of hyperscale data centres has made outsourcing data storage more efficient than ever. Defined by their size, which enables almost unlimited scalability, the cost of running one of these would be impractical for any individual business. Instead, by paying for space within

an externally owned hyperscale data centre, businesses can scale up and down whenever they see fit.

Let's use fintech banks as an example. As

these institutions continue to grow at an exponential rate, constantly having to restructure their own cloud infrastructure – which can be costly, especially in the long-term – they can instead purchase more space without the hassle, time or cost of restructuring. By outsourcing, businesses also get

the benefit of the expertise that providers can offer.

The truth is, in today's world of constant disruption and unpredictability, businesses need to be flexible to succeed. Scalability should be at the very heart of this. Achieving this by owning and managing your own data centre is difficult and expensive. The corporate data centre is something that should be left in the past as we head towards 2021.

'BY OUTSOURCING DATA STORAGE AND MANAGEMENT, BUSINESSES CAN TAKE ADVANTAGE OF HUGE SCALABILITY OPPORTUNITIES, WITHOUT INCURRING THE COST OF DATA CENTRE UPKEEP.'



MARK ACTON

CRITICAL SUPPORT DIRECTOR AT FUTURE-TECH SCI

Despite the number of organisations turning to public cloud services, any announcement of the death of the corporate data centre is very premature. Public cloud is the clear choice for new businesses looking for flexibility and the opportunity to rapidly ramp-up services, but it is not necessarily the obvious choice for those with legacy applications – particularly those whose licensing dependencies or other factors make the move to the public cloud complex and expensive.

In addition, many of the touted advantages of the public cloud, such as multiple site resiliency/site failover etc, are typically only available if the applications are designed and developed with these features in mind. They are also potentially offered at additional cost from the cloud provider – merely ‘moving to the cloud’ does not necessarily confer these advantages automatically.

It is entirely true that the vast majority of new businesses with no legacy issues are able to take advantage of the obvious entry benefits that the public cloud offers, as it provides the opportunity to rapidly scale from a low starting base from the outset. However, numbers published by Uptime Institute in its mid-2020 annual survey suggest that only 12 per cent of enterprise

workloads will be hosted in the public cloud by 2022. Moreover, it said that ‘more than half of workloads are expected to stay in on-premises data centres in 2022’.

Of those moving to cloud platforms, it is very clear that they are not necessarily moving their entire application base to the public cloud. Many are retaining private cloud platforms or legacy non-cloud core systems within their own corporate data centres. This is for a variety of reasons including cost, difficulty in migrating systems, compliance and regulatory issues, as well as performance.

There is certainly a decline in the number of corporate data centres but their demise is some way off yet. They will certainly continue to represent a significant proportion of the overall data centre population for at least the next five years and beyond.



‘DESPITE THE NUMBER OF ORGANISATIONS TURNING TO PUBLIC CLOUD SERVICES, ANY ANNOUNCEMENT OF THE DEATH OF THE CORPORATE DATA CENTRE IS VERY PREMATURE.’

ANDY HIRST

MANAGING DIRECTOR CRITICAL INFRASTRUCTURES AT SUDLOWS

Corporate data centres are very much a late 20th/early 21st century trend, with most organisations at that time having their own suite – whether a one cabinet comms room or a full blown data hall. However, as times have changed so has the corporate mentality – together with the associated risks.

Facilities were less complex in that era – efficiencies and sustainability were not necessarily on the agenda and the risk of failure, although costly and damaging to reputation, seemed low compared to the figures bandied about over the last few years. Therefore, it is understandable why CEOs don't want to be concerned with this hot potato within their organisation.

If an organisation is brave enough to see the value of a corporate data centre, they have to realise that investment is continually needed to maintain this critical brain of the company. If it is a new facility, it is vital to ensure it is designed to a high standard of efficiency and resilience, not overlooking the ongoing planned maintenance that needs to be carried out by data centre engineers.

If an existing facility is to be persevered with, then upgrades need to be budgeted for and implemented. The days where a local electrician is asked to come in to fit some extra sockets in this space should be long gone! Some may chuckle at this, but we all still see this going on.

So, why would you even consider

putting up with an existing facility, or even deploying a new one, over utilising a public cloud service? It is very much the case that one solution does not fit all. For some organisations it is an obvious

choice to outsource their IT services and eliminate the burden so that they can concentrate on day to day business. However, for others, the risk of outsourcing the brains of the organisation and relying on others to protect them from cyber-attacks or outages is too much of a risk.

Although there are a lot of reputable organisations available that offer cloud services, there are several reported failures in some of these facilities.

One thing that is for sure, if outsourcing is the way forward for your organisation, due diligence and cost analysis need to be at the forefront of any decision before the company's corporate jewels are handed over and entrusted to others.

'IF OUTSOURCING IS THE WAY FORWARD FOR YOUR ORGANISATION, DUE DILIGENCE AND COST ANALYSIS NEED TO BE AT THE FOREFRONT OF ANY DECISION BEFORE THE COMPANY'S CORPORATE JEWELS ARE HANDED OVER AND ENTRUSTED TO OTHERS.'



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BARRY ELLIOTT

DIRECTOR AT CAPITOLINE

'Amazon web outage breaks vacuums and doorbells' proclaimed the BBC website in November 2020, while 'Azure data centre cooling failure takes down UK coronavirus data dashboard' stated the Techerati website in September. My favourite headline of the year, however, was from Data Economy in April – 'Google Cloud suffers 14-hour outage caused by "large backlog of queued mutations"'.

According to the latest statistics I have seen from Gartner, Azure achieves 99.9792 per cent availability (2018), which sounds impressive but still amounts to nearly two hours of downtime in a year. Remember that's an average of its availability and I could go on at length about Google and Facebook's 14 hour outages.

Organisations of every nature must carefully consider the risk of putting all of their eggs into one basket, which is what the cloud is. It's one basket, under somebody else's control, in a country which may not even be identified to you.

I think the future is the core enterprise data centre – a concept that has many similarities to an edge data centre. Organisations like the medical sector, pharmaceuticals, banking, government and military must own their own data. For many organisations, like medical, where wearable tech is going to transform local processing,

latency and delay will become critical factors.

All organisations must beware of the marketing hype that surrounds cloud

services and the associated raft of related colocation and hosted service models. They must carefully consider the impacts of cost, reliability, availability and data security on their businesses.

Any organisation that considers its operation to be mission critical should first consider some form of hybrid model. Here they can take control of their own data and immediate data processing in

their own corporate data centre, and see the cloud as their back-up strategy. The corporate data centre of the future will be smaller and it may be a core or distributed edge model, but it will be there.

'ORGANISATIONS OF EVERY NATURE MUST CAREFULLY CONSIDER THE RISK OF PUTTING ALL OF THEIR EGGS INTO ONE BASKET, WHICH IS WHAT THE CLOUD IS. IT'S ONE BASKET, UNDER SOMEBODY ELSE'S CONTROL, IN A COUNTRY WHICH MAY NOT EVEN BE IDENTIFIED TO YOU.'



JONATHAN ARNOLD

MANAGING DIRECTOR AT VOLTA DATA CENTRES

At a time of such extraordinary turbulence across all aspects of life, making definitive predictions about most things is difficult.

The future of corporate data centres is no different. It is simply too early to tell whether their time is coming to an end, but we can use what we have learnt these past 12 months and build a likely picture of what the future may hold.

2020 has made everyone think differently about the world of work. Many businesses have learned that remote working is an effective alternative and questions are being raised across the business landscape as to whether offices are still needed in the same way. As well as the cost savings achieved through remote working, risk to staff is all but eliminated. However, though the workforce can easily move around to do their work, servers and other heavy duty IT hardware can't. This raises the likelihood that corporate data centres, with demands on their own staff and social distancing measures, may face an uncertain future.

Moreover, though public cloud services can be unsuitable for big business, hybrid models very much are. With this in mind, not only do colocation data centres have multiple access points to the cloud, they are also significantly easier to use and

access. While corporate data centres require connectivity to be directed to the premises, those where you colocate are

online and can be easily scaled to meet the needs of a business. For many, decisions will always either come directly down to, or be heavily influenced by, cost. If there is one factor that will sound the death knell of the corporate data centre, it is this.

By removing corporate data centres the overheads required for their maintenance can be slashed. They are also power hungry entities. The capital required to keep them on and cooled 24/7 can deliver an uncomfortable impact on the bottom line.

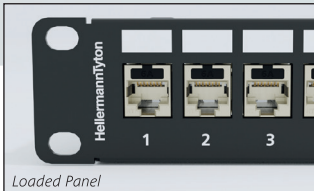
Though, of course, there are costs in using a colocation data centre, they are agreed before commitment and go on to provide the client business with financial certainty.

