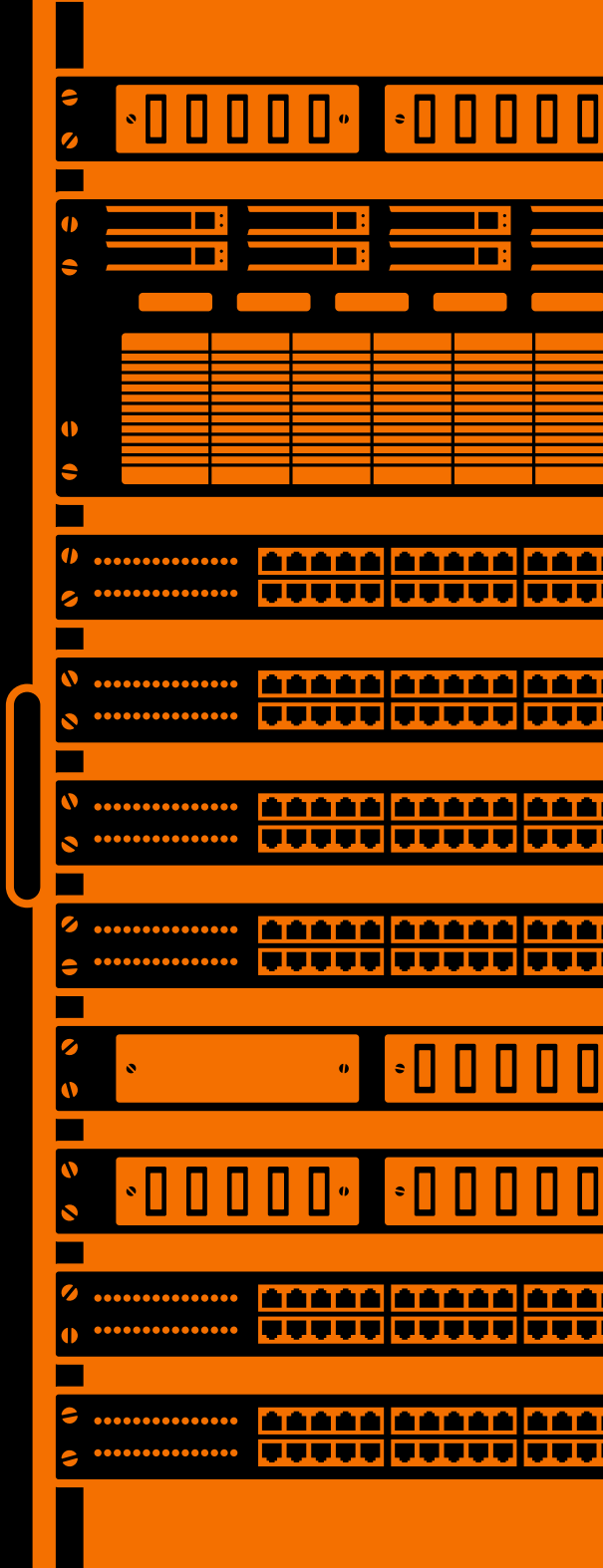# Inside_Networks

Best kept secret

THE DATA CENTRE AND ITS ROLE IN SOCIETY
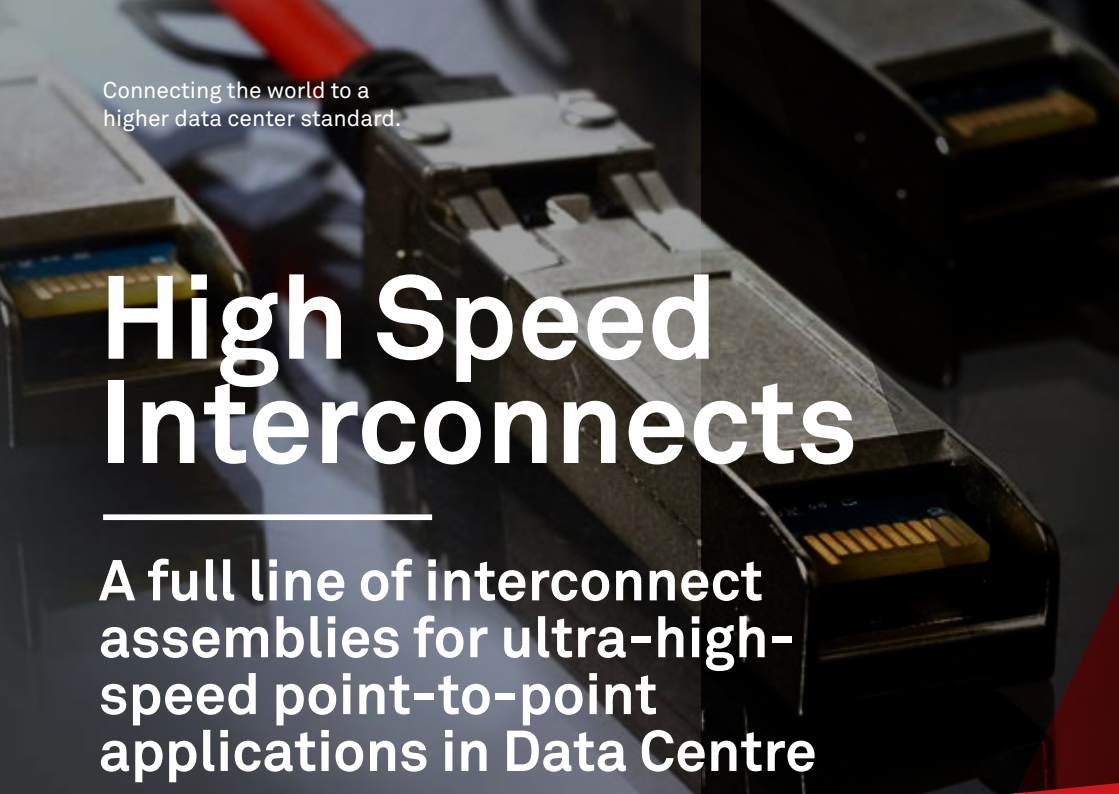
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The heat of the moment

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The Global Digital Infrastructure Education Framework

The Global Digital Infrastructure Education Framework allows data centre and network infrastructure professionals to map education to meet their needs depending on their career goals.

Each program has been designed to address the skills and knowledge requirements of those working in different areas of these vibrant and fast moving sectors. Whilst the programs flow perfectly from one to another they are of equal value as stand alone programs, plus you can enter the framework at any level depending on your level of experience.

Are we missing a trick?

CHALK HILL MEDIA

▶ Not so long ago, while chatting with a well renowned industry expert, he commented that given the reliance that everyone has on data centres, they remain a mystery to pretty much anyone who doesn't work in the sector. While I agree with him, it got me thinking about the repercussions of this situation and whether the public really cares – or indeed if they should – about data centres.

I concluded that the answer was 'probably not' but it also struck me that this is perhaps due to the sector's unwillingness to be more outward looking and promote itself effectively by stating its role in society. Also, given the skills shortage and potential it offers young people as a career, it also seems that we are ignoring a great opportunity. To look at this in more depth and assess what could be done to address the issue, we've asked a panel of experts to offer their opinions and you can read this month's Question Time by **CLICKING HERE.**

With the growth of hyperscale data centres and the demands placed upon enterprise facilities, the processing, transmitting and storing of an increasing amount of information requires optical fibre technology that is capable of supporting faster transmission speeds. Therefore, these should be happy times for manufacturers, distributors, specifiers and installers and Andreas Rüsseler and Thomas Wellinger of R&M explain why the vast number of wireless connections that are essential to the Internet of Things (IoT), 5G, mobile computing and so on will, in turn, require huge amounts of fibre optic cabling **CLICK HERE** to read their article.

Effective data centre cooling and climate management is a massive challenge and the demand for higher density has led to new and innovative ways of addressing it. In this issue, we have two excellent articles on this subject. **CLICK HERE** to read Luca Rozzoni of Chatsworth Products' (CPI) take on why understanding data centre cooling and climate management is so important and **CLICK HERE** to read Zac Potts of Sudlows explain why a successful outcome requires some smart thinking.

With lots more besides the above, I hope you enjoy this issue of Inside_Networks and don't forget, if you'd like to comment on any of these subjects, or anything else, I'd be delighted to hear from you.

R.Shepherd

Rob Shepherd Editor

Inside_Networks
THE NETWORK INFRASTRUCTURE E-MAGAZINE

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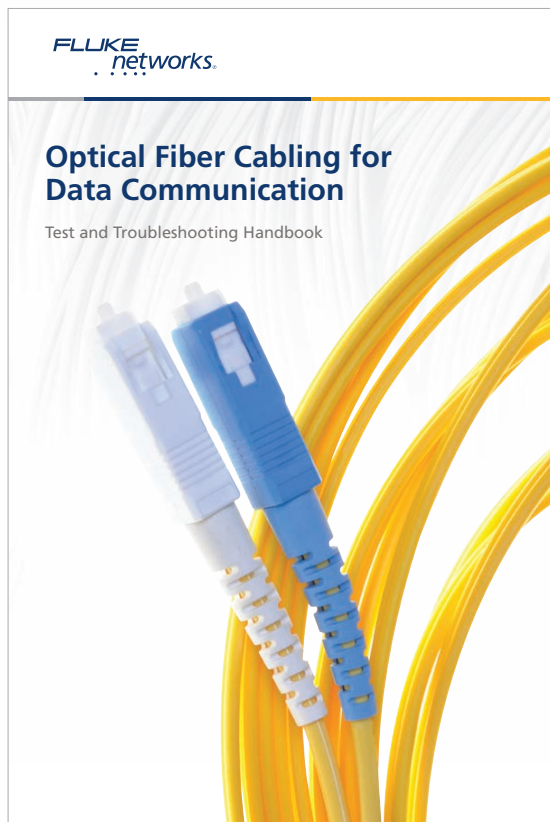
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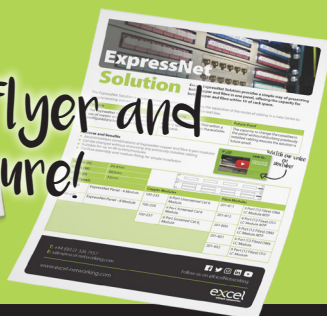
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Employees underwhelmed with investment in technology

In collaboration with Microsoft, Ingram Micro commissioned market research firm YouGov to survey 1,000 workers employed by small and mid-size businesses with 50 to 250 employees in the UK, to understand what they want from the modern workplace and how well placed businesses are to satisfying their requirements.

According to the research, IT teams no longer have the control they once had. This is due to 85 per cent of millennials who admit to procuring their own workplace technologies such as instant messaging, Skype, file hosting and sharing tools that aren't supported or provided by their employer, raising major security issues. The survey also uncovers that millennials are falling out

Apay
Obang-Oyway

of love with email in favour of modern communications tools such as video conferencing, with 66 per cent saying that they use these tools and services due to the high level of ease, value for money and ability to save time.

Apay Obang-Oyway, director of cloud and software UK&I at Ingram Micro, said, 'With the responsibility to design, implement and safeguard the infrastructure of the modern workplace falling under IT departments, it's no surprise IT teams are feeling the pressure like never before. For most companies, managing IT systems in-house with the appropriate level of security policies in place is a time-consuming task that burdens and ties up human resources.'

Gartner finds only 65 per cent of organisations have a cybersecurity expert

Despite 95 per cent of CIOs expecting cyberthreats to increase over the next three years, only 65 per cent of their organisations currently have a cybersecurity expert, according to a survey from Gartner. The survey also reveals that skills challenges continue to plague organisations that undergo digitalisation, with digital security staffing shortages considered a top inhibitor to innovation.

Gartner's 2018 CIO Agenda Survey gathered data from 3,160 CIO respondents in 98 countries and across major industries, representing approximately $13tn in revenue/public

sector budgets and $277bn in IT spending.

The survey indicates that cybersecurity remains a source of deep concern for organisations. Rob McMillan, research director at Gartner, commented, 'In a twisted way, many cybercriminals are digital pioneers, finding ways to leverage big data and web-scale techniques to stage attacks and steal data. CIOs can't protect their organisations from everything, so they need to create a sustainable set of controls that balances their need to protect their business with their need to run it. Taking a risk based approach is imperative to set a target level of cybersecurity readiness.