When all of these factors outlined here are considered, it is difficult to see how today's corporate data centres can have many more tomorrows.



'FOR MANY, DECISIONS WILL ALWAYS EITHER COME DIRECTLY DOWN TO, OR BE HEAVILY INFLUENCED BY, COST. IF THERE IS ONE FACTOR THAT WILL SOUND THE DEATH KNELL OF THE CORPORATE DATA CENTRE, IT IS THIS.'

NEW Category 6A Product Range



The **All New** 'HTC Series' Category 6A range has been designed to support today's network infrastructure requirements and increasing demands on high-speed data.

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- Tool-Free Design
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- Short Jack length to support restrictive spaces

Panel

- Detachable folding rear cable manager
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- Ideal for shielded and unshielded applications



Fast, faster, fastest

Alberto Zucchinali of Siemon evaluates the different infrastructure solutions available to colocation and managed service providers to help speed-up service provision in challenging times

▶ According to Fortune Business Insights, the global managed service provider market is forecast to achieve a compound annual growth rate of 12.2 per cent between 2019-2027. However, this was before the global coronavirus pandemic began, which dramatically changed the way business is done – not just for cloud, managed and colocation service providers but for everyone.

REMOTE CONTROL

With hundreds of remote employees spread out and working from home, businesses have suddenly had to deal with outdated home equipment, hundreds of networks, and a greater need to protect data and maintain business continuity and application integrity. At the same time demand for bandwidth, connectivity, virtual private networks, cybersecurity and cloud based back-ups has increased, as well as the need to support collaboration, education and other business continuity tools.

Managed service providers offer a wide range of infrastructure as a service (IaaS) and software as a service (SaaS) options, from pure play network management and back-up/disaster recovery, to data security, analytics and complete 24/7 outsourcing. With business processes now adapting to the new normal, 67 per cent of companies say they are now more likely to explore managed service providers to help ramp-



up their mobile workforce and remote IT capabilities.

To meet clients' shifting demands, colocation, cloud and managed service providers must adapt quickly and be able to expand services, platforms and capabilities efficiently and without unexpected infrastructure limitations, cost and reliability issues. At the same time, infrastructure must be scalable and provide an easy migration path to higher performance, whilst being quick and easy

to install. Selecting the right components is key to achieving this.

SWIFT INSTALLATION

Pre-terminated copper and optical fibre trunking cable assemblies can support managed and colocation service providers in providing clients with mission critical

need to rethink the capabilities of currently installed technology. Pre-terminated solutions can help future proof the network and provide a smooth migration path to higher speeds, as customer requirements evolve over time.

SEE THE LIGHT

Commonly, we find 12-fibre MTP connectivity deployed in data centres. This solution was originally chosen to support high-density, efficient 10Gb/s duplex applications using 12-fibre MTPs that transition to six duplex LCs via cassettes or modules. These 12-fibre MTP solutions, however, do not seem an efficient solution going forward because many current 40Gb/s and 100Gb/s multimode fibre applications, as well as future 200Gb/s and 400Gb/s multimode and singlemode applications, are based on eight optical fibres.

Using 12-fibre MTP connectivity to support current and future 8-fibre applications means that only eight of 12-fibres will be in use, with four fibres (33 per cent) going unused, leading to reduced density and

high-speed data networks in rapid time. Compared to individual field terminated channels, pre-terminated trunks are up to 75 per cent faster to install and provide customers with guaranteed performance levels because they are manufactured and tested in a controlled and clean factory environment.

With network speeds in the data centre backbone swiftly moving towards higher speeds, infrastructure service providers

wasted fibre capacity. Conversion cords or modules can help achieve 100 per cent fibre utilisation but this solution might be more expensive and complicated to manage.

If a new colocation facility is being deployed, it is advised to install 8-fibre MTP plug and play solutions right from the start. Not only will these provide the most efficient and cost effective option for current 8-fibre 40Gb/s and 100Gb/s



applications, they also provide an easy migration path to next generation 200Gb/s and 400Gb/s applications.

TALKING POINT

Data speeds are not only increasing in the backbone but also at the data centre edge. In most markets Category 6A/Class EA copper twisted pair cabling has been the solution of choice for 10 Gigabit Ethernet links. As customer demand for high-speed, low latency access to information continues to grow, server interconnect speeds are increasing beyond 10 Gigabit Ethernet and the feasibility of twisted pair copper cabling.

High-speed interconnect solutions – short point to point cables that directly connect two pieces of active network equipment, for example, switch to switch, switch to server or switch to storage applications – are becoming increasingly commonplace in this part of the data centre. They are available as direct attach copper cables (DAC), active optical cables (AOC) or structured cabling using fibre assemblies and separate optical transceivers. The availability of different cord options supporting different speeds ensures that customers are sufficiently supported when upgrading their network gear from 10Gb/s to support 25Gb/s and 100Gb/s.

‘With network speeds in the data centre backbone swiftly moving towards higher speeds, infrastructure service providers need to rethink the capabilities of currently installed technology.’

FEATURES AND BENEFITS

Key features to look out for when selecting high-speed interconnects include cord lengths, colour options and interoperability.

Cord options in 0.5m increments will avoid high amounts of cable slack inside the rack leading to improved cable management,

airflow and a neater look, whilst colour coded cords can help identify different services and help determine what is connected to what. Lastly, cords that have been independently tested for interoperability with most major equipment manufacturers will ensure high performance, cost effective, quality



assemblies for direct attach equipment connections.

As customers demand more computing power, colocation, cloud and managed service providers must be able to quickly expand and/or add additional capacities. Here, a modular pod based data centre design approach can support the data centre expansion process. Pods are groups of cabinets that are typically designed based on capacity, function or application, and can serve as a template for incremental build-outs of additional groups. As demand increases, pods can be easily repeated as a data centre grows, providing customers with a repeatable, cost effective and quick to deploy solution.

LEVEL BEST

In today's fast evolving business environment one thing is certain – data centre infrastructures have to be

flexible and agile to cater to the ever changing needs of many different clients, while providing top level service with near 100 per cent uptime. For service providers this means that selecting the right infrastructure solutions will be key to expanding services, platforms and capabilities quickly, whilst maintaining quality, reliability and consistency for their clients. ■



ALBERTO ZUCCHINALI

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



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SCAN ME

EDP Europe

ServerGuard from EDP Europe is a newly developed in-rack physical security solution that enables clients to achieve or exceed compliance standards.

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EDP ServerGuard features a custom engineered steel sub-frame with front and rear electronic access control, proximity card and biometric reader offering dual authentication. A further option for adding CCTV is also

included within the design.

By physically securing individual systems within a rack, ServerGuard enables

clients to achieve their security and compliance objectives by having full visibility, control and an audit trail of activity across their mission critical systems. ServerGuard can be tailored to individual customer's needs, manufactured and supplied fully assembled ready to 'plug and play'



within a short lead time.

For more information call 01376 510337, **CLICK HERE** to send an email or to visit the EDP Europe website **CLICK HERE**.
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Excel Networking Solutions

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

Environ Co-Location Racks are designed specifically for applications

where secure and lockable compartments are required, such as in a cloud deployment or colocation data centre facility. The range is based on the popular **Equipment Rack** chassis and available in a choice of

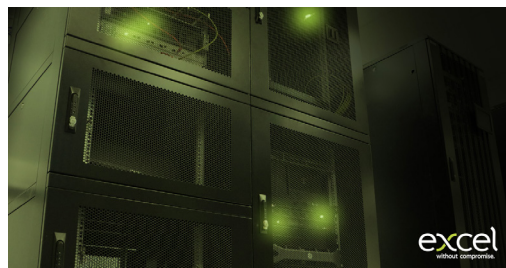
two or four compartments, 42U or 47U heights, 600mm or 800mm widths and in grey, white or black. Excel also offers a **pre-configured cabinets and on-site rack**

assembly service, which is proven to reduce installation cost and time whilst providing a fully tested, fully traceable and 100 per cent inspected product.

The full range, which is available

for free next day UK delivery, can be viewed in the dedicated **Environ digital catalogue**.

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Proximity Data Centres

Proximity Data Centres' UK network of regional colocation internet edge data centres meet individual customer requirements. Proximity's network currently serves major conurbation areas in the North, North West, the Midlands and South Wales. A total of 20 sites will be available within the next 12-18 months, providing nationwide coverage and reaching 95 per cent of the UK population.



These high capacity, scalable and resilient Tier 3 facilities enable enterprise businesses, cloud and content providers to maximise competitive advantage through reduced latency and data transit costs, enhanced operational efficiency and

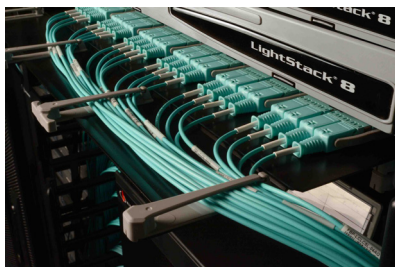
more responsive customer service. Full on-site support, transition and onboarding is provided, along with server migration services. A contract with a single set of service level agreements (SLAs) covers one or multiple sites, while scope of services is tailored to suit regional demand.

ISO 9001, ISO 14001 and ISO 27001 compliant, all Proximity's data centre grid electricity is sourced from 100 per cent renewable providers. Each data centre also develops renewable energy solutions including battery storage, solar and wind power.

For more information call 03300 250138, [CLICK HERE](#) to send an email or to visit the website [CLICK HERE](#).
proximitydatacentres.com

Siemon

More than ever, colocation data centres are under immense pressure to deliver on unprecedented demand for computing power and bandwidth requirements. Therefore, it's critical that service providers are able to rapidly expand their capabilities without any infrastructure limitations.



To support these needs Siemon continues to evolve its LightHouse advanced fibre optic solution portfolio. The company's Base-8 and Base-12 plug and play fibre systems support superior density, port access and cable management, while offering an easy migration path to higher

speeds.

With a capacity to hold up to 144 LC fibres or 864 MTP fibres in 1U and up to 576 LC fibres or 3456 MTP fibres in 4U, Siemon's LightStack and LightStack8 solutions can be deployed in the most tightfitting data centre spaces. These systems are factory terminated and tested, and can be deployed up to 90 per cent faster than traditional field terminated fibre connections. The modular design also offers seamless migration from duplex 10Gb/s to current to 40Gb/s and 100Gb/s applications.

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

Vantage Data Centers

CWL1 is Europe's largest and most powerful colocation data centre campus with 1,450,000ft² gross floor area and 270MW via a private 400kV connection that is 100 per cent renewably sourced.

Size, power and scale economies, combined with dense high-speed connectivity including diverse fibre routes and direct connections to public cloud providers, makes CWL1 an affordable, future proof and low latency solution for customers of all sizes.

Formerly NGD, this world class Tier 3+ facility is conveniently located in South Wales, close to motorway links and airports. Now owned and operated by Vantage Data

Centers, CWL1 caters for all colocation and hosting requirements, offering highly secure and resilient environments including high density cloud and high performance computing. Furthermore, a rapid build programme enables the cost effective delivery of bespoke data halls within a timescale of just 16 weeks.

On-site services include server migration and installation, remote hands, 24/7 engineering support, plus high quality conference and meetings facilities.

To find out more call 01633 674518 or [CLICK HERE.](https://www.vantage-dc-cardiff.co.uk)
[vantage-dc-cardiff.co.uk](https://www.vantage-dc-cardiff.co.uk)



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Failure is not an option

Assaf Skolnik of RiT Tech and Joe McCaffrey of Duke McCaffrey explain why data centre infrastructure management (DCIM) tools have an invaluable role to play when it comes to supporting a data centre's expansion, migration or retrofit



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▶ Whether packing and labelling boxes to ensure precious possessions are protected and put in the right place, or to simply keep a kettle within easy reach, planning is essential for even the most straightforward of house moves or renovation projects. And the need for a well-considered plan – one capable of deriving order from potential chaos – increases exponentially with scale, as does the severity of the consequences for failing to prepare properly.

AVOIDING CATASTROPHE

While prematurely pulling a plug in a house may result in a freezer full of food going to waste, flicking a switch too early during the relocation or rehousing of a data centre can be catastrophic, disrupting business critical services in the blink of an eye and costing millions of dollars in lost revenue. Put simply, disconnecting a single port without a forensic understanding of the impact it will have on other devices and services can have a far reaching ripple effect and is,

quite frankly, logistical lunacy.

Migration, however, need not be a migraine inducing or monetary minefield if all of a data centre's physical assets, workflows, policies, services and network connectivity are comprehensively mapped and meticulously documented. Such situational awareness – despite its value to the everyday efficiency and operation of a facility – is, remarkably, the exception rather than the rule though.

UNDER PRESSURE

Like an attic full of forgotten treasures or garage crammed with uncatalogued items that only reveal the true extent of their content during a move, the majority of data centres have plenty of surprises to be found in their cabinets, overhead trays and underfloor channels – often as a consequence of rapid expansion and adopting a bolt-on approach to administrative systems.

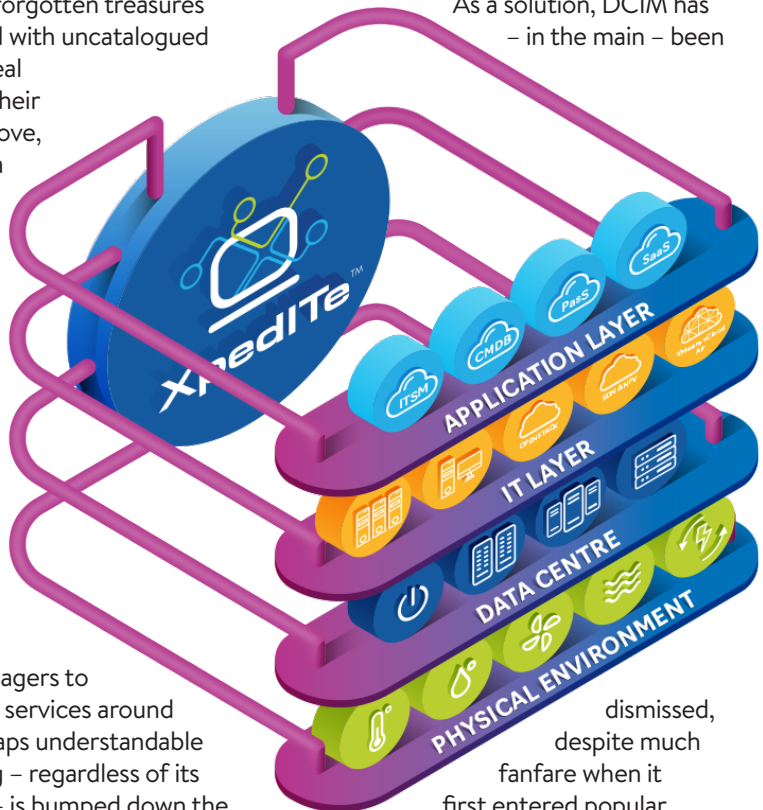
Given the immense pressure on data centre managers to preserve persistent services around the clock, it is perhaps understandable that record keeping – regardless of its long-term benefit – is bumped down the priority order or even forgotten. As a result, when it comes to supporting a data centre's expansion, migration or retrofit, construction and cost consultants often find themselves starting with a blank sheet

when it comes to an asset register.

KNOWLEDGE IS POWER

Undertaking a detailed inventory of a data centre to cost and space plan is therefore imperative, and a tool that has a record of every switch, plug and cable makes commercial viability forecasting far easier. However, despite DCIM featuring on many cost consultants' lines since the concept's inception, historically there just has not been one good enough to support the planning process.

As a solution, DCIM has – in the main – been



dismissed, despite much fanfare when it first entered popular parlance. A pedigree of broken promises and expensive and ineffective deployments saw the acronym and its associated technologies shunned by data centre managers in favour of the humble

spreadsheet. Consequently, accurately recording such an environment represents a huge undertaking, but it is an analytical feat now being offered by a number of automated infrastructure specialists.

GREAT EXPECTATIONS

Customers can expect the next generation of data centre, network infrastructure and operations management systems to mine and correlate data from multiple databases and systems to provide a single, trusted and real time source of information.

Once verified manually to account for any assets that pre-date or have been missed off previous registers, these cutting edge tools remove a significant burden from the shoulders of all those responsible for running and preserving digital services by becoming an all seeing eye, and enabling the ability to orchestrate operations across all sites and assets in any given network. Armed with a complete high-fidelity picture that bridges previous gaps between disparate systems and environments, using DCIM means migration goes from being a mission wrought with risk to a controlled and easy to manage process.

THINKING AHEAD

Such a platform brings expediency to a transition by identifying potential points of failure, flagging impacted devices and – using advanced algorithms – producing

accurate work orders for execution, even by third-party operators, in order to maintain continuity of service. However, these hi-tech tools' attributes go far beyond the planning of which plugs to pull and replace first during a migration. Indeed, a data centre does not need to be on the move to benefit.

It is possible to enhance everyday operations by enabling points of failure and breaches of physical security to be immediately detected, optimising networks

and mitigating against any unnecessary or unplanned downtime. Similarly, the automated work orders they produce significantly reduce maintenance times and any network changes can be implemented and properly labelled with complete peace of mind, having been forensically thought through.

DELIVERING THE GOODS

Regardless of the point of introduction in a data centre's lifecycle, such innovative solutions deliver reassurance and a return on investment. Whether utilised to plan a new facility, improve the efficiency of an existing site or manage self-migration, the resource

of live data allows informed decisions to be made quickly today, while planning, provisioning and preparing for tomorrow.