Businesses expect Industrial IoT to boost their revenues by $154m

The Industrial Internet of Things (IIoT) is set to make a sizeable contribution to the global economy by 2023. This is according to a new global study by Inmarsat, which found that organisations across the global supply chain expect IIoT to be increasing their annual revenues by 10 per cent within five years.

The IIoT is set to revolutionise how businesses function in the next few years. There will be significantly increased automation and operational efficiency through the use of real time data and machine-to-machine communication right across the planet. Access to reliable and resilient connectivity, particularly in remote regions or at sea, where terrestrial networks are not available but satellite communications are available, will be essential to the success of many IIoT deployments.
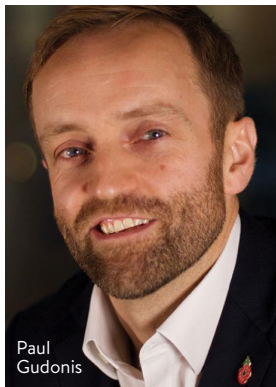
Paul Gudonis

Commenting on the findings, Paul Gudonis, president at Inmarsat Enterprise, said, 'IIoT is emerging as a major force in the modern enterprise and it's clear that businesses are prioritising satellite technology to transform their operations and achieve competitive advantage. Data generated by IIoT infrastructure is expected to bring greater transparency to the global supply chain, allowing businesses to automate processes, reduce operational waste and speed up rate of production – leading to higher revenues and lower costs.'

Almost half of internet users falsify their private information

RSA's Data Privacy and Security Survey found that 41 per cent of respondents tend to intentionally provide fake information about themselves online. The survey was carried out in France, Germany, Italy, the UK and the UK, with over 7,500 participants.

More than 30 per cent of respondents admitted falsifying their online information due to security concerns. The most commonly falsified information includes phone number, date of birth, email and home addresses, age and name. 42 per cent of the respondents expressed concerns over businesses collecting data on their browsing habits, while 39 per cent of them indicated unease about sharing of their location data.

Isabel Hill, head of research and development at Surfshark VPN, commented, 'The number of people providing false information about themselves online reveals lack of trust in the internet companies. Businesses around the world want to know everything about their customers and collect enormous amounts of private data. In most countries it is generally impossible for users to opt out, and it frustrates them. That is why users prefer to lie about themselves.'

Cisco announces $100m commitment to accelerate digital innovation in the UK

Cisco has announced a $100m commitment to help accelerate digital innovation in the UK. Aligned to the UK's Industrial Strategy, the commitment will support partnership with industry, government and academia across the nation.

As one of the first initiatives to be announced, Cisco and University College London (UCL) will partner to open one of the world's largest artificial intelligence (AI) research centres, with a focus on addressing industry challenges and developing AI talent in the UK.

UK prime minister, Theresa May, said, 'The decision by Cisco to make such a significant commitment to digital innovation across the UK is welcome news. I particularly welcome the announcement of the new AI research centre in partnership with UCL. Research has shown that AI could add £232bn to the UK economy by 2030 and developments like this will help with our ambition to put the UK at the forefront of the AI and data revolution.'

Mayflex walks the walk in aid of the Alzheimer's Society

Tracey Calcutt, Amanda Sheppard and Lyn Gale from Mayflex, along with two other friends, walked 50km of the Cotswold Way on 30th June, on an extremely hot day to raise money for the Alzheimer's Society.

Calcutt commented 'Sadly, my Mum suffered from Vascular Dementia for almost 10 years, so

L-R Amanda Sheppard, Tracey Calcutt and Lyn Gale

I've seen how awful this disease is and how hard it is to see the person that you love most in your life slowly fade away. Unfortunately, a number of my colleagues, including Amanda, have also had parents or relatives that have or are suffering from this terminal disease, so that's why we took on the challenge.'

The team completed the walk in nine hours and 40 minutes and, so far, have raised just under £4,000 between them. If you would like to donate, please **CLICK HERE.**

ICT sector is braced for change

Economic research by Atradius has revealed major shifts in the landscape of the global ICT sector, driven by advancing technologies and changing market conditions.

The Atradius ICT Market Monitor reports that ICT companies face increasing pressure to improve time to market, ensure that their offerings are best in class and include evolving technologies. These challenges must be managed in an environment that is already characterised by high competition and tight margins and the Atradius report warns that the combination could increase the probability of failure for ICT businesses that are not able to adapt.

Tracey McIntyre, senior sector underwriter at Atradius, commented, 'The choice for many ICT businesses in order to survive is either go big or go niche. We're likely to see many firms partnering up by pooling their resources for mutual gain, alongside mergers, acquisitions and divesture, which can provide a fast track to fending off competitors from both inside and outside the industry. Of course, the underlying concern is that highly leveraged ICT companies could face challenges in financing mergers and acquisitions or other strategic investments.'

More positively, the global market is still expanding, with businesses continuing to invest in ICT as they anticipate revenue growth albeit with a shift in spending patterns. Projects in digital business, blockchain, the Internet of Things (IoT) and progression from big data to algorithms, machine learning and artificial intelligence (AI) are the main growth drivers.

NEWS IN BRIEF

Prysmian Group and General Cable have completed a merger under which Prysmian has acquired General Cable. The merger strengthens the longstanding strategic partnership between Panduit and General Cable, as the two companies have gone to market in North America with a PanGen branded solution for more than 14 years.

EkkoSense has become a member of the Chartered Institution of Building Services Engineers (CIBSE).

Next Generation Data (NGD) has appointed Justin Jenkins as managing director. Jenkins brings a wealth of IT and data centre industry experience including 10 years at NGD, where he previously served as data centre director, CTO and COO.

Extreme Networks is now positioned as a leader in the Gartner Magic Quadrant for Wired and Wireless LAN Access Infrastructure.

Swyx and VoiceWorks have merged and also acquired Centile, a provider of fixed mobile convergence platforms for service providers and mobile network operators.

Not the only fish in

Hi Rob

Over the past few years we have seen several notable players in the data centre sphere implement alternative technological solutions that enable placement of, and power supply to, data centre equipment in multiple distributed locations. The main aim, obviously, is to get closer to end users and to reduce latency, which translates into improved responsiveness with so called edge data centres.

Recently, projects such as Microsoft's Natick experimented with the concept of a subsea data centre that can be operated without maintenance for five years and powered by 100 per cent locally produced and renewable energy from on-shore wind and solar and off-shore tidal and wave power.

Whilst there is no doubt that edge data centres are increasingly required to provide enhanced quality of service to end users – for example, for 4G/5G cellular networks

– doubts might arise as to whether this kind of subsea option would be a winning factor. So what are some of the benefits and concerns of such a challenging technological step?

Certainly the positives can be seen in obtaining power and cooling without impacting national grids, as it is being provided for 'free' by waves and the sun. The aim of running these data centres in a lights-off mode and a maintenance free approach for at least five years certainly provides additional advantages. An installation of this kind might also to some extent be considered a safer environment in terms of earthquakes and from the security point of view.

If we take a closer look at potential negative aspects of this experimental test post implementation, we should consider possible higher costs for maintenance and interventions in the event of unexpected

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n the **sea**

failures. Furthermore, its feasibility from an energy point of view is questionable, as the most recent tests still involved some form of connection to the power grid. Lastly, data centres established on solid ground – or even 'floating' facilities – might offer many of the same benefits, such as lights-off operations, geographical distribution for edge data centre implementation etc, with easier accessibility.

As an example, a modular data centre can run up to 1MW per module (container) and achieve a Power Usage Effectiveness (PUE) score of as little as 1.03 by adopting free and adiabatic cooling etc. These data centres can be designed and built quickly and easily, and would mainly allow for much easier periodical, either partial or full hardware upgrade and maintenance.

Innovation in the data centre space is rapidly responding to the demands of technology. In my view, more and more data centre operators will continue pivoting and pushing the boundaries. This will naturally result in further ingenuity and development of new concepts to deliver greater efficiencies.

Alberto Zucchinali
Siemon

Editor's comment
Project Natick began in 2013, when a proposal for an underwater data centre caught the attention of Microsoft's senior management and led to a prototype being built in the Pacific off the coast of California in August 2015. It's a fascinating idea and, as Alberto points out, there are some significant plus points. Although in some respects in raises as many questions as it answers, it highlights the level of lateral thinking inherent in the data centre sector.

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Coming to terms

Even though the general population relies on data centres for all aspects of modern life, relatively few people have any idea what they are and what they do. Inside_Networks has assembled a panel of industry experts to examine whether it would benefit the sector if there were a better appreciation of data centres

▶ Ask any 'non-industry' person to describe a data centre and you might be surprised at the response you get – that's if you get one at all. In fact, it wouldn't be an exaggeration to suggest that amongst the general population there is very little knowledge about what a data centre is, what it does and its role in modern life.

This thing is, does anyone really care? As long as they can use social media, send and receive emails, access the internet and do their shopping online the general public seems to have little interest in what allows them to do this. Data centres are simply the modern workshop of today's digital world.

In some respects keeping the data centre sector 'below the radar' has allowed it to develop relatively unhindered, while those practicing the 'black art' of design, construction, operation and maintenance of these facilities have been able to command a premium for their knowledge. However, with a well-publicised skills shortage and a distinct lack of diversity amongst those working in the sector, perhaps a wider appreciation of the data centre by those that they serve could have significant benefits for all concerned.

Take a look around a trade event and it will soon become apparent that data centre veterans, who have spent years acquiring the knowledge and expertise that has led us to where we are today, dominate the sector. And while we should all be grateful that they chose their vocations, unless there is a wider understanding and appreciation of data centres, particularly amongst schoolchildren, that well of talent could soon dry up.

Inside_Networks has assembled a panel of experts to give us their opinions about whether it would benefit the sector if there were a better appreciation of these facilities.

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

> **IF YOU HAD TO DESCRIBE A DATA CENTRE TO A MEMBER OF THE PUBLIC, WHAT WOULD YOU SAY? DO YOU THINK THERE IS ENOUGH KNOWLEDGE AMONGST THE GENERAL POPULATION ABOUT DATA CENTRES AND THEIR ROLE IN MODERN LIFE AND DO YOU THINK IT WOULD BENEFIT THE SECTOR IF THERE WERE A BETTER APPRECIATION OF WHAT THEY ARE AND WHAT THEY DO? IF SO, HOW COULD THIS BE ACHIEVED?**

RUSSELL POOLE
UK MANAGING DIRECTOR AT EQUINIX

Data centres are like a mythical beast – known to many and oft spoken about, but not truly understood and in most cases never seen. Indeed, I have to get creative when I'm asked what data centres are and why they are so important – otherwise you get blank stares at dinner parties when you say you work for a global interconnection and data centre company!

A data centre is where the internet – at least the private and secure version of it – lives. Almost every app you have on your smartphone, along with the data from almost every digital thing you do, will be housed in a data centre. Without them, the remarkable things becoming almost a given in modern life, from streaming services to connected cars to augmented reality gaming like Pokémon Go, would not be possible and our lives would be less productive and enjoyable as a result. They allow businesses all over the world to operate globally, bringing together employees, offices, partners and customers, as if everyone was in the same place.

In the past, data centres were simply large, incredibly secure, high tech warehouses full of stacks of computers – a neutral place where organisations could house their computing power. As the digital economy has grown and companies' entire business models have transformed to become digitally enabled, this has changed. Now, data centres exist as a place where organisations can connect with those that matter to them, away from the public internet and far quicker and more secure than was ever possible before. This interconnection is driving collaboration and innovation across the public and private sector, and across every industry segment, and it's all happening in the ecosystems that exist within our data centres.

Our everyday reliance on technology leads me to believe it is important for everyone to know about data centres and the vital role they play in this digital era. We want to continue to attract top talent to our company and I have no doubt the more people know about us, the more they'll realise this is an industry they want to be part of!

> 'Data centres are like a mythical beast – known to many and oft spoken about, but not truly understood and in most cases never seen.'

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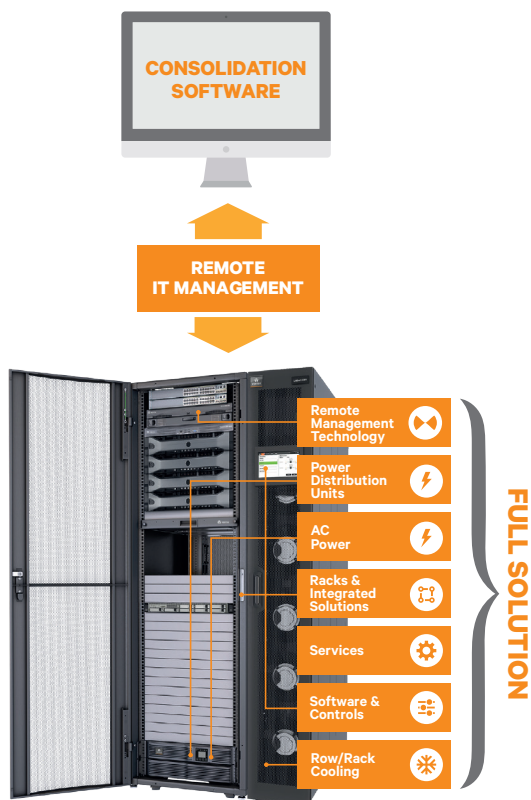
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I would describe a data centre as the central station for information that flows throughout the day. It serves as a hub for sending and receiving all kinds of information from emails, texts and online banking transactions to the location of your shared ride or streaming your favourite TV series. Today, the central station is rapidly evolving to include several smaller stations, allowing information to move more quickly among people and devices.

Yes, I believe there is a knowledge gap of varying degrees amongst the general public. Those with limited exposure to the industry may perceive data centres as a place where only a few large technology companies store information about their customers, or view the data centre as simply 'the cloud'. While others who are familiar with technology may still lack the detailed knowledge of the underlying infrastructure that's needed to make it all work. Like most things, increased education brings potential benefits, and I believe the data centre sector has a greater potential for generating direct and implicit benefits than most areas of technology.

In terms of improving matters, depending on the target audience there are a couple ideas that may be of worth considering.

- Learning to code software is pervasive across most school curriculums, however, by comparison there is very little tailored to the data centre. The new wave of software applications requires looking at the underlying infrastructure and the data centre facility differently. Ensuring academic institutions direct some of their energies toward educating students on infrastructure that complements the new wave of software would result in a well balanced workforce.

- It's vital we continue to share stories about how data centres are providing economic and social benefits to local citizens. For example, the benefit of heating several thousand homes by leveraging the re-use of data centre heat into a district heating system is quite significant. These stories have real impact and develop an appreciation from citizens at the local level.

I remain optimistic about the industry and look forward to seeing how we come together, as an industry, to address these gaps.

> **'Those with limited exposure to the industry may perceive data centres as a place where only a few large tech companies store information about their customers, or view the data centre as simply "the cloud".'**

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DETLEF SPANG
CEO AT COLT DATA CENTRE SERVICES

A data centre in the simplest of terms is a large warehouse full of computers and technical equipment that enables business, communities and continents to share, retrieve and exchange information. Many people commonly think that the internet does not physically exist. While that is technically true, the internet runs on data exchanges, and this requires physical presence within data centres for the information to exist. It is the data centre that allows global communications to happen on a day-to-day basis.

It may sound simplistic and straightforward, but the functions of data centres are anything but. Small businesses and large enterprises alike depend on data centres to meet their varying business needs – from streamlining IT system applications to handling critical operational data.

If you stop someone on the street and ask him or her what purpose data centres serve, it is likely that your question will be met with a blank stare. However, the truth is that data centres influence our everyday lives.

Football fans that tuned into the World Cup this summer will most likely be streaming TV and video services from their TVs, computers and mobile devices to catch the action in real time. Many will not realise that data centres are working in full swing to ensure that content providers are able to deliver fast and reliable streaming to their customers without any disruptions.

From the moment we wake up to check our Facebook feeds on our mobile phones to booking a flight for your next holiday, data centres are behind the scenes and involved every step of the way. Despite the widespread impact of data centres, however, the industry has a long way to go in boosting awareness amongst the general population.

Any conversation around data centres is likely to involve technical jargon such as 'colocation' and 'carrier neutral', leaving anyone on the receiving end of it feeling baffled. Instead, talking about real life use cases and benefits of data centres will be more appropriate to helping businesses and everyday users better understand the far-reaching impact of this industry.

'If you stop someone on the street and ask them what purpose data centres serve, it is likely that your question will be met with a blank stare.'

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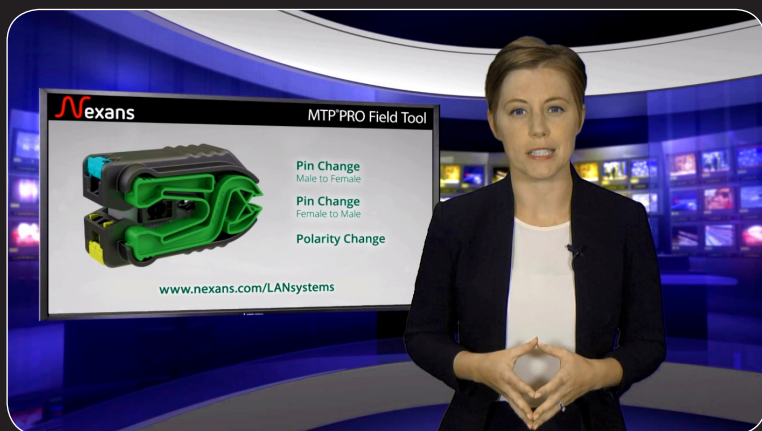
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STEVE HONE
CEO AT THE DATA CENTRE ALLIANCE

Tricky question, but let's give it a go...

A data centre is a secure facility used to house computer systems that have redundant components to ensure data, digital services and the internet are continually available to both businesses users and consumers 24/7.

Most official definitions of a data centre would be a variation on this theme, however, if I was asked this question on a first date I'm not sure this answer would secure me a second date unless my partner was suffering from insomnia! This definition is fine if you are addressing someone already working in the data centre or IT sector but I fear it would mean very little to a member of the general public because they simply don't relate to it.

If we are to change this mindset, we need to use a definition they can relate to and stop trying to make them think like us. We need to focus on what's important to them – think in terms of availability, speed, privacy rather than resilience, Power Usage Effectiveness (PUE), five nines and N+N.

We need to paint a picture that makes a data centre real and relevant to the target audience, and focus on the vital role we play in members of the public's daily lives without them even knowing it. For example, we don't need to understand the mechanics of car to be able to drive, all we need to

know is that it's regularly serviced and well maintained. The data centre sector works extremely hard to deliver a faultless service 24/7, however, unless something goes badly wrong, for example, planes are grounded or no cash is dispensed from ATMs, we – the data centre sector – are simply invisible to the general public. They have no real appreciation of what makes the magic happen.

With the right messaging the data centre sector could increase exposure and awareness of not just of how, but or why, we do what we do. The benefits would be threefold – firstly, it would increase the general public's appreciation of what drives the internet of everything they use every day. Secondly, it would help to educate policy makers as to the mission critical role data centres play in the digital ecosystem and finally it would highlight what great opportunities exist as a career destination of choice.

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> 'We need to paint a picture that makes a data centre real and relevant to the target audience, and focus on the vital role we play in members of the public's daily lives without them even knowing it.'

SARAH PARKS
DIRECTOR OF MARKETING AND COMMUNICATIONS AT CNET TRAINING

I love it when I'm asked where I work – it's so easy to get people interested in data centres once you explain that they are constantly using their services without realising it. But, let's face it, it does take some explaining.

I keep it simple. After mentioning that there is more technology on a phone than the computer used to put a man on the moon, and asking where they think their social media posts, Fitbit stats, photos etc are stored, and explaining that the fluffy things in the sky don't actually store data, then the fun begins. It's then possible to chat through other areas that rely on data centres, such as emerging technologies, and how the backbone of any data centre is the essential network cable infrastructure, which is referred to as the fourth utility for a very valid reason.

It's true that initially a data centre doesn't sound very sexy but you can build up to that! Starting with a self-contained warehouse type unit housing computing equipment that stores, manages, processes, protects and moves data around and allows on-demand access. It's the high security aspects, the pure demand and reliance on the services now and the emerging technology leading to increased demand, not to mention edge, which excites people.

The exposure data centres receive now is greater than ever, much from the media starting to use data centre related words, usually and unfortunately, in reference to publicised outages. Therefore, a little positivity for the overall sector is borne out of a negative for those involved – but they say all publicity is good publicity!

In terms of having enough knowledge about data centres generally, we're getting there, however, we still have a way to go before people recognise the sector as a career choice. As a sector, we all need to work together with a co-ordinated approach, but for this to come happen it really needs to be overseen and managed by an external entity with commitment of time and effort from others, and with clear objectives and timelines.

I get the feeling that most realise this needs to happen yet no-one seems keen to jump in and take the reins – after all it's a big job!

> 'In terms of having enough knowledge about data centres generally, we're getting there, however, we still have a way to go before people recognise the sector as a career choice.'

DUNASFERN
Inc. AURIGA

Close to the edge

The Internet of Things (IoT), 5G and intelligent transport systems have created a huge increase in demand for high bandwidth, low latency connections. Andreas Rüsseler and Thomas Wellinger of R&M explain why this vast number of wireless connections will, in turn, require huge amounts of fibre optic cabling

▶ Within a few years, hyperscale data centres that are coming into existence today will no longer be able to fully meet network latency requirements. The sheer mass of data transmission and processing is a driving force for the creation of edge infrastructures, while new computing power at the edge of the network will have to extend and support large, central data centres. Decentralised micro data centres and secure connectivity at the edge of the cloud can reliably connect IoT devices on short links. What's more, these can easily be scaled when local IoT networks grow.

ON THE MOVE
One good example of an application that is going to require edge and micro data centres is transport. It is estimated that a 'connected car' can already send 25Gb/s of data to the cloud every hour. Soon, autonomous cars will generate 10 times as much data. This data will initially have to be processed close to where it is generated, on the road. The entire highway will become a data centre and will require a fibre optic network to run beside it.

Edge and micro data centres could be housed in base stations of cellular phone network providers, hubs or gateway exchanges of cable and telecommunication networks, public utility stations, wind power plants and solar parks, railway stations, motorway service areas, factory premises and large scale commercial buildings. Of course, conditions in such locations can be demanding. To minimise risks, application sites will have to be chosen carefully. However, edge solutions will also have to be as robust and maintenance free as possible and be able to run independently without specialist personnel.

SHIFT WORK
The edge trend is leading to a paradigm shift in the way networks are designed, provided and monitored. There cannot be any bottlenecks between the edge and hyperscale data centre and infrastructure providers will have to adapt their business models.

Specific security, connectivity and bandwidth requirements have to be taken into consideration. Infrastructures need be designed to spread computing power on a wide scale and support software defined WANs. They can be the backbone of a smart city infrastructure and replicate cloud service and business critical processes on-site, and buffer bandwidth intensive applications such as mobile high definition video. If cloud connections falter or fail altogether, the networks, servers, memories and devices at the edge continue to work. Edge data centres can also form geo-redundant groups if they are sufficiently networked, and thus promote the security and availability of the cloud

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and even stave off attacks.

SUCCESS STORY

To successfully cable and connect billions of sensors high density architectures are necessary. This requires a huge number of optical fibres and connectivity from the beginning to avoid bottlenecks.

Consolidating servers means more space for switches and routers, and software defined network (SDN) architectures can be planned more sensibly. A high density solution can boost capacity whilst preparing for the future

'To successfully cable and connect billions of sensors high density architectures are necessary. This requires a huge number of optical fibres and connectivity from the beginning to avoid bottlenecks.'

and makes it possible to gain space for further racks and switches. You can start off with, for example, a single rack unit and grow as required, for example, all the way up to a 45U rack. Current high density fibre solutions for data centres generally offer up to 72 LC duplex ports per rack unit. This can, however, be tricky to manage.

SOME CONSIDERATIONS

The wireless connections that are essential to IoT, 5G, mobile computing and so on have an inherent bandwidth limitation. Physical limitations that will prevent

wireless speeds from ever being equal to those fibre. A wireless network without strong structured cabling support and fibre backhauling can't meet today's needs.

As hyperscale data centres accommodate hundreds of thousands of fibre optic connections, in sensitive operating environments, these can no longer be managed in a traditional way. They have to be monitored fully automatically to be able to guarantee operational reliability – preferably in a way that not only supports technical management, but also compliance and economy management.

Higher density often results in unmanageable cabling, making moves, adds and changes (MACs), cable tracking and fault finding impossible. Dynamic data centre environments require ongoing, precise and efficient asset management. An integrated hardware and software system is required to automatically detect when cords are inserted or removed and to document the cabling infrastructure, including connected equipment.