Live data also promises to become richer in detail with the incorporation of predictive provisioning now just

'Armed with a complete high-fidelity picture that bridges previous gaps between disparate systems and environments, using DCIM means migration goes from being a mission wrought with risk to a controlled and easy to manage process.'

over the horizon. Capable of producing prognoses for the lifecycle of devices and calculating assets nearing expiration, such a breakthrough will help future proof operations remaining in-situ and save migration costs by mitigating the need to move soon to be replaced components.



ASSAF SKOLNIK

Assaf Skolnik is chief executive officer at RiT Tech. He has over a decade of experience in senior corporate leadership roles, with a proven track record in developing new markets, technologies and continued business growth.

Skolnik has restructured RiT Tech. By driving new concepts for integration and value added solutions he has placed RiT Tech at the forefront of the market for resource efficient data centre management solutions. This has been achieved by creating and driving innovative go to market strategies and promoting new approaches to solutions for cost and energy efficient data centre infrastructure operation.

NO EXCUSES

As Benjamin Franklin – one of the founding fathers of the United States of America – so eloquently put it, ‘By failing to prepare you are preparing to fail.’ In the data centre sector there is no longer any excuse for doing so. ■



JOE MCCAFFREY

Joe McCaffrey is managing director and co-founder of Duke McCaffrey. A chartered mechanical and electrical quantity surveyor with specific experience in data centre design and construction, he has led on some of EMEA's most significant data centre projects for large funds and data centre developers including Keppel and Digital Realty.

Over the past three years, Duke McCaffrey's data centre projects have grown in complexity, particularly for aging facilities. McCaffrey's clients express that he has invaluable experience when advising on legacy and retrofitting existing data centres as part of expansion plans.

Rajiv Ramaswami joins Nutanix as CEO

Nutanix has appointed Rajiv Ramaswami as president and chief executive officer (CEO). He succeeds co-founder, Dheeraj Pandey, who previously announced his plans to retire as CEO of Nutanix upon the appointment of a successor.

Ramaswami is a seasoned technology industry executive who has held senior executive roles at companies including VMware, Broadcom, Cisco and Nortel, after having begun his career at IBM. He has an impressive, 30+ year track record of building and scaling businesses in cloud services, software and

network infrastructure.

‘I’m thrilled to be joining Nutanix at this transformative time for the company

and the industry,’ said Ramaswami. ‘I have long admired Nutanix as a formidable competitor, a pioneer in hyperconverged infrastructure solutions and a leader in cloud software. Working closely with the board, the management team, and more than

6,000 employees around the world, we will build on the company’s strong foundation of continuous innovation.’



Robert Merki becomes new R&M CTO

R&M has appointed Robert Merki as its chief technology officer (CTO). A senior research and development (R&D) executive with over 10 years of successful management experience in the construction industry, he has held various management positions at Condair, Hilti and Accenture.

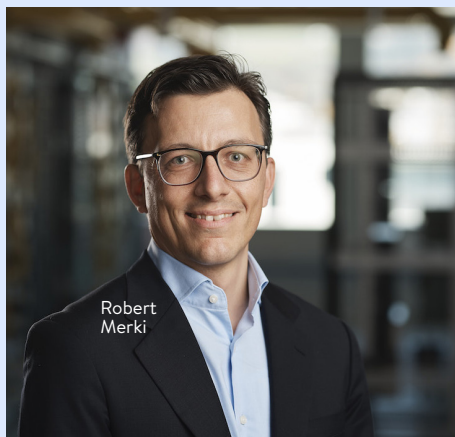
Merki succeeds Stefan Grätzer, who left R&M at the end of 2020 to pursue new opportunities outside the company. Grätzer was instrumental in positioning R&M as a technology leader in its strategic

segments and successfully directed the development of numerous product lines

and set-up R&M’s R&D Center in Bulgaria.

‘It’s with excitement and honour that I take on the role of CTO at R&M,’ said Merki. ‘I’m looking forward to collaborating with my team to further strengthen the innovation pipeline of R&M and bring our solutions to

new applications. We want to continue to provide integrated solutions to customers with our proven quality.’



Equinix appoints Lorraine Wilkinson as regional vice president for sales UK

Equinix has appointed Lorraine Wilkinson as regional vice president for sales UK. As a key member of the UK leadership team she will be responsible for implementing and progressing Equinix's sales strategy in the UK, developing existing customer relationships and supporting the long-term acquisition of new customers.

Wilkinson brings 25 years of sales experience within the tech sector to Equinix. Most recently she was vice president of the UK and Ireland for global compute and client solutions sales at Dell Technologies, where she was responsible for selling workforce and data centre solutions to some of the largest companies in the region, across a wide range of industry segments. Her



work in this role supported Dell achieving a top market share position in both

mainstream servers and commercial PC segments.

At Equinix, Wilkinson will continue her proven track record of delivering transformational solutions to large global customers. She commented, 'It is essential that enterprises have

strong infrastructures in place in order to succeed in the digital age. I am looking forward to working with the Equinix team and our broad channel partner network to nurture customer relationships, deliver solutions that assist organisations in their digital transformation and bolster Equinix's position in the UK market.'

CHANNEL UPDATE IN BRIEF

Schneider Electric has been named Vendor Champion in the Canalys Channel Leadership Matrix EMEA 2020 for the second year running.

Kao Data has made two senior director appointments to underpin its next phase of campus growth. Rod Faul joins as senior client director and Tom Bethell joins as business development director.

Simon Asbury has been named UK managing director at Harting.

Huber+Suhner has expanded its critical communications portfolio with the full integration of Kathrein Special Communications.

Blue Orange has welcomed a string of new arrivals including operations manager, Tristan Carter, as part of a £10m growth strategy.

EfficientIP has announced two new senior appointments – Thierry Drilhon as chairman of the board and Cécile Ferreboeuf Claves as a new board member.

Quickclicks

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

Schneider Electric has launched a new podcast series, where leaders share insights on accelerating digital journeys during the coronavirus pandemic. [CLICK HERE](#) to access it.

Which Fiber Termination Method is Right for You? is a blog from [Siemon](#). [CLICK HERE](#) to read it.

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Getting the Best from Your Batteries is a blog from Aaron Oddy of **Centiel UK**. [CLICK HERE](#) to read it.

Building Flexibility Into Your Network Concept is blog from Wolfgang Beier of **Nexans**. [CLICK HERE](#) to read it.

Alleviating Automation Anxiety is a blog from **RiT Tech** that examines why it is time to trust data centre infrastructure management (DCIM) solutions. [CLICK HERE](#) to read it.

Overcoming Productivity Problems is a white paper from **Ideal Networks**. [CLICK HERE](#) to download a copy.

The Digital Resilience Rope-a-Dope is a blog from Andrew Donoghue of **Vertiv**. [CLICK HERE](#) to read it.



Make the connection

Yuna Shin of Leviton provides an all you need to know guide to modular plug terminated links (MPTLs)

▶ Today's networking systems have evolved. Historically, the majority of network computing devices were in offices or equipment rooms, with horizontal cabling terminating at a panel or equipment outlet and devices connected with a conventional patch cord. End devices such as PCs, phones and printers experienced a high degree of user interaction, with an equally high probability of relocation or replacement.

PANEL BEATER

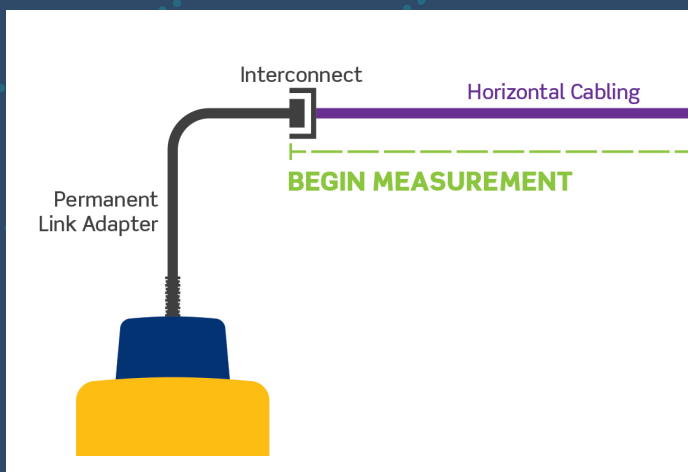
With the advancement of the internet of things (IoT) and intelligent building technology, devices such as security cameras, wireless access points and clocks are increasingly becoming internet protocol (IP) enabled and connected to the copper horizontal cabling infrastructure. These types of devices are fixed in location and do not experience user interaction once deployed. It's often impractical or unsafe to connect these types of devices to a typical panel.