Everything can be monitored and administrated from a common software tool. The entire infrastructure is represented in a consistent, up to date database, offering precise, real time information on the current state and future requirements of the data centre. These dedicated solutions can trace and monitor all changes to a physical network including switches, servers and patch panels, improving operational efficiency and facilitate management of passive infrastructure.

HIGH IN FIBRE

Cables should have a very high fibre count and it should be possible to handle them in the same way as smaller cables. They should be as easy to terminate as possible, so watch out for cramped conduits and make absolutely sure there are no cables or bundles resting upon others.

Bad cable management can result in inter-symbol interference, damage and failure, resulting in data transmission errors, performance issues and downtime.

Cabling shouldn't restrict airflow – high density patch panels and patch cables save rack space and improve airflow, supporting consistent operating temperatures and reducing downtime risk. It's important to realise that overloading existing rack systems places considerable strain on rack equipment and cabling.

As cables are more difficult to grip and manipulate in more densely packed racks, it becomes harder to see what you're doing. Push/pull connectivity is one way of making things easier and reducing risk, while pre-terminated installation cables and cable systems significantly reduce handling and installation time and guarantee functionality.

THE TIME IS NOW

The cloud is great. Centralisation and economies of scale does its job – but it doesn't overcome physics and the speed of light. As people need to interact with IP things in real time latency matters and that's why we've entered the era of cloud and edge. This will require fibre and more fibre. ∎

ANDREAS RÜSSELER
Andreas Rüsseler has been chief marketing officer of R&M since 2012. He has a long history in fibre optics and communications business, and worked for Deutsche Telekom, Quante AG, 3M and Huber+Suhner before joining R&M.

THOMAS WELLINGER
Thomas Wellinger is R&M's market manager data centre. He previously worked in the company's R&D department on developing optical interconnects for future data centre applications and has extensive link modelling experience.

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Panduit

Panduit's HD Flex 2.0 Fiber Cabling System is engineered for high fibre density data centre environments.

An integral element in Panduit's expansive line of fibre solutions, the HD Flex 2.0 Fibre Cabling System has been designed for ease of integration with existing fibre infrastructure. It accommodates fibre cassettes and fibre adaptor panels (FAPs) with different port counts within the same innovative enclosure and panel.

6-port or 12-port cassettes and FAPs can be deployed in virtually any combination to achieve up to 144 fibres (LC) or 864 fibres (MPO) per rack unit. This solution enables seamless port migration from 10Gb/s to 25Gb/s, 40Gb/s, 50Gb/s and 100Gb/s in the same RU space without replacing existing fibres – providing substantial savings.

The HD Flex 2.0 Fibre Cabling System also provides a clear path for adopting Cisco Nexus 9000 series switches and ACI 40Gb/s and spine-leaf architecture with a reliable physical infrastructure. It offers the lowest installation and test costs through the utilisation of 12-port cassettes, as fewer cassettes are required per RU of rack space.

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

High Density Data Centre Infrastructure

Panduit – HD Flex Fibre Optic Cabling System

Image 3: **Easy insertion and removal of cassette**

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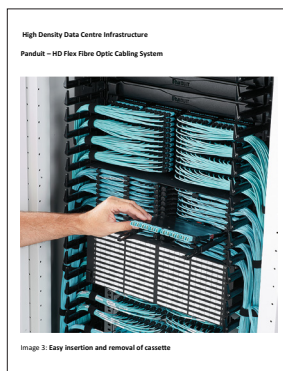
Leviton

Leviton recently expanded its Data Centre Factory capabilities to include a full line of make-to-order (MTO) pre-terminated shielded copper trunks, adding to its full line of MTO fibre optic HDX and e2XHD cassettes, fibre array cords, and fibre trunks.

Located in Glenrothes, Scotland, the Data Centre Factory's copper MTO products are available in shielded Euroclass cable types, including LSHF/LSZH options, with pre-terminated Atlas-X1, e2XHD, and 10Gb/s zone cabling small diameter, high density cable.

Leviton MTO copper and optical fibre trunks can be configured and manufactured with quick turnaround and rapid shipping to jobsites throughout Europe and the Middle East. Pre-tested factory terminations guarantee performance, eliminating the need for field testing and decreasing downtime during moves, adds, and changes.

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

EDP Europe

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

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

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

IANOS offers individual modules that easily slide out, reducing cord disruption and easing access, with each 1U chassis providing a maximum of 144 LC connections. Single or twin modules help improve flexibility with twin modules offering improved routing space and splice handling. IANOS chassis are available in 1U or 4U rack mounts. IANOS is available from stock at EDP Europe. For more information **CLICK HERE,** call 01376 510337, or **CLICK HERE** to email.
www.edpeurope.com

Nexans

Nexans has extended its data centre portfolio with the addition of OM5 connectivity and pre-terminated solutions.

With the ever-increasing need for higher speed the possibility of using multiple wavelengths in the 850nm-930nm band has led to the introduction of OM5. With OM5, fibre count reduction for high speed 40Gb/s, 100Gb/s and 400Gb/s can be achieved as well as extended reach for short wavelength division multiplexing (SWDM). The default colour used in the industry for OM5 is lime green.

Nexans has added the following OM5 products to it's portfolio, providing several installation options for MTP or LC connectivity:

- LANmark-OF LC/LC and MTP/MTP trunks
- ENSPACE LC adaptor modules
- ENSPACE MTP-LC modules
- ENSPACE DLC-DLC patch cords
- LANmark-OF LC pigtails

For more information **CLICK HERE.**
www.nexans.co.uk/LANsystems

CMS

Available from CMS, HellermannTyton's RapidNet is the world leading pre-terminated, pre-tested cabling infrastructure solution. By choosing a pre-terminated RapidNet system it is possible to reduce installation times by up to 85 per cent when using copper or 95 per cent with fibre.

The pre-terminated RapidNet solution begins with the modular pre-terminated cassette. In its most common application, the pre-terminated cassette is then pushed into a specifically designed 1U RapidNet panel, which is located in a communications room or data centre rack.

Available in OM5, OM4, OM3 and OS2, RapidNet fibre provides a number of connectivity options, including MTP, LC and SC cassettes.

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

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Panduit

Panduit's universal cassettes eliminate the need to deploy different cassettes or patch cords to maintain proper transmit-to-receiver continuity throughout a system. The internal wiring of universal cassettes allows the use of a single cassette and patch cord on each end of a traditional cassette-trunk-cassette link. The Panduit fibre optic cassettes for universal systems allow network designers to tailor structured cabling configurations to application requirements. Even though Panduit supports standards based applications, the company recognises the customer base that uses universal systems and will also support them.

Universal cassettes are now available for the HD Flex System, QuickNet MTP System, and QuickNet SFQ Series MTP System, enabling deployment in various applications.

Panduit's fibre optic solutions deliver the ultimate in flexibility to transform typical high density fibre optic systems into evolutionary architectures, preparing customers to accommodate next generation technologies.

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

Excel Networking Solutions

Excel Networking Solutions has significantly enhanced its offering over the last 21 years to embrace the latest developments in fibre optic technology.

High quality fibre optic installation starts with the connectors. Clean connections provide faster transmission rates, higher bandwidth and maintenance free operation, ultimately offering a more efficient and more effective fibre solution.

To complement Excel's enhanced fibre offering, the company has introduced a range of specialist fibre cleaning products, which feature a patented technology for clean connections – first time, every time. There are numerous ways of cleaning fibre effectively, and there is a solution and a cleaning method to suit every installation. These cleaning products are essential to ensuring that a fibre optic installation is as effective and durable as possible.

You can read more about the importance of fibre cleaning by **CLICKING HERE** to read Excel's whitepaper on the subject.

For more information about Excel's products and services **CLICK HERE** to view the new A5 Excel catalogue, or to visit the website **CLICK HERE.**
www.excel-networking.com

Huber+Suhner

The Huber+Suhner IANOS system is a state-of-the-art fibre optic management system, facilitating fast, flexible and future proofed connectivity in the data centre. Data centres constantly adapt to reflect the demands placed upon them, which IANOS accommodates with the minimum amount of cost, time and disruption.

With zero-U, high density 1U, Lite 1U and high density 4U versions, IANOS is suitable for any scale of deployment. The chassis are complemented by a comprehensive array of patch, transition, splice and tap modules to truly fulfil the needs of the most diverse of structured cabling systems.

A comprehensive cabling system requires assemblies, and complementing the IANOS solution is the Optipack range of assemblies, providing MTP, LC-XD and hybrid connectivity. The patented LC-XD push/pull connector uses a tab mechanism to aid access to the interface in high density patch environments. Euroclass Dca and B2ca cable designs are available to ensure compliance to regional requirements across Europe where required.

For more information **CLICK HERE.**
www.hubersuhner.com/en

HellermannTyton

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

As well as a wide range of pre-terminated RapidNet fibre solutions, HellermannTyton supplies a full end-to-end fibre solution including fibre patch panels, fibre patch leads, fibre connectors and adaptors, along with a range of multimode and singlemode cables.

The pre-terminated RapidNet fibre system is available as standard in singlemode and multimode formats. The RapidNet fibre cassettes offer a choice in connectivity options including LC, SC and MTP in cassette to cassette, cassette to fan out, or cassette with MTP connectors on the rear.

With fibre solutions available in both singlemode and multimode, including the new Hyperscale 8-Fibre solution, and a full range of connection options including LC, SC and high density MTP, the fibre range from HellermannTyton caters for any project of any size.

CLICK HERE for more information. **www.htdata.co.uk**

Siemon

In today's high-density data centre environments accessing, inserting and removing connectors in tight fitting spaces can pose challenges. With LC BladePatch Siemon offers a duplex jumper that is ideal for patching high density blade servers, patch panels and other equipment. It features an innovative push-pull boot design to control the latch, improving installation and removal access in high-density fibre patching environments.

LC BladePatch also features a latch-only rotation that allows for quick and easy polarity reversal in the field without damaging the connector or fibre and clearly indicating when a polarity change has been made. In addition, it utilises a smaller diameter unitube duplex cable design, which reduces cable pathway congestion and improves airflow and energy efficiency whilst simplifying overall cable management.

LC BladePatch provides low-loss performance for multimode and singlemode supporting the precise optical performance requirements for high speed networks and improving network performance.

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

Netscale Solutions
Delivering the highest fibre density

R&M's Netscale solutions combine unmatched fibre cable management with automated connectivity tracking and an innovative tray design to deliver the world's highest port density for 10/40/100G Ethernet.

R&M

Mayflex completes new distribution agreement with Mist

Mayflex has completed a new distribution agreement with Mist. Through this agreement, Mayflex will distribute the Mist learning WLAN throughout the UK, providing key channel expansion and enablement functions, by leveraging the latest in cloud, wireless, artificial intelligence and big data technologies.

The Mist Learning WLAN delivers unprecedented insight into the Wi-Fi user experience and eliminates the operational burdens of legacy wireless architectures by replacing time consuming manual tasks with proactive automation. In addition, Mist is the first vendor to bring enterprise grade Wi-Fi, Bluetooth Low Energy (BLE) and Internet of Things (IoT) together to deliver personalised, location based services for wireless users.

Anita Mistry, director of sales - networking at Mayflex, commented, 'I am delighted to welcome Mist on board. Their products introduce exciting new opportunities to Mayflex with both our existing and potential new customer base. The dedicated Mayflex networking team are geared up and ready to work with this exciting brand to provide exemplary support and services to our customers.'

Anita Mistry

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Schneider Electric appoints Marc Garner as vice president of its UK IT division

Schneider Electric has appointed Marc Garner as vice president of its IT division for the UK. Garner is a 13-year veteran of Schneider Electric and in his new role will be tasked with continuing the successes of Schneider Electric's IT division, which provides integrated power, cooling and software solutions for data centres, server rooms and edge computing installations throughout the UK.

'With major shifts in technology affecting the whole of industry and increasing dependency upon data centres, it's an exciting time,' said Garner. 'Realising the promise of trends such as cloud, edge computing and the Internet of Things has major ramifications for the industry, and is driving change in data centre architecture from large hyperscale facilities to smaller, micro data centres at the edge of networks. Each presents unique challenges and opportunities I'm looking forward to building momentum as Schneider Electric continues to drive innovation and success from the plant room to the white space.'

Marc Garner

Comtec appears in Sunday Times International Track 200

Comtec Group International has been ranked 94th in the Sunday Times HSBC International Track 200, which ranks Britain's mid-market private companies with the fastest growing international sales, measured over two years of accounts.