This is where an MPTL comes in. With an MPTL, there is just one patch cord in the telecommunications room, while the horizontal link is terminated at the other end with a plug, so it can be inserted directly into the device. This eliminates the equipment cord. The

benefits of using an MPTL include the cost effective ability to adhere to the code requirement of only placing plenum rated products in air handling spaces, and better security and aesthetics by avoiding exposed patch cords that can be accidentally or intentionally disconnected.

STANDARDS RECOGNITION

In the past, the industry saw the practical use of links that terminated to a plug and eliminated the equipment cord, but there were no test requirements specified by the ISO/IEC or TIA standards. Use of such



links was originally noted in the BICSI 005 Electronic Safety and Security standard and appeared again in the BICSI 033 Information Communication Technology Design and Implementation Practices for

Intelligent Buildings and Premises.

The TIA-862-B standard for Intelligent Building Systems soon recognised the need to eliminate an equipment cord when deemed unfeasible or unsafe, and specifically allowed for the use of a plug terminated link. This application was originally referred to as a direct connection but due to confusion with direct attach cable (DAC) connections used in data centre switch to server applications, the terminology evolved.

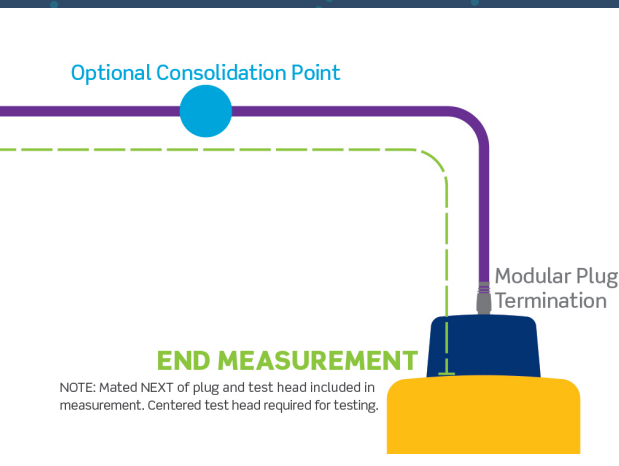
MISSING LINK

BICSI recommended that these connections be tested using modified single connector permanent link testing. This was achieved by attaching the main testing unit at the patch panel with a

terminated plug at the far end was excluded from the test.

However, as time went on and field terminated plugs were used more widely, standards bodies began to identify the need for a test procedure that included the

final plug connection at the far end. In February 2017, the TIA TR-42.7 subcommittee agreed to include MPTLs in an ANSI/ TIA-568.2-D normative annex. In addition to recognising MPTL as an acceptable cabling configuration, the standard included requirements for testing MPTL cabling. Finally, in 2018 an MPTL configuration was approved under the TIA 568.2-D standard and in June 2020 ISO/IEC introduced the equivalent specification in TR 11801-9910:2020.



permanent link adaptor, connecting the remote unit at the far end with a channel adaptor and then choosing the Mod 1-Conn Perm. Link application on the tester. But the problem with using a channel adaptor

TYPICAL APPLICATIONS

As mentioned previously, more devices are becoming IP enabled and connecting to the copper horizontal cabling infrastructure. MPTLs are often deployed



in high-performance cabling infrastructures using Category 6A cable for wireless access points and applications anticipating high-bandwidth demand, as well as audiovisual equipment and CCTV cameras. However, it's important to recognise exactly where MPTLs are better suited for connecting devices instead of traditional outlets, faceplates and equipment cords, so installers and managers can make the most effective decision.

In hospitality, retail and education based applications, cabling system deployments often include many connections to support surveillance cameras. When a surveillance camera connects to an exposed outlet with an accessible equipment cord, it's easy to disconnect the camera by simply pulling out the cord. Therefore, where security is a concern, MPTLs are often a good fit. MPTLs are directly plugged into the camera from behind the wall or ceiling and by eliminating the outlet, faceplate and equipment cord, it becomes much harder to disconnect the camera.

TAKING THE ADVANTAGE

While security is one of the primary reasons to use MPTLs, a plethora of other benefits – such as cost savings and aesthetics – can also play a major role in the decision. Many newer devices such as LED lights, wireless access points and building automation

require connections in an air plenum. Not all outlets and patch cords are plenum rated, so using MPTLs with plenum rated cable removes this problem.

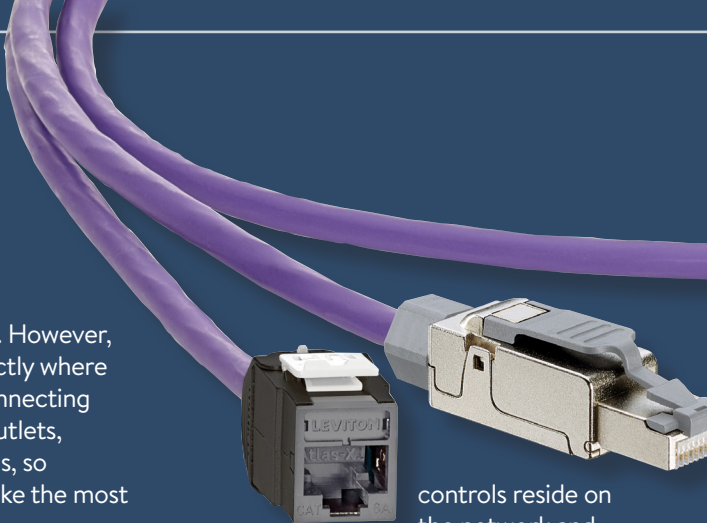
Another advantage of MPTLs is that by eliminating outlets and equipment cords, environments can be neater and cleaner. This is especially pertinent in customer facing environments where it's necessary to impress clientele with pleasing aesthetics.

DIFFERENT STROKES

There are, however, several potential issues to consider when installing and certifying MPTLs. First, not all field installed plugs are rated to meet ISO/IEC or TIA component specifications. While Category 5e plugs are likely to easily pass certification, Category 6 and 6A plugs should be verified to meet component performance specifications. Careful installation is required and an MPTL cannot exceed 90m to successfully pass ISO/IEC and TIA standards.

Finally, testing MPTLs is relatively new and, therefore, testing solutions might differ slightly between different test

'To ensure a high-quality installation, look for a manufacturer that offers MPTLs that are eligible for a system warranty and can provide technical support to resolve any questions in the field.'



controls reside on the network and connections in an

and a field terminated plug on the other.

equipment manufacturers. A contractor or integrator must purchase patch cord adaptors to conduct the test – these are not typically included with the purchase of a tester and are considered accessories. Furthermore, an adaptor must be purchased for each category of cable to be tested and while manufacturers used to only sell them in pairs, many have started selling them individually in recognition of the need for MPTL testing.

SPOT THE DIFFERENCE

A DAC is like a patch cord that is generally factory assembled but has less stringent requirements than a patch cord. A DAC is only defined for Category 8 by the TIA – the clause contains the transmission performance specifications for Category 8 DACs with a maximum length of 5m. It does not contain any connecting hardware such as equipment outlets, consolidation points, interconnects or other connecting hardware. DACs are also composed of compliant plug connectors and flexible cable.

DACs are used almost exclusively in data centre applications to connect two pieces of active equipment that are in close proximity. While Category 8 standards allow for assemblies using twisted pair cable and RJ-45 plugs, other DAC assemblies use optical fibre or twin-axial copper cable and connectors only found on active equipment, such as SFP+ or QSFP+. An MPTL, on the other hand, is generally a field terminated link segment made with horizontal cable, and has a jack on one end

COMMON GROUND

As time goes on, MPTL applications will only become more common. To ensure a high-quality installation, look for a manufacturer that offers MPTLs that are eligible for a system warranty and can provide technical support to resolve any questions in the field. ■



YUNA SHIN

Yuna Shin is senior product manager copper at Leviton, where she manages the company's extensive selection of Category 6A, Category 6 and Category 5e connectivity. She has more than 10 years of experience in the structured cabling industry, and regularly authors articles and hosts webinars on cabling industry trends.

Nexans

Nexans has released a Category 6A field installable plug as part of its LANmark-6A offering. It is designed to build modular plug terminated links (MPTLs) – an increasingly popular way to directly connect patch panels with network devices such as wireless access points and IP cameras.

These devices are usually located near ceilings where there is often no possibility to install an outlet or other connection box. MPTLs are built with network infrastructure cable terminated with an RJ-45 jack on one end and an RJ-45 plug on the other, and

are now standardised in TIA 568-2.D and specified in the draft version of ISO/IEC TR 11801-9910 ED1.

The LANmark-6A field terminable plug will support all Class EA applications including 10GBASE-T and power over

Ethernet (PoE) up to 100W. It is fully shielded,

accepts cable of 6.0mm to 8.5mm diameter with AWG24 to AWG23 solid wires, and is easy to install.

Discover more about the LANmark-6A field terminable plug by [CLICKING HERE](http://www.nexans.co.ukLANsystems). www.nexans.co.ukLANsystems

LANmark-6A



Excel Networking Solutions

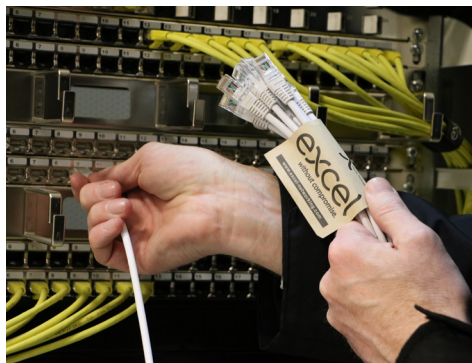
Excel Networking Solutions' **copper cabling systems**

combine award winning technology, category rated performance and independent **third-party verification** with flexible options, high-density solutions and a comprehensive choice of products. They are all covered by a 25-year warranty when installed by an **accredited Excel Partner**.

Last year, Excel was announced as the **number one cabling brand** in the UK market by BSRIA, with a 21 per cent market share. The brand offers one of the market's most comprehensive range of copper cabling solutions, which is **CPR compliant** as standard. Excel's structured cabling products constitute an end to end solution

where performance and ease of installation are prerequisites.

Many products from Excel's copper cabling solution, including patch panels, patch leads, keystone jacks and modules, are available in 100 per cent recycled and recyclable **plastic free packaging**.



This makes it easier for engineers on-site by helping to reduce overall installation time and cost.

The full portfolio of Excel's copper cabling products is available in the dedicated **Excel Copper Catalogue**.

[CLICK HERE](http://www.excel-networking.com) for further details. www.excel-networking.com

Cable Management Warehouse (CMW)

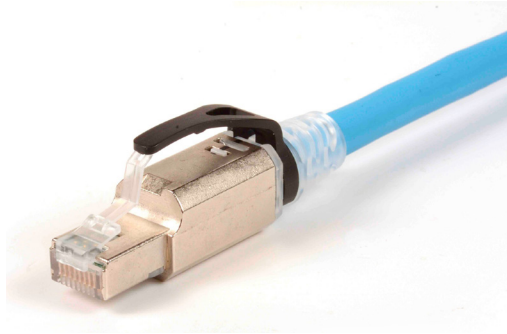
Available from CMW, the **Siemon Z-PLUG** delivers a high level of 10 Gigabit Ethernet system transmission performance, whilst supporting advanced power over Ethernet (PoE) and connecting IP enabled internet of things (IoT) and smart building devices.

Developed to deliver custom length cables that can be terminated on-site for quick direct connections to PoE LED lights, security cameras, wireless access points, digital displays, distributed antenna systems, building automation controls and more, **Z-PLUG** exceeds all Category 6A performance

requirements to easily support high-speed applications like 802.11ac and 802.11ax Wi-Fi.

Deploying **Z-PLUG** to eliminate additional outlets and patch cords can improve transmission performance and enable more efficient power delivery. The shorter plug design, with rounded edges and an ability to eliminate the boot and latch protector, makes it ideal for connecting to devices with limited space.

CLICK HERE to find out more or to send an email **CLICK HERE**.
cmw ltd.co.uk



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HellermannTyton

HellermannTyton has launched a brand new Category 6A Keystone Jack to its portfolio of quality data network products. The all new HTC Series Category 6A Shielded Keystone Jack has been designed to support today's network infrastructure requirements and the increasing demands on high-speed data.

The Category 6A Keystone Jack's 360° shielding prevents alien crosstalk and helps to dissipate the heat produced by power over Ethernet (PoE) applications. Its short body allows for use in more restrictive areas of an installation, while the tool free design allows for fast on-site installation without the need for any specialised termination



tool.

To support the Category 6A Keystone Jack, HellermannTyton has also launched a new 1U 24 port modular patch panel. Compatible with the Category 6A Keystone Jack, it has been designed for fast and

easy installation and features a folding rear cable manager bar, removing the need for additional tools during install.

Both products come in 100 per cent recyclable packaging to reduce any environmental impact from waste materials.

To find out more **CLICK HERE.**
www.htdata.co.uk

Corning Optical Communications

When using copper solutions for in-building cabling, the 90m stated in the standard for the permanent link or 100m for the channel is not always sufficient to connect devices installed far away. Corning's FutureCom S/FTP 1200/22 Augmented Extended Reach (A-XR) cable meets this need for extended reach, exceeding existing standards and

guaranteeing 120m when combined with Corning's S500 copper jacks.

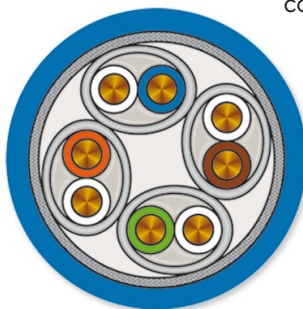
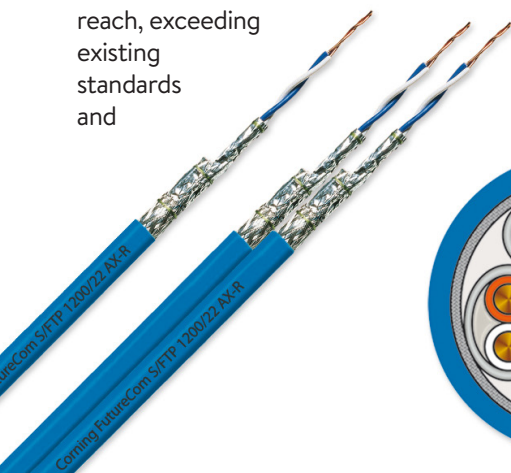
A-XR cable is specified up to 1200MHz and provides transmission performance meeting Category 7, 7A and 1200MHz multimedia cable specifications according to EN 50288-9-1, IEC 61156-5 and IEC61156-7. Since the cable is suitable for the transmission of high bit rates, it offers an increased level of future security. Characterised by its slim design and low weight, each twisted pair of

conductors is also individually

foil shielded and twisted in pairs with a braided sheath (S/FTP) to achieve optimum shielding.

For more information **CLICK HERE.**

www.corning.com



Comtec

Comtec, part of the ETC Group, offers the most comprehensive range of branded copper cabling systems, with solutions from industry leading companies including Draka, HellermannTyton, Molex, CommScope (NETCONNECT and SYSTIMAX), Nexans and Siemon.

These, together with the proven, long established and price competitive Ultima solution, mean that Comtec has a cabling system to support every project and every budget. With options for Category 5e, 6, 6A, 7, 7A and 8, there is a copper cabling system for even the most demanding



COMTEC ▶

 **Draka**

 **HellermannTyton**

 **molex**

COMMScope® NETCONNECT

 **Nexans**

 **SIEMON**

COMMScope® SYSTIMAX

 **Ultima**

application.

Comtec offers everything required for a copper cabling installation including cables, patch panels, patch cords, POD boxes, work area outlets, cabinets and much, much more. With items available for free next day delivery and access to friendly, knowledgeable support staff, Comtec

offers the service and support you need to deliver projects on time and on budget.

To find out more about the range of copper cabling systems available from Comtec **CLICK HERE.**

www.comtecdirect.co.uk

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Proof positive

Mark Froggatt of BASEC explains the importance of third-party testing and certification for copper cabling systems

 In a world that is so heavily reliant on data, it is crucial that structured cabling systems can accommodate demand both now and in the future. However, poor quality and non-compliant copper cable can have a catastrophic impact on the end user experience.

GROWING CONCERN

We are in the midst of a digital transformation. This is defined by Salesforce as ‘the process of using digital technologies to create new – or modify existing – business processes, culture and customer experiences to meet changing business and market requirements’.

According to IDC, more than five billion consumers interact with data every day and by 2025 this will increase to six billion – 75 per cent of the world’s population – when each connected

person will have at least one data transaction every 18 seconds. It goes on to state that many of these transactions are because of the billions of internet of things (IoT) based devices connected across the globe, which are expected to create over

90ZB of data by 2025. With the expansion of the industrial IoT, these transactions will inevitably increase further.

QUALITY INDICATORS

Network infrastructure quality should be carefully analysed to assess whether or not it will be able to operate efficiently. Data networks have been evolving since 1985, when the first voice grade copper cabling was used to transmit data by means of a simple unshielded twisted pair cable, which managed to transfer data at a rate of 1Mb/s.

Of course, transmission requirements have significantly evolved and now copper structured cabling specifications have progressed further. Increases in data demand have meant a far greater emphasis on cable design to reduce or eliminate the undesirable effects of electromagnetic interference (EMI), while pair geometry, choice of dielectric and

shielding are all design considerations that manufacturers use to negate its impact.