Comtec, which celebrates its 40th anniversary this year, has grown its international sales by an average of 51 per cent a year over the last two years to £9.2m in 2017. As well as a Hong Kong operation, Comtec is well established in the Gulf Cooperation Council region, with subsidiaries in Qatar and UAE.

John Archer, chief executive chairman at Comtec, said, 'We are delighted to rank in the 2018 International Track 200 and have our international sales achievements recognised in this way.'

Sudlows announces appointment of Andy Hirst as managing director of its critical infrastructure division

Sudlows' technical director, Andy Hirst, has been promoted to the role of managing director of its critical infrastructure division. This new appointment continues the process of strengthening the senior management team in Sudlows, as the group continues to expand.

Chris Dummett, commercial director at Sudlows, commented, 'This is a key appointment for Sudlows and the critical infrastructure team, as Andy's appointment will further enhance the Sudlows brand and our successful technical offering of award winning data centres in to new markets both within the UK and internationally.'

Hirst added, 'I am thrilled to be given this opportunity to lead the critical infrastructure division of Sudlows to the next stage of its development. There is increasing demand for all our innovative services, from initial design to complete build, all the way though the cycle to final testing and commission.'

Andy Hirst

Siemon partners with Graphical Networks

Siemon has partnered with Graphical Networks, whose netTerrain data centre infrastructure management (DCIM) platform will enable Siemon customers gain the network visibility they need to effectively manage, monitor, control and document the data centre.

The netTerrain DCIM platform is a centralised, multi-user, browser-based platform that visualises the data centre right down to the port level or card in a chassis via easy to use navigation that renders powerful hierarchical and subcomponent data centre diagrams. It includes rack, cabinet and floor layouts to visually see cabinet occupancy and manage assets and circuit layouts to provide on-demand display of cabling links between equipment and components.

'Today's data centres are more complex than ever before, with thousands of connections linking a wide range of devices, cards and ports all occupying physical space in racks and cabinets and consuming power,' said Frank Velleca, Siemon's market manager for strategic projects. 'We are excited to partner with Graphical Networks and integrate our data centre solutions into the netTerrain DCIM platform to help our customers maximise space and capacity, manage assets, lower power and cooling costs, reduce downtime, and properly plan and forecast for growth.'

Frank Velleca

CHANNEL UPDATE IN BRIEF

UKFast's current IT director, Neil Lathwood, has taken on a new role as chief technology officer (CTO).

Bluepoint Technologies recently celebrated 10 years in business. Over the past 10 years there have been several major milestones, including the relocation to new offices in 2016, a buyout in 2014 and a management restructure in 2018. The company also completed the largest install of Leviton products in the UK last year.

EkkoSense has appointed Jason Kaye as sales director and he will play a key role in building out the EkkoSense partner network and developing international sales.
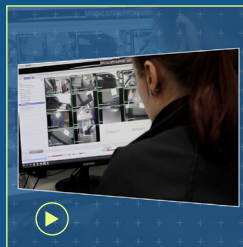
Ultratec has launched UltraSupport Services, a new division to provide third party maintenance services to the IT channel services market.

Tufin has appointed Michael Menegay to the position of vice president of global channels.

VCW Security has announced a distribution agreement with Garland Technology.

Mayflex – all the support you need

Designed with our customers in mind we offer a range of services, which are ideal for projects with limited time available on-site for installation or for rapid deployment projects. Having a trusted partner that can deliver fully tested, readymade or ready configured and pre-assembled solutions helps remove that pressure. The range of Specialist Support Services include:

• Product labelling
Bespoke engraved laser labelling This involves printing customised laser engraved adhesive labelling sheets.

• Pre-terminated copper and fibre
Several benefits can be experienced when choosing a pre-terminated copper solution. Reduce installation costs and installation times by as much as 75 per cent, as well as reducing equipment and specialist labour costs.

Pre-staging IP devices
This service is particularly suited to partners that are new to CCTV or access control or are limited for time. Our specialists do the hard work, customers just need to install the pre-configured products on-site.

Camera and bracket spraying
The newest of our services can take a security camera and its associated fittings and spray it to to a bespoke colour requirement.

Configured racks
Our configured racks service covers the Environ Floor and Wall Racks. We install the majority of kit that a customer requires, and we deliver it ready configured to site.

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On-site cabinet assembly service
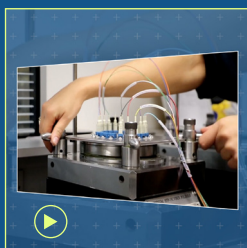
Flat packed Environ racks, together with any additional accessories ordered including shelves, cable management and PDUs are delivered to site by our normal delivery service the day before. Our experienced team of cabinet builders will visit the location the day after and will position the rack(s) and build them to the agreed specification.

Placement Plus

Our Placement Plus delivery service easily overcomes tight staircases and difficult access routes without damaging any fragile equipment. Utilising stair walking, stair climbing and stair lifting equipment, as well as cranes and hoists when required, this service has the resources to overcome the most challenging locations.

Fluke support services

The Fluke support team is on hand to help with a range of services relating to Fluke Networks' devices. The includes confirming a calibration due date and arranging for a unit to be calibrated and collected on a day to suit.

Expert help

When dealing with Mayflex installers can be assured of the following:

- Free next day delivery service on all products to the UK mainland as standard
- Large stock availability – 98 per cent of orders fulfilled from stock
- Online Track and Trace programmes
- Knowledge and expertise with a dedicated team of sales and technical professionals
- An accredited training academy with fully qualified instructors
- Trade counter located at Birmingham headquarters for those last minute requirements

Quickclicks

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

Ideal Networks has produced a white paper titled How to Apply Network Testing Practices to CCTV System Installations. **CLICK HERE** to download a copy.

What Are the Top Concerns for Data Center Managers? i the question posed in a blog by Reegan Barnett at **Raritar CLICK HERE** to read it.

Four Technologies That Will Affect Your Enterprise Network: And How to Support Them in Your Premise Networks is a white paper by **Chatsworth Products (CPI). CLICK HERE** to obtain a copy.
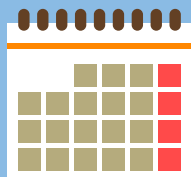
5 Reasons Power over Ethernet is Right for Enterprise is a blog by Kirk Krahn of **Leviton.
CLICK HERE** to read it.

Extending Mission Critical to the Edge is an on-demand webinar presented by Mark Harris of **Uptime Institute.
CLICK HERE** to watch it.

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Reducing Costs With Daisy Chaining is a blog from **Geist.
CLICK HERE** to read it.

Terri Simpkin of **CNet Training** is conducting a survey to try to gain actual evidence about the talent shortage throughout the data centre sector.
Your input is valuable, so please take the survey by **CLICKING HERE.**

Coming in from the cold

Luca Rozzoni of Chatsworth Products (CPI) explains why understanding data centre cooling and climate management is so important

Data centres are rapidly increasing in density, with many racks surpassing 5kW, so cooling has become one of the most significant considerations. As one of the biggest consumers of power, increasing cooling efficiencies can provide real cost savings and data centre owners and managers are therefore taking a much closer look at ways to improve their efficiency. They are also realising the need to not only incorporate cooling considerations earlier into a facility's design process but also to invest in smart, automated ways to configure and operate their cooling.

GUIDING LIGHT

The environmental operating conditions of data centres worldwide have long been guided by recommendations made by The American Society of Heating, Refrigerating and Air Conditioning Engineers (ASHRAE). Whilst the guidelines continue to be updated as the data centre industry and its technologies evolve, monitoring cooling through tracking inlet temperature against the ASHRAE guidelines, as well as the latest equipment specifications, is important.

ASHRAE originally recommended that the device inlet be between 18-27°C and 20-80 per cent relative humidity. Other experts recommended an even lower limit than 27°C to allow for variable conditions and to compensate for any inaccuracies of

'Investing in tools that can provide the ability to analyse the thermal and environmental performance of the infrastructure is critical in making the right decisions at the design stage regarding the building of the rack infrastructure.'
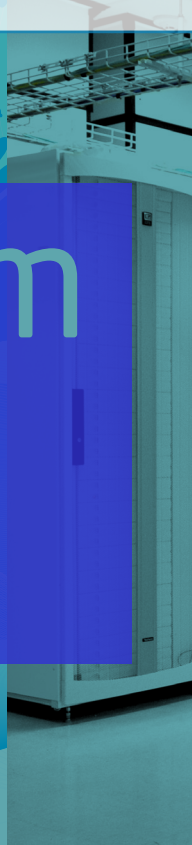
temperature sensor or controls systems. These guidelines are based on server inlet temperatures, as opposed to internal server or room temperatures or server exhaust temperatures.

However, as the data centre industry's knowledge and understanding of operating conditions has developed, ASHRAE has expanded its allowable temperature ranges and encouraged using techniques to reduce the energy consumed by cooling systems, or the time that the cooling units run, by making use of the outside temperature of air or water to cool the data centre. Known as free cooling, this can make real energy savings and is now virtually mandated by the requirements of ASHRAE 90.1 – 20105.

Airside economisers mainly use direct fresh air cooling by filtering outside air and then piping it in to cool the data centre.

They can also work without bringing direct air into the data centre, but by heat transference from warmer inside air to cooler outside air.

POWER RANGERS

The Power Usage Effectiveness (PUE) metric – the ratio of power used by a facility compared to the power used by the IT equipment – has also encouraged data centre designs to incorporate outside air economisers and permit a broader temperature range to achieve a lower PUE.

This approach to cooling has demonstrated that IT equipment can operate reliably over a much wider temperature and humidity range than originally thought, and has encouraged more data centres to use PUE to analyse and improve their energy efficiency and look for more innovative cooling systems.

UNLOCKING EFFICIENCIES

Cooling optimisation technologies are key to achieving greater efficiency, resiliency and redundancy, protecting a facility's hardware by ensuring it functions efficiently throughout its total lifespan. However, understanding the different cooling choices and making the right cooling design decisions for a facility depends on a variety of factors beyond budget, such as power density and room size.

Three key considerations when looking at which cooling technology to choose include selecting the most appropriate airflow containment system, sourcing cabinets with enhanced sealing features, and ensuring an energy efficient computer room layout.

• AIRFLOW CONTAINMENT

The physical separation of hot and cold air within the server room is the first stage to maximising cooling system efficiency. Segregating the hot and cold air can improve chiller efficiencies, reduce the total plant cooling capacity, and create more free cooling hours.

This can be achieved by building an enclosure around the hot aisle, known as hot aisle containment; building an enclosure around the cold aisle, known as cold aisle containment; or using a 'chimney' at the top of the cabinet to remove hot exhaust air, known as a vertical exhaust duct.

It is essential that whichever method is used that the solution provides a strong seal to minimise leakage and ensure the pressure difference between the open and enclosed space is minimal. This will allow the cooling system to be adjusted to strengthen performance and lead to greater savings.

Specifying cabinets that provide a complete front/rear seal around equipment and removing constraints around critical airflow design allows higher power and heat densities. Best possible isolation can be achieved with a combination of accessories including blanking filler panels, equipment mounting area perimeter sealing air dams and floor tile cut out brush seal grommets, along with a system to remove the return air from the room into a suspended ceiling return air space.

MEASURE AND MONITOR

Measuring environmental variables and monitoring both power and cooling are also essential in cooling and climate management. Investing in tools that provide the ability to analyse the thermal and environmental performance of the infrastructure is critical in making the right decisions at the design stage regarding the building of the rack infrastructure.

Keeping track of environment variables not only helps to create a more efficient rack design but also enables an administrator to see what system is taking up which resources to ensure optimal performance. By continually monitoring power consumption rates, it is then possible to look for ways to save on power based on actual requirements. For example, certain power heavy racks may need to be distributed more efficiently.

If space is a potential future concern for a facility, choosing equipment that is capable of higher heat/power densities but still uses the same amount of space or a system that can support space conscious upgrade cycles will be an important consideration.

THE APPLIANCE OF SCIENCE

Computational fluid dynamics (CFD) modelling or airflow modelling offers a more scientific and comprehensive design approach for simulating the cooling performance of data centres than was ever previously possible.

State-of-the-art CFD techniques used by powerful three dimensional software tools are now applicable to almost any data centre configuration.

Computational simulation can be used for a quick setup of any proposed layout, any desired placement of CRAC units and perforated tiles, and any imagined failure scenario. Supply and exhaust ducts, supplemental cooling units, the heat loads and airflow demands of the racks, and obstructions under and above the raised floor can all be considered.