The progression of established standards – IEC, ANSI/TIA and EN – has imposed higher requirements in respect of the measurement of data integrity

‘Testing and certification help you to ensure that a level of quality, in line with the industry standards or above this minimum, can be successfully delivered.’

and immunity to EMI. Test parameters have become more onerous and the key performance indicators for a data cable focus on attenuation and crosstalk, with in-depth tests developed to measure both. These tests determine the interference experienced, which, in turn, impacts the ability of a cable to transmit data without errors.

BUYER BEWARE

It is advisable to ensure that a structured cabling system is purchased from a manufacturer that is certified by a third-party approval organisation. Approved cable benefits the end user and installer alike, in that the likelihood of infrastructure failure down the line is significantly reduced. Approved cables are assessed to ensure that they are produced using only high-quality components, with process or factory controls also audited as part of any

certification in order to ensure standards compliance is maintained.

During the certification process cable is measured against various performance parameters, which reflect those it will experience during operation, the environmental challenges it may encounter during installation and its lifespan. For example, thermal aging and chemical resistance exposure are targeted tests used to qualify performance. These tests act to give both the installer and end user peace of mind that the cable being used can accommodate high demands for data, whilst withstanding external influences that would otherwise compromise performance and, potentially, the integrity of data for end users.

The adoption of data cables in almost all industries has meant that transmission testing alone may not indicate a cable's overall performance capabilities. For



this reason, ANSI/TIA standards have developed a mechanical, ingress, chemical and electromagnetic (MICE) classification to determine the harshness of a cable's surroundings.

SAFEGUARDING NETWORKS

Any manufacturer going through the approval process is assessed on many contributing factors including its quality management systems, how it validates design, how it purchases materials, how it deals with non-conforming product, down to how its teams are trained – all of which contribute to the functioning of an effective cable manufacturing business.

Additionally, there is a comprehensive audit, where the key processes involved directly in the manufacture of structured cabling are assessed. Each method or system is reviewed in-depth to ensure repeatability and high-quality output. Samples from each cable design are forensically examined to ensure that all relevant specification parameters are satisfied and, in doing so, this minimises the risk of product failures throughout every stage of the manufacturing process.

The outcome of all of the above is to instil confidence that a structured cabling system is suitable for its intended



purpose. Cables form the building blocks of any IT infrastructure so high-quality product, proven to meet the required output performance levels, is vital. Using a



certified manufacturer takes the way any guesswork and enables you to be sure of product quality.

PROBLEM SOLVING

It is critically important to ensure that the structured cabling installed within a network infrastructure is tested and verified to meet all complex data transmission parameters. Any instance of system outages, data corruption or simple loss of time can cause businesses a myriad of potentially devastating issues.

Testing and certification help you to ensure that a level of quality, in line with the industry standards or above this minimum, can be successfully delivered. A non-approved cable cannot guarantee this. The responsibility for maintained levels of quality falls on every touchpoint of the supply chain and starts right at the beginning of the network infrastructure specification process, where independently approved cable should be outlined as a requirement.

As purchasing power moves on from this decision, project owners and

procurement teams should also check for verified certification. Finally, care should also be taken during installation to avoid unnecessary damage to a cable.



ESSENTIAL SELECTION

Third-party certification, delivered through a rigorous auditing and product sampling schedule, ensures cables consistently comply with required standards. It is essential in making sure structured cabling systems are reliable, efficient and meet the demands placed on them. ■



MARK FROGGATT

Mark Froggatt is BASEC's technical director. He joined the company in June 2019 having previously worked for Draka, Nexans and British Cables Company. In his role, Froggatt is focused on the overall technical policy, application and operation of BASEC's testing, certification and related services, whilst growing technical capability and opportunities for the business.

Standing the test of time

Having worked within the testing and test equipment sector for over 30 years, **Mark Mullins** has seen many changes. Rob Shepherd recently caught up with him to find out more about his life and career, and his thoughts on some of the big issues of the day

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

MM: I have a mix of a technical computer science and business background. I get to educate myself courtesy of our technical teams and I also helped to found our company's network division back in 1993. That allows me to help educate customers about our technologies and solutions, which is how marketing works at Fluke.

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

MM: It came looking for me. I was marketing some esoteric frequency measurement products when I was approached to join the small team that created Fluke Networks. We had 100 days and \$100,000 to find a new market and selected network testing after rejecting a number of less attractive alternatives.

RS: You must have seen some enormous changes over the years in terms of network infrastructure testing. Which have been the most significant and why?

MM: This dates me, but when we started it was all about IBM Type 1 and coax cable. Then twisted pair came along and we were amazed that it could support 10BASE-T.

Now 1,000 times that rate is commonplace – maybe more if Category 8 ever takes off. Testers have had to keep up, meaning that measurements we thought impossible in a laboratory back then are now done in seconds in a tester that you can hold in your hand.

RS: Do installers and end users give testing the time, attention and consideration it

deserves?

MM: Most do. I've spoken to installers that certify all their installations, whether or not the end user demands it, in order to ensure a consistent process and results. Part of our job is to make it so easy that

'I've spoken to installers that certify all their installations, whether or not the end user demands it, in order to ensure a consistent process and results. Part of our job is to make it so easy that testing doesn't take much time, attention or expertise.'

testing doesn't take much time, attention or expertise.

RS: When it comes to selecting a piece of test equipment, what should influence a purchasing decision?

MM: It's essential that results are trustworthy. If there is a dispute about the results, it could cost an installer a lot of money, so you want a tester that produces results that are acceptable to all parties.

Next, look at the vendor – do they have the people, support, training and service resources to make the most out of your investment? Of course, the specifications are important, but that's typically the last thing our customers bring up. Don't tell our engineers that, though!

RS: How is power over Ethernet (PoE) affecting the way in which intelligent building network cabling infrastructures are tested?

MM: While the IEEE, ISO and TIA specify resistance requirements for cabling to support PoE, field tests don't require it. With high power PoE coming online, making these tests is becoming more important. Today, many testers can support this and do it very quickly – so there's no excuse for not doing so.

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

MM: Aside from needing a bigger marketing budget, I can't think of much else I would change. This is a freewheeling market with a lot of competition and innovation, which is beneficial to purchasers and installers.

RS: What's the best piece of advice you've been given and

how has it helped you during your career?

MM: US president, Calvin Coolidge, is credited with this gem – 'If you see 10 troubles coming down the road, you can be sure that nine will run into the ditch before they reach you.' If you keep that in mind, you can focus on the few problems that get close enough to be a concern.

RS: Who do you admire from the industry and why?

MM: I've been around a while and worked with some amazing people. Our former sales manager, Randy Wear, spent years consulting with data centre designers and selling them a lot of testers. Yet one of them once told me 'we don't talk to salespeople, we talk to Randy'.

Also, Peter Jones and the leadership team at the Ethernet Alliance have been doing some great work to reduce the confusion around PoE with their new certification program. ■



Total selects Nutanix to power digital transformation

Total has implemented Nutanix solutions to develop a unified IT environment supporting the majority of its global operations. Total selected Nutanix to deliver the reliability and performance its users expect, while ensuring the necessary flexibility for the company to adapt to the fast changing oil and gas industry.

Additionally, the company selected Nutanix to support its goal of dramatically minimising its data centre footprint as part of its environmental initiatives.

Nutanix solutions enable Total to

streamline administration and enhance automations, including maintenance, as well as optimise costs. They also contribute to

providing the reliability and performance required to maintain its business leadership in the challenging energy production space.

The ability to quickly scale, as well as roll in and roll out resources as needed, is an important aspect of Total. The Nutanix software

defined infrastructure solution enables this flexibility while also providing built-in data protection and one click security upgrades to help maintain the security and integrity of sensitive industry data.



Ideal Industries helps students get data terminations right first time

A partnership between Ideal Industries and Coleg Cambria has helped to set students on course to faster, more consistent data cabling installations.

Coleg Cambria is one of a number of colleges benefiting from Ideal Industries' knowledge sharing approach to working with the further

education sector, which has seen it demonstrate a number of its products to students.

Coleg Cambria has a campus dedicated entirely to construction and engineering

disciplines in Wrexham, and is always keen to drive best practice. Ideal Industries' products are used to help the students gain confidence and future career prospects. Moving forwards, both the Coleg Cambria and Ideal Industries



are keen to explore more opportunities to work together and support students' learning.

Cisco, CDW and Cohesity digitally transform Stockport NHS Foundation Trust's data centre infrastructure

Cisco, Cohesity and CDW have transformed the operations of Stockport NHS Foundation Trust. The Trust – which sees over half a million patients every year across Stockport, Cheshire and Derbyshire – overhauled its data centre and back-up infrastructure to meet the new challenges of running a large network of hospitals and clinics across various sites.