Performing this type of simulation is much faster and more economical than building an actual layout but the results can provide the flow rate distribution through perforated tiles and rack inlet temperatures, as well as the underlying velocity, pressure and temperature fields.

A CERTIFIABLE CASE

New kinds of cooling technologies and energy efficiency technologies are continuing to emerge and can already help organisations achieve the coveted Leadership in Energy and Environmental Design (LEED) certification or Building Research Establishment Environmental Assessment Method (BREEAM) certification, which is one of the highest efficiency marks a facility can obtain. These efficiency systems can contribute to achieving 12-20 credits in areas such as advanced energy metering, low emitting materials, interior lighting and optimised energy performance. In the long-term,

these technologies will be central to creating an even healthier data centre ecosystem, where efficiency and uptime can be further increased whilst operational costs are reduced. ■

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LUCA ROZZONI

Luca Rozzoni joined Chatsworth Products (CPI) in 2015 as European business development manager. In this role, Rozzoni is responsible for identifying and developing products and solutions that will enable CPI to further meet the needs of its customers in Europe. Rozzoni studied electronic and electro-technic engineering at the Istituto Tecnico Paleocapa and also holds a business degree in strategy development and implementation. He is also a BICSI Registered Communications Distribution Designer (RCDD).

Austin Hughes

Austin Hughes' InfraCool solutions help minimise hotspots in server racks, assist with aisle containment cooling performance and provide overall temperature monitoring. Plus, Austin Hughes offers a full rack environmental management solution with InfraGuard, a variety of sensors plus optional integration of devices such as InfraPower PDUs, InfraCool Fan Units and LED Light Bars.

Infra Cool®
Rack Airflow

- 1U 19-inch Rackmount Fan Trays
  Basic or intelligent models, these fan units can exhaust hot air out of the top of rack or intake bottom cool air into the rack.

Designed to suit third party racks.
- Rack Door Mounted Fan Panels
  Installed on the outside of a rack's rear perforated door to improve heat extraction from high density rack. The unit can be attached to most 42U or taller rack models.
- Raised Floor Mount Fan Unit
  Delivering strong cool air from underfloor via the contained aisle to the high-density server racks to eliminate inside hotspots. Maximises CRAC efficiency and saves energy cost.
  To find out more **CLICK HERE.**
  www.austin-hughes.eu

Mayflex

An excellent way to control cooling and the climate within a data centre is by deploying aisle containment. Mayflex offers the Nubis aisle containment solution.

When deploying aisle containment, you can choose to either design the installation in a cold aisle or a hot aisle configuration. The cold aisle solution prevents recirculation of air back from the CRAC, significantly improving the efficiency of the units.

Mayflex can work with you to create bespoke designs that will fit to most racks, as well as off the shelf kits for 'easy fit' on-site to racks that have been deployed, where all the racks are uniform in height.

NubisSolutions

MAYFLEX
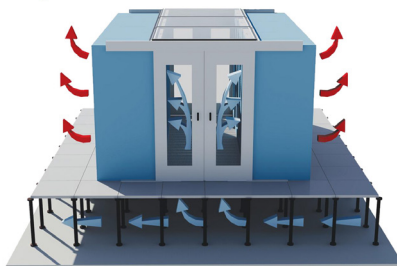
The solution can be fitted with a collapsible roof system where the panels will release at 58°C (+/- 2 per cent), with a detection and release mechanism in the centre support brackets, allowing the panels to fall away in the event of a fire and allow the building's fire suppression system to distribute to the source of the combustion.

CLICK HERE for further details.
www.mayflex.com

Geist

In today's data centres network switches, load balancers and routers are often mounted in the back or top of server racks. This configuration can be convenient for cabling but allows hot exhaust air from servers to enter the switch intake, leading to decreased life expectancy of a switch or even switch failure. Increased cabinet density puts even more cooling pressure on switches.

SwitchAir from Geist effectively prevents overheating of network switches by directing cool air to switch intakes, keeping hot exhaust air out. This unique product is available in two options. The Passive SwitchAir unit creates a cooling barrier that effectively prevents hot exhaust air from entering switch intakes. For a more direct approach, the Active SwitchAir option uses fans to supply cooled air from the cold aisle directly to switch intakes. The products can be installed in a live network environment and support a wide range of switches and airflow configurations.

To find out more **CLICK HERE.** **www.geistglobal.com**
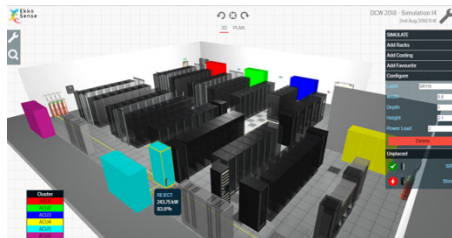
EkkoSense

EkkoSense has introduced a major new release of its SaaS powered 3D visualisation and optimisation software. EkkoSoft Critical 4.1 delivers unrivalled M&E capacity planning and simulation capabilities for data centre and facilities management professionals, offering full cooling and power capacity planning coverage as well as powerful real time 'what if?' simulation.

Unlike over-complex DCIM or consultancy-led CFD approaches, EkkoSoft Critical 4.1 is based on rigorous data centre thermal and power management engineering principles, and is set to disrupt the sector by providing data centre operators with true DCIM class capacity planning and simulation functionality at a fraction of the cost of traditional infrastructure management approaches.

With EkkoSoft Critical 4.1 in place, data centre managers can – for the first time – benefit from real time visibility of their critical operational data, while advanced 3D simulation capabilities provide the ability to experiment safely with rack, power and cooling layouts, confident that EkkoSense's real time optimisation software will deliver optimal M&E configurations.

To find out more call 0115 823 2664, **CLICK HERE** to send an email or to visit the EkkoSense website **CLICK HERE.** **www.ekkosense.co.uk**

Rise to the
challenge

Zac Potts of Sudlows explains why achieving climate control in a data centre requires some smart thinking

▶ A data centre is a fairly unique engineering challenge. At its core, the objective is for mission critical engineering that can be relied upon to work when pushed to its limits. However, what makes data centres different is the appetite to not just repeat what has always been done, just because that's the way it's always been done. Sometimes doing things the way they are generally done is perfectly acceptable – but in some cases it's just not good enough.

DIFFERENT STROKES

An appetite to do things differently might be in search of a unique competitive advantage – perhaps in terms of efficiency, or footprint, or both. It might be in response to a new insight into an end user's needs, while some cases it is simply to improve on challenges and limitations which may have, sometimes painfully, been felt before.

Regardless of the driver, improving on an existing technology or developing a new or recently introduced technology, is a common characteristic of cutting edge data centre design, even if only a small incremental change. After all, it wouldn't be as cutting edge if every part of the design had been done before, would it?

As we seek improvement, we often need to revisit the deliverables of the design to identify where the strengths and weaknesses of the current and proposed approaches are. For data centres, there are many variables to the environment that the IT load requires, all of which we need to understand in more detail before we even start to consider how we control the systems to meet them.

'Deciding on the operating temperature based on efficiency is no simple matter. At higher temperatures, IT equipment might operate safely within range, but it may do so with a greater fan speed and associated energy consumption.'

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THE HEAT IS ON

Consider the temperature a space will be maintained to. Traditionally, this might have been a conservative 21°C – known to be a bit colder than the IT systems need but providing a large amount of headroom, at the expense of efficiency. More recent designs might look to push this up to the top end of the ASHRAE recommended envelope, at 27°C, and others even further.

From an engineering perspective, even defining this apparently simple characteristic raises two important questions. Firstly, is this design temperature for the supply air, the room air, or the server inlet air? In reality, we can only control to what we measure, unless we make assumptions so if we are controlling to the latter, if we cannot have a sensor at every inlet, what assumptions can we make in lieu of that?

Secondly, is this design temperature a static value – or are we able to operate within an acceptable range? Allowing a system to work within a range of values, such as 18-27°C, might mean that when the ambient air is cold enough, temperature can be reduced within the white space. Conversely, it might mean that it only goes above a certain range when it's particularly warm outside. In either case, the engineering question then becomes about what drives this change? Is it simply a matter of capacity, or is it an efficiency driven choice?

DECISION TIME

Deciding on the operating temperature based on efficiency is no simple matter. At higher temperatures, IT equipment might operate safely within range, but it may do so with a greater fan speed and associated energy consumption. Fortunately, there is some research on these characteristics we can refer to but, nevertheless, a careful balancing act will ensue to find the optimum algorithm for any individual data centre, its unique operations, site location, and particulars of the cooling system.
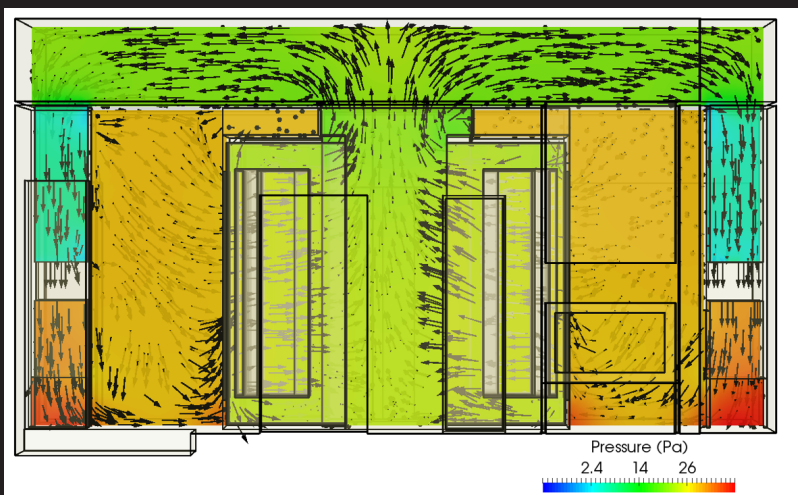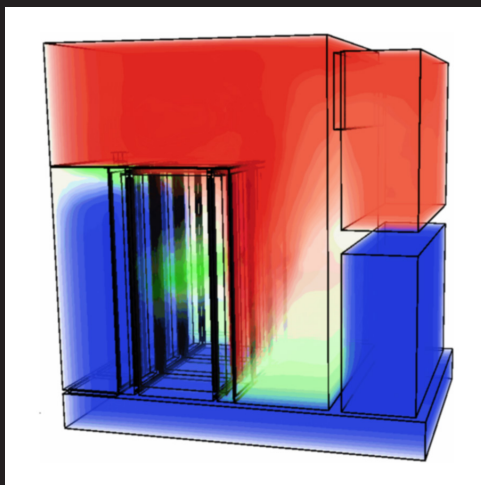
With all this considered, the o

simple decision of what setpoint to work to becomes a much more complicated question. And after all of that, even though operating temperature was intended to be the basic starting point, airflow and distribution is equally important, if not more so.

AIR APPARENT

Assuming we have some sort of containment within the white space, as most modern facilities do, we need to ensure that the cooling system is delivering the correct amount of air to each contained space.

Too little air being supplied to a contained cold aisle and equipment will be starved of air, while too little air being extracted from a contained hot aisle may cause exhaust air to be re-circulated out of the cabinet and containment system and back in through other equipment, likely resulting in hot spots. Too much air being supplied to a cold aisle or extracted from a hot aisle, will, depending on the quality and integrity of the containment system, result in air either being forced through equipment or bypassing equipment entirely. Either outcome is less than ideal.

The introduction of simple concepts like wider temperature bands and aisle containment often isn't as simple in engineering practice as it would first seem. To some extent the evolution of clever controls is a required by-product to not only maximise the efficiency of operation but to operate correctly in the first place. That is certainly not to say that these challenges are without solutions. Importantly, given the significant reductions in power consumption possible, these solutions should indeed

be something every data centre owner, operator or designer seeks out.

UNDER CONTROL

There are a wide variety of systems available to control the white space – all of which have some advantages and some disadvantages. For example, computational fluid dynamics (CFD) systems model a system's specific performance characteristics in different modes, and the results greatly improve understanding of how different systems work compared to others.

Return, supply or room temperature only control delivers a very stable system, while air volumes matched against cooling duty can deliver a fairly constant dT to match the design of the IT system. Generally, we are limited to a single design point, which is a dT of 12°C – anything above or below this value will not balance and compromises will occur.

Pressure control has been implemented in many data centres, either maintaining floor void pressures, room pressures or aisle pressures. In this manner, the system can then look to vary the volume of air delivered to, or extracted from a space in line with the equipment that is operating. In practice, the pressure differentials that need to be worked to are usually very small and systems thus become prone to error with calibration, sensitivity, and stability concerns.

A BREATH OF FRESH AIR

The latest control systems implement an advanced system of supply air, return air and remote temperature probes, together with other sensors, which might include pressure, and process these through enhanced algorithms to allow the data centre cooling system. This enables the ability to control to a variable temperature envelope, and react to variable airflow rates, separately and dynamically. The algorithm used is perhaps the most important element within this type of system and will, of course, vary between manufacturers and designers, each building on their own experiences and expertise. ∎

ZAC POTTS

Zac Potts is associate director at Sudlows. He has directed the design, construction and testing of some of the most efficient data centre projects, and is one of a small number of engineers in the UK to be an accredited tier designer of the Uptime Institute Tier Standards. His involvement with designing, testing and demonstrating advanced data centre systems provides a useful insight into the challenges, benefits and opportunities involved.

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Sudlows secures Telefónica UK contract for critical power upgrade

Sudlows has successfully secured a multimillion pound infrastructure contract with Telefónica UK.

The project involves the design and installation of a system upgrade of Telefónica UK's existing uninterruptible power supply (UPS) systems with a range of modern UPS solutions and associated electrical switchgear. This will see Sudlows deliver a major replacement programme of resilient and energy efficient modern UPS systems throughout the Telefónica UK estate.

This critical infrastructure project will also provide enhanced cooling capability to support the UPS operation, delivering N+N resilience and substantial operational energy savings.

Secure IT Environments hands over new Glan Clwyd Hospital data centre

Secure IT Environments has completed a new 41m² secondary data centre at the Ysbyty Glan Clwyd Hospital, part of the Betsi Cadwaladr University Health Board (BCUHB), the largest health organisation in Wales.

The hospital is currently undergoing a major redevelopment programme to generally modernise its existing buildings. This work included the need to establish a new energy efficient secondary data centre within the hospital building.

The new data centre has been designed to meet the Class 2 requirements defined in BSEN 50600, parts one and two. The room comprises 16 19-inch cabinets, raised access flooring, overhead busbar power supply system, Novec fire suppression and VESDA detection system, DCIM environmental monitoring of the room and infrastructure, access control and CCTV. Cooling and environmental controls are achieved through a chilled water system with a capacity of 160kW. Secondary piping supports additional chillers to achieve a Class 4 rated system, while N+1 in-row air conditioning was installed in a hot aisle containment configuration.

UPS systems and batteries were installed in a separate nearby room, derived from separate A and B power supply streams, to ensure the resilience and redundancy necessary in hospital environments, where systems must be always available to ensure patients are not put at risk.

Keysource to support Connexin's smart cities ambitions with £5m data centre in Hull

Connexin has partnered with Keysource, to deliver its £5m data centre in Hull, as it advances its smart cities growth strategy.

The scheme, known as CXNDC, follows Connexin securing a 10-year Wi-Fi contract with Hull City Council. Connexin is scaling up its work with local authorities to provide Wi-Fi as a public service for connected devices such as road sensors, energy, and security systems, as demand for smart city technology grows.

Keysource has designed the state-of-the-art CXNDC 200 rack data centre to a Tier III standard covering nearly 10,000ft^2, and bringing more than 40,000Mb/s of internet connectivity. The project will support demand from local and national clients and will also become the business' new headquarters. Work began on the site in July.

PROJECTS & CONTRACTS IN BRIEF

Switch Datacenters has commenced development of a new data centre at its campus in Amsterdam. Adjacent to Switch Datacenters' existing data halls, this 18,300ft^2 facility will be built to offer wholesale colocation space to a large enterprise, managed colocation, or cloud providers searching for Amsterdam-based dedicated data centre presence.

Kao Data has installed two fully diverse Openreach fibre spines offering highly resilient data connectivity for its London ONE data centre customers.

IP Infusion has announced that the Serbian Open Exchange (SOX) has successfully deployed the OcNOS network operating system in its internet exchange point network. OcNOS is the industry's first enterprise and carrier grade network operating system for open compute hardware.

Rexel Austria has placed an order with Siemens to deliver a cloud-based energy monitoring system that will be deployed in its logistics centre in Weisskirchen. The system is expected to reduce annual energy consumption by up to 15 per cent, an amount equal to the annual consumption of 40 family households.

3W Infra has signed a strategic cooperation agreement with A2B Internet. Under the agreement, A2B Internet will operate as an extension of 3W Infra's own engineering teams and provide international network management and support services for 3W Infra's global network.

Exponential-e has secured a prime supplier position in the HSCN aggregated procurement for London, known as Once for London. The award will provide in excess of 3,300 HSCN connectivity and associated services across 60 health authorities in London.

Family affair

Carl Siemon is the fourth person to share that name and lead the family business. Rob Shepherd recently caught up with him to find out more about his life and career, and his views on the direction the sector is heading in

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

CS: As president of Siemon, along with the help of my brothers John and CK and a talented committed global team of leaders, managers and experts I aim to deliver quality, service, innovation and value to our customers. We sustain deep roots in manufacturing and are proud of our vertical integration and global capabilities. We not only design and manufacture our core products, we design and manufacture the automation equipment that enables us to produce a portfolio of the highest performing solutions at competitive prices.

RS: What made you want to join the family business?

CS: After receiving my bachelor's degree, my father asked me to help out at a factory we had in Georgia – the US state, not the country – where we had recently lost two key people. I declined and told him I wanted to practice architecture. He reminded me that he had paid a lot for my

'I try to keep my finger on the pulse of industry change and imagine new ways to leverage our capabilities and resources and, by doing so, turn threats into opportunities.'

education, and that I owed him at least a year. I agreed, moved to Georgia and got hooked on the business. I've been with the company ever since.

RS: What excites you about the industry at present?

CS: The growing number of connected devices around the world that comes with the evolution of the Internet of Things (IoT) and the endless benefits it offers for improving lives, business, facilities and even cities, is very exciting.

With all of these devices communicating and sharing information comes the rise of intelligent buildings that reduce waste and energy consumption, optimise operations and maintenance, and enhance the overall environment for improved safety, health and productivity. At the same time, the sheer amount of information being generated and analysed from these devices continues to grow, requiring underlying fibre infrastructure that is both dynamic and scalable enough to transmit, store and process all of this big data. This means sustained growth opportunities in both the intelligent building and data centre markets.

RS: What will be the next big 'game changer' to affect the network infrastructure sector?

CS: There are many aspects of IoT and big data that are big game changers for our industry. As more devices communicate via IP and reside on the network, we see some gaps in the current Ethernet cabling and application standards that are leading to new and disruptive technologies, such as single pair Ethernet currently in development.

This technology has the potential to connect a much wider range of devices and sensors with minimal power and bandwidth requirements, while enabling innovations like smart cars and enhanced machine-to-machine communications. The processing, transmitting and storing all of this information will require optical fibre technology capable of supporting 400Gb/s and even 800Gb/s transmission speeds. Both hyperscale and enterprise data centres can effectively prepare for increased capacity and speeds beyond 100Gb/s by deploying high performance, ultra high density plug and play MTP fibre systems.

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

CS: Too many network infrastructures are underutilised, and the industry as a whole needs to realise the return on investment potential of converging and powering multiple low voltage devices and systems on a single unified structured cabling system.

Rather than deploying disparate platforms, the use of a single cabling

infrastructure and software interface supports common communication protocols, so that data from various building systems can be shared and analysed on a single integrated platform. Using a single integrated infrastructure versus traditional building system silos greatly improves overall building control and management and the building occupant experience, while significantly reducing capital and operating expense.

RS: Do end users give enough consideration to the physical infrastructure?

CS: In 2008 when Category 6A/Class EA was ratified to support 10 Gigabit Ethernet, we saw early adopters deploy this cabling regardless of whether they needed that level of performance at the time.

Those early adopters are now able to support the latest 802.11ac Wi-Fi, advanced four pair power over Ethernet (PoE) and a myriad of other current applications without having to re-cable – confirming the need to future proof and give forward looking consideration to the physical infrastructure.

While still a challenge in our industry, I believe that with the ongoing advancements over the past decade and many enterprises now having to upgrade their infrastructure to support the latest applications, we are starting to see a mindset shift as to the importance of the physical infrastructure.

RS: What single piece of advice would you give an end user looking to purchase a structured cabling system?

CS: First and foremost, the performance and quality of a structured cabling system needs to be at the forefront of any decision making.

The structured cabling system should

therefore be independently verified to comply with applicable industry standards. To ensure that the system will stand the test of time and enable proper operation of all the applications it is designed to support, the system should also be backed by a comprehensive warranty from a reputable, leading manufacturer and certified installer.

Deploying end to end copper and fibre systems from a single manufacturer rather than joining together separately sourced components in a piecemeal fashion can also go a long way in ensuring ongoing system support. Last but not least, copper cabling systems supporting 10 Gigabit Ethernet and higher applications should use shielded twisted pair media rather than unshielded. Shielded cabling is proven to provide superior performance in terms of eliminating alien crosstalk in cable bundles, dissipating PoE heat in cable bundles and delivering higher levels of bandwidth than what is possible using unshielded twisted pair cabling.

RS: What is your greatest business-related achievement?

CS: My greatest business-related achievement has been evolving our

'The growing number of connected devices around the world that comes with the evolution of the Internet of Things (IoT) and the endless benefits it offers for improving lives, business, facilities and even cities, is very exciting.'

company from being a domestic US component manufacturer into a global IT infrastructure solutions provider.

Today we have Siemon employees in over 40 countries, including multiple manufacturing and logistics operations that are strategically located. Siemon's global network of stocking distributors and certified installers service our customers in over 100 countries. This capability enables us to deliver high quality, high performance standardised physical layer solutions to multinational enterprises around the world.

RS: Who is the person you most admire from the industry and why?

CS: Jeff Bezos. In just 28 years, he took Amazon from being an online bookstore to being the third most valuable company in the world, the second largest employer in the US and the world's leading cloud infrastructure provider.

Five years ago, Jeff personally purchased the Washington Post, and he has maintained the iconic newspaper's tradition of news-breaking investigative journalism, which has put him in Donald Trump's crosshairs. Bezos is relentless in the pursuit of his goals, a true pioneer and a major disruptor. Why do I admire Bezos? For inspiration. He is living proof that anything is possible when vision, willpower and teamwork are unified and sustained.

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

CS: Charles Darwin wrote, 'It is not the strongest of the species that survive, nor the most intelligent, but the one most responsive to change'.

I try to keep my finger on the pulse of industry change and imagine new ways to leverage our capabilities and resources and, by doing so, turn threats into opportunities. It has been my experience that the number one barrier to successfully pivoting is breaking imbedded habits. Most people tend to operate in their comfort zones, and a new business direction or strategy can make all the sense in the world, but if implementing the change requires leaving one's comfort zone, it takes much longer and consumes much more energy than it should to get people emotionally committed to changing their behaviours.

Being an effective change agent is my number one ongoing challenge, and I believe that developing a culture of continuous improvement is the right way forward. ∎

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Chatsworth Products (CPI)

Customers in Europe can now purchase Chatsworth Products' (CPI) popular F-Series TeraFrame and GF-Series GlobalFrame Cabinet Systems with Clik-Nut Hardware Kit included, which reduces installation time by at least 70 per cent.

Clik-Nut is a tool-less cage nut, which features a patent pending squeeze and release design – eliminating the need for tools. Clik-Nut provides the same strength and reliability as standard cage nuts and is fully compatible with square punched holes.

Standard cage nuts can be difficult and time consuming to install and move – consequently, installers routinely suffer from pinched fingers, and ripped or detached fingernails. CPI's Clik-Nut Hardware Kit solves these issues. Advantages of Clik-Nut include:

- No tools required – squeeze and release design allows for easier, faster and safer installation
- High payload capacity – same strength and reliability as standard cage nuts
- Universal usability – fully compatible with 9.5mm EIA square punched holes

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

Harting

Harting has designed the Han Gigabit Module for Category 7A, which is suitable for 10 Gigabit Ethernet. It allows transmission at an operating frequency of up to 1000MHz and, as a result, signal integrity has significantly improved, while immunity to interference has increased compared to the standard Category 6A. Harting is the first manufacturer to offer a modular industry connector for data transmission as per this standard.

The Han Gigabit module is in general distinguished by its robust design and reliable transmission. It enables data transfer rates, which accommodate the increased bandwidth requirements within the industrial sector and places high demands on the suppression of crosstalk effects and noise.