CDW worked to design and implement a radically different IT infrastructure. It assessed several options as part of a vendor agnostic process and recommended a collaboration with

Cisco and Cohesity as the most effective approach to modernising the IT infrastructure.



Cisco delivered its HyperFlex hyperconverged infrastructure solution, as well as its Intersight SaaS Systems Management platform and its Application Centric Infrastructure. Cohesity software was installed on Cisco UCS servers to provide

modern data management tools, fast back-up, and data recovery capabilities. The Cisco and Cohesity solutions were installed across the Trust's two data centres, providing integrated back-up, archiving and file storage capabilities.

PROJECTS & CONTRACTS IN BRIEF

Cambridge Wireless has teamed-up with Huawei to deploy and build Cambridge's first 5G mobile private network.

SAS has opened two further data centres in the UK and Germany optimised for Microsoft Azure, following a global strategic partnership established by the two companies.

Equinix has announced an initial investment of \$55m to build its third International Business Exchange (IBX) data centre in Osaka, Japan. To be named OS3, the new facility will further expand Equinix's footprint and enable local and global businesses to harness Platform Equinix.

Quincy Data and McKay Brothers have connected the largest US futures exchanges at the lowest latency. The new services link the two exchanges, which are based in Aurora and Chicago Illinois.

Bulk Infrastructure has been selected by a London based Quant hedge fund to house its high performance computing (HPC) system. The new HPC cluster triples the compute capacity of its existing facilities.

All you need to know

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Covering all bases

Jonathan Sullivan of NS1 explains how to build a modern foundation for a modern world



Internet infrastructure has changed so much over the last 20 years. It's not just the physical hardware that has evolved, but the software too, and this has had a profound impact on the development of applications. 20 years ago everything was built on-premise and companies owned their technology – if an organisation wanted to deploy an application it involved a real estate transaction.

RACK 'EM UP

With the arrival of colocation services, rack space could be rented, which brought massive cost savings, but the process was still slow. Servers would take a month or two to appear at a data centre, at which point someone went there with a CD,

and there followed an arduous process to bootstrap and deploy to the operating system and any applications.

Fast forward 10 years and the big cloud vendors emerged. Software as a service and infrastructure as a service became commonplace, and for a while many predicted everything would eventually migrate to the cloud. But many enterprises never made the move. Others found that the operational efficiency they gained translated into much higher than expected operating expenses. It wasn't the autoscaling silver bullet we'd been promised.

FITTING THE NEED

Today infrastructure exists on a spectrum, and applications live across it. Company owned data centres are still used and

colocation rented rack space allows organisations to buy or lease servers that fit their needs. The big cloud vendors are still here, bigger than ever, offering physical and virtual machines along with containers. And a more recent innovation, serverless, has frameworks that abstract everything to the point where you just write the code and let someone else worry about the infrastructure entirely – there's still a server there somewhere, of course.

Today most enterprises have applications deployed across these that span everything from colocation to serverless, and it's hard to envision the landscape becoming simpler.

LESS IS MORE

Compute has developed in line with infrastructure. In early 2000 Linux, Windows Server and companies like VMware made it easier to manage infrastructure on-premises. As infrastructure started to shift to the cloud, organisations began using AWS, Azure and Google and, at the same time, still used VMware, which to this day is relevant to enterprises.

The first vendor to recognise the value of managing applications in the cloud and on-premises was Microsoft. Azure and the Azure Stack demonstrated the benefits of purchasing a licence and using software to manage infrastructure. Microsoft didn't care where it lived and suddenly it was clear that the cloud would not always be

the right fit.

Since then there have been many developments, from Kubernetes enabling deployment of applications across all substrates, or Amazon with Outposts, the easy storage rack for the data centre, through to Anthos and Tanzu, which are designed to help run applications across all of these substrates. Infrastructure has become democratised and portable and it's now much easier to move across from traditional company owned to serverless.

MANAGING THE COMPLEXITY

Established cloud first organisations have already deployed their applications across four or five of these environments because each helped meet their unique business needs for things like geographic redundancy and global performance.

The challenges that come with managing complex, heterogeneous infrastructure mean they are likely to have dedicated teams to handle routing challenges.

They are companies that underwent the proverbial digital transformation and have come out the other side better for it.

‘Whether an organisation has its applications deployed in its own data centres, in colocation, in public or private clouds, or on a serverless framework, the foundations they build on must work natively across all environments.’

Cutting edge companies almost universally have a tightly integrated traffic stack, along with teams that help to get the most out of their infrastructure investments by leveraging intelligent DNS-based traffic management technology alongside other tools to connect users to their applications – wherever they may be deployed.

IN THE MIX

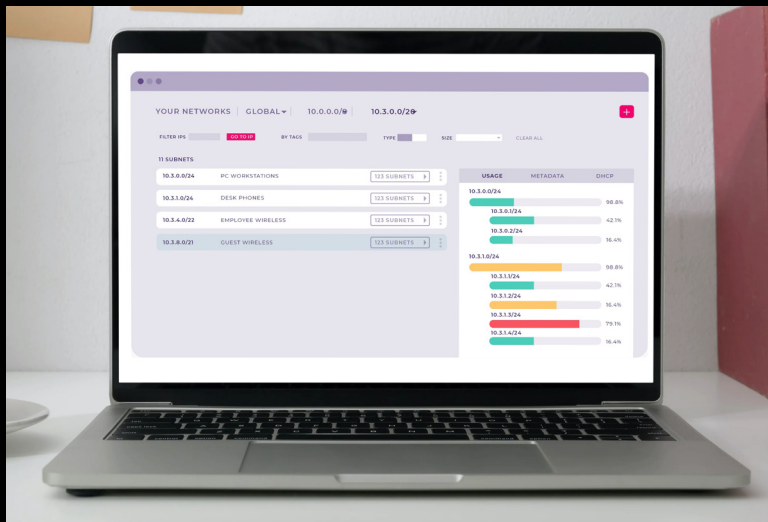
A typical enterprise customer today is likely to have some company owned infrastructure, some private cloud, some public cloud and maybe even a project or two that leverages serverless. As time goes on it's extremely

unlikely all these platforms will be folded into one, particularly when new applications and acquisitions keep being added into the fold. Traffic management (Intelligent DNS, Envoy, Service Mesh), configuration management (Ansible, Terraform), containers (Docker), and orchestration (Kubernetes, Tanzu) are critical tools for managing this latest version of digital transformation.

Companies that don't evolve and embrace these trends risk obsolescence or being overtaken by start-ups or enterprises that are able to move more quickly. Those that adapt sooner can optimise advances in infrastructure and internet traffic management to improve automation, increase efficiency and deliver a fantastic user experience.

TRAFFIC LIGHTS

Traffic management solutions in DNS or DDI – which combines DNS, DHCP and IP address management – become essential. DNS is a ubiquitous protocol and the entry point to almost every networked



application, making it a key lever in the application traffic stack.

Modern DDI moves away from legacy appliance based systems and uses today's software defined technology for network management, supporting everything from high-performance delivery of global traffic to service discovery in highly orchestrated and automated environments spanning on-premises and cloud. When enterprises are thinking about the tools they use to optimise their application traffic, they should also be looking at the foundational components of their application delivery infrastructure and IT systems to ensure they can support their forward looking initiatives.

There are several key markers to look out for:

- API to drive automation
- Hybrid cloud and multi-cloud ready
- Containerised to deploy anywhere with flexibility and portability
- Supports DevOps best practices
- Integrates with hardware, tools and monitoring/APM platforms

- Application aware robust traffic steering capabilities
- Manages complex infrastructure

TEAM WORK

Traditionally within enterprises two or three separate teams have been responsible for managing different aspects of infrastructure – all with different objectives when it comes to DNS and DDI:

- Network operations (NetOps) make sure users and applications stay connected. In the DDI lens they often manage the company's IP space and carve up network resources in a way that is safe and makes sense.
- Development operations (DevOps) teams work on application deployment and management, continuous integration and continuous delivery. They automate, script and use tools and frameworks that make it easier for them to test and deploy infrastructure.
- Security operations (SecOps) monitor for and mitigate attacks. They are interested in forward looking technologies like domain name system security extensions (DNSSEC) and meaningful integrations with security and building intelligence tools.

Any new DDI solution must meet the unique needs of all three constituencies.

SOLID FOUNDATIONS

Whether an organisation has its applications deployed in its own data centres, in colocation, in public or private clouds, or on a serverless framework, the foundations they build on must work natively across all environments. DNS, DDI

and traffic management solutions need to be available in multiple deployment models to meet applications wherever they live. They should integrate not only with existing infrastructure and vendors, but with the ones you aspire to work with as your business pursues its goals over the next decade. They need to be application and infrastructure aware to maximise infrastructure investments, connecting users to applications and optimising their experiences in real time. ■



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