Harting is continuously expanding the Han-Modular portfolio in order to meet the growing demands of the market for modular interfaces in industrial connectors. By integrating new technologies and continuously improving existing solutions, the product palette offers almost unlimited possibilities for the design of a modular interface.

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

Ideal Networks

Ideal Networks has upgraded its LanXPLORER Pro in-line network troubleshooter with updated software and a new Wi-Fi testing accessory to support both 2.4GHz and 5GHz frequencies.

With so many channels now using the 2.4GHz Wi-Fi frequency, many business users are finding that the speed of their network suffers. This means that companies are increasingly moving to 5GHz. To meet this demand, Ideal Networks has introduced a new Dual Band USB Wi-Fi Adapter for LanXPLORER Pro.

When combined with the latest free software updates from IDEAL Networks, the new USB antenna offers enhanced functionality to support testing for both 2.4GHz and 5GHz Wi-Fi testing in accordance with the 802.11a/b/g/n/ac international test standard. The software updates for LanXPLORER Pro have also improved Wi-Fi testing capabilities and accuracy by enabling the tester to display new RF parameters such as signal strength (dBm) and signal to noise ratio (SNR).

To download the free software updates for LanXPLORER Pro **CLICK HERE.**

The new Dual Band USB Wi-Fi Adapter can be purchased from local Ideal Networks distributors, so **CLICK HERE** to find where to buy.

www.idealnetworks.net

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Paige DataCom Solutions

Paige DataCom Solutions, the developer of GameChanger, a new cable designed to significantly exceed the reach of traditional category cable, has announced the results of an independent performance evaluation completed by UL LLC as part of its Marketing Claim Verification program. The UL assessment evaluated the performance of the award winning GameChanger cable technology and verifies the claim that it delivers 1Gb/s performance and PoE+ over 200m.

These results independently document that Paige's GameChanger cable really lives up to its name. With a reach that far exceeds traditional cable, it can save integrators and end users an enormous amount of time, money and hassle across many different applications.

Paige's GameChanger cable extends the reach for any Ethernet application without a repeater, making it ideal for replacing CCTV and for use in applications that are beyond the 100m reach of a traditional category cable. This cable eliminates intermediate IDF requirements and the need to install repeaters or transceivers, which are costly and introduce additional points of failure.

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

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R&M

The FM45 from R&M enables data transmission up to 10 Gigabit Ethernet, with specifications and attenuation values that surpass the parameters defined in the standard. Termination just takes a minute and standard compliant connections can be established anywhere without special tools.

The FM45 offers an effective, rapid solution for converting existing buildings into smart buildings, retrofitting WLAN access or creating temporary networks. Areas of application are structured cabling, local data networks, direct connections, bulk connections, switch links and other twisted pair copper cabling applications, Industrial Ethernet, bus and data connections in building automation, security and communications technology, IoT and home networks.

The FM45 comes as a straight or angled version for Cat. 5e, as well as a shielded version. R&M also offers angled or straight shielded and unshielded Cat. 6A types and a protection class IP67 variant for industrial applications. The Cat. 6A type is used to install Class EA channels in accordance with the ISO/IEC 11801 standard. It also supports power over Ethernet to 4PPoE.

Find out more by **CLICKING HERE.** **www.rdm.com**

CNet Training

CNet Training has released new industry approved technical education data centre programs.

The new and upgraded high level programs utilise advanced teaching methods that allow the classroom learning to be undertaken in five days. This new format has been applied to the following world leading programs from The Global Digital Infrastructure Education Framework, and to all delivery locations across the world:

• Certified Data Centre Management Professional (CDCMP)

Learn how to maximise operation capability and achieve effective operational management of a data centre facility.

• Certified Data Centre Design Professional (CDCDP)

Learn how to scope, plan and implement a data centre design utilising best practices and applicable standards across the key data centre infrastructures.

• Certified Data Centre Energy Professional (CDCEP)

Become an expert in data centre energy management. Learn how to create an energy efficiency plan for your data centre. Includes creation, implementation, analysis and formulating recommendations with the ultimate objective of reducing energy use and carbon emissions.

• Certified Data Centre Audit Professional (CDCAP)

Learn how to plan and implement a data centre audit. Includes the audit process and analysis of the audit data to verify the status of the data centre.

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

Rittal

Rittal's new base/plinth system for enclosures and IT racks means it can now offer customers and end users an unprecedented number of functions and options.

This latest innovation combines all benefits of the existing TS and Flex-Block base/plinth systems in one solution, plus much more besides. For example, engineers can install VX25 enclosure accessories, while the base/plinth can also be used as an intelligent cable chamber. All this comes with reduced assembly time, lower costs and greater safety.

VX25 is designed for the new large enclosure system, as well as being fully compatible with Rittal's existing enclosure solutions – the TS, TS IT, SE, CM, PC, IW, TP and TE ranges.
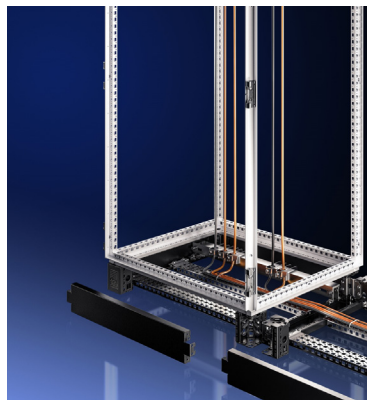
As well as an extensive range of accessories, the base/plinth system offers users virtually limitless options around siting, transportation, cable routing, cable attachment and base/plinth configuration. Its consistent 25mm pitch pattern means an enclosure's mounting parts, such as punched sections and rails, can also be used on the base/plinth.

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

All you need to know

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CLICK ON THE COVER TO VIEW THE 2018 MEDIA KIT

Smooth talking

Enterprise communications are struggling to meet the needs of modern workplaces, which are becoming more flexible, collaborative and mobile than ever before. Moussa Zaghdoud of ALE examines a survey that explores the trends and preferences in business communications and the technology that is available to enable organisations to deal with the growing complexity

▶ The transition to a new era of communication technology is not always plain sailing, and most organisations currently find themselves trapped somewhere between the legacy world of on-premises and some cloud-based services – siloed and not truly connected.

ENVIRONMENTAL COMPLEXITY

A Wainhouse Research study shows the majority of businesses use multiple vendors for telephony, with some 75 per cent using two or more vendors and 21 per cent with three or more. Alongside this, 33 per cent have two or more unified communications vendors, with some using as many as five to deliver additional services. With so many moving parts it's no wonder that it's difficult to deliver a consistent and unified enterprise-wide communication experience to the end user.

With flexible working and teams operating remotely, a fixed point of collaboration isn't enough to satisfy the communication needs of businesses. We need mobile enabled collaboration tools. So, the challenge today is to unify on-premises PBX telephony with the benefits of providing universally accessible unified communication and collaboration.

ENTER HYBRID SOLUTIONS

The answer lies in hybrid communication solutions that have been developed to give IT departments the option to integrate cloud-based unified communication and collaboration – offering key services such as presence, messaging, web conference, video, files and application sharing – with existing PBX hardware. This allows businesses to protect and optimise previous investments. It also allows for a gradual approach to cloud adoption, so as business requirements shift, more services can be moved to the cloud.

'In today's business world, nothing is static. A flexible communications platform that can extend its capabilities is essential to meet continually changing business requirements.'

This integration is important because, for the time being, the deskphone is here to stay. According to the Wainhouse Research survey it remains the most common communication device used today, with almost 85 per cent using one for business communications. But – and it's a big but – most users do not use just a single device. The research showed upwards of 70 per cent of end users leverage a combination of a deskphone, PC and mobile device, and with new end user technologies such as VR, wearables and personal assistants coming to market, the number of us leveraging multiple devices is only likely to increase.

MULTI-DEVICE MASH-UP

Business technology procurement needs to recognise this, but business operations tend to evolve gradually and don't just jump from one technology to the next.

A platform that provides equal support to traditional and next generation communications is the ideal solution. If a business was to jump and solely use the latest technology, it risks alienating users and disrupting business in addition to losing value from its existing investments. Here again, it is hybrid cloud deployments which are removing these risks by augmenting the existing with the new. It also has the benefits of being easier to deploy, support and maintain – removing the burden of complex software or hardware management.

OPEN UP

End users no longer accept 'good enough' quality from collaboration solutions. Wainhouse Research found quality to be the top end user requirement with 90 per cent rating it as highly important. However, a true quality platform should also encompass the other four top requirements identified in the survey – workflow integration (70 per cent), borderless communications (63 per cent), mobility (54 per cent) and global access (39 per cent).

Open architecture platforms make it easier to integrate collaboration tools into business processes and systems. A connected communications platform can do this, bringing together high definition voice, video and workflow integration delivered across devices via the cloud, allowing users to work together and collaborate seamlessly – regardless of location or device. To get the quality users want, unsupported tools are out and
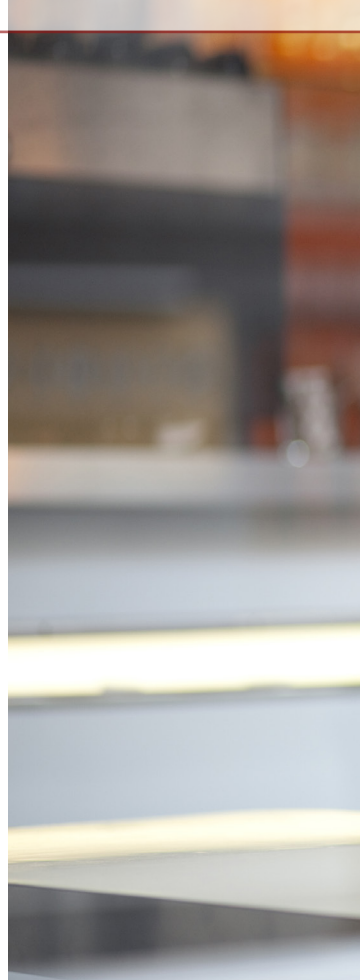
enterprise grade is in.

Teams in businesses aren't just operating within the business borders. Not only are they often located across multiple countries, but can encompass internal employees, external team members, partners and contractors, or customers. The idea of the borderless enterprise is gaining momentum within the business world, but the tools and services need to be in place to support this. Location, device type or domain can't get in the way.

TRAFFIC JAM
The research found that, on average, 40 per cent of enterprise voice traffic

ends up in a group conference call, and this percentage increases for larger organisations. Conferencing and group collaboration is becoming the de facto way work gets done for many, and this requires a rethink on how a business views its PBX.

Communications platforms that provide multiple functions such as voice, video and document sharing can become an extension of the PBX to support peer-to-peer and group collaboration. This then equally blends both individual and group collaboration features seamlessly, without the need to immediately replace existing hardware.

WANTS AND NEEDS

The majority of users aren't early adopters of technology. When asked how far along the technology curve their personal communications environments are, 34 per cent of participants replied early adopters, 44 per cent middle of the curve, and 22 per cent comfortably content to wait until they absolutely have to change it.

As organisations embrace new technologies and provide more connected workflows, they need to weigh up the advantages of new disruptive trends and technologies with the benefits of maintaining existing communications platforms. IT teams that engage their user community at every stage of the development lifecycle will find they reduce support costs and increase user adoption. Knowing end user preferences is key to delivering the right mix of services, and a platform that retains support for legacy users will ensure a smooth transition without leaving behind slow adopters.

COMMUNICATION CONTINUUM

In today's business world, nothing is static. A flexible communications platform that can extend its capabilities is essential to meet continually changing business requirements. A number of communication vendors provide open API access to communications features like voice, SMS and video, supporting the integration of collaboration tools for a growing mix of external team members, contractors, and partners. They provide a set of cloud-based services, implemented as an overlay solution with essential collaborative capabilities. These are simple for companies to deploy and

users to adopt, regardless of their existing communications systems.

For enterprise communications to stay ahead, using disruptive technology without the business disruption will be key. ∎

MOUSSA ZAGHDOUD

Moussa Zaghdoud, as senior director and head of cloud product line management at ALE, is responsible for the end-to-end cloud strategy, solution definition, offer management and business model definition for the Alcatel-Lucent Rainbow Cloud Service Offer.

Zaghdoud joined Alcatel as a multimedia expert to define the ALE web business portals and holds a master's degree in industrial sciences and automated systems from Louis Pasteur Universality, Strasbourg and a degree in physics.

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