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▶ Regular readers of Inside_Networks will know that we have always championed the issue of gender diversity. Numerous pieces of research have highlighted that diverse workforces offer benefits including greater profitability, resilience and adaptability. In addition, it seems somewhat peculiar not to want to reach out to 50 per cent of the available talent pool, especially in light of a growing skills shortage.

Yet it does feel that progress is slow when it comes to making a positive change on this issue. Just as worryingly, there seems to be reluctance on the part of some people already working in the sector to voice an opinion on this subject. I should point out that this is not just from men but women too – in configuring a panel for this month's Question Time, there were a number of high profile females who declined to take part, due to the subject matter. Make of that what you will.

However, I'm delighted to say that the experts that have contributed provided some forthright opinions on the issue. You can read their thoughts on what needs to be done to make a career in the data centre and enterprise network infrastructure sectors more attractive to females by **CLICKING HERE.**

Changing the subject completely, the growth of the intelligent building has been facilitated by the ability to operate multiple building services over network infrastructure. In this issue we have two articles on this subject. Bob Allan of Siemon outlines some of the core benefits that a converged infrastructure and structured cabling bring to intelligent building design, while Matt Salter of ExcelRedstone argues that for a truly smart and secure future, converged networks are more important than ever. **CLICK HERE** to read Bob's article and **CLICK HERE** for Matt's.

Last but certainly not least, it appears that many organisations are unnecessarily wasting money through inefficient data centre airflow and mismanagement of energy. Neil Staley of Mayflex examines this issue more closely and you can read his thoughts by **CLICKING HERE.**

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

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Uptime Institute's annual Data Center Survey shows need for change with rise of complex digital infrastructure

Uptime Institute's eighth annual Data Center Survey, which examines key trends and developments shaping today's IT infrastructure industry, has revealed how operators are grappling with new challenges. It provides an overview of the major trends shaping IT infrastructure delivery and strategy globally, ranging from climate change preparedness and edge computing approaches to outages, energy efficiency, rack density and staffing trends.

Andy Lawrence

The survey includes responses from nearly 900 data centre operators and IT practitioners affiliated with enterprise and service provider facilities in more than 50 countries worldwide.

'The rapid growth in the implementation of cloud and hybrid IT approaches has ushered in a period of great change creating technology, organisational and management complexity,' said Andy Lawrence, executive director of research at Uptime Institute. 'And these new challenges are many times unlike anything previously seen in the industry at this magnitude. It's a perfect storm.'

As the results revealed, data centre operators have, by and large, succeeded in lowering energy waste – the average Power Usage Effectiveness (PUE) was reported at a record average of approximately 1.58. In alarming contrast, the survey results also revealed that both the rate of outage occurrences and the severity of each outage has increased from those reported just a year ago.

'Today, operators are grappling with new challenges, including increased complexity and high interdependency of systems and data centres,' continued Lawrence. 'Looking ahead, many are expecting to deploy significant new hybrid and edge computing capacity, which will support new services, but will add an additional layer of complexity in doing so.'

The survey data also showed that crucial to the growth of the distributed digital infrastructure is the implementation of highly distributed and/or edge computing, enabling more efficient operations through automation, real time data analysis and artificial intelligence (AI) control associated with remotely managed facilities. More than 40 per cent of respondents stated they expect their organisation will require edge computing capabilities

'Edge computing is exciting because of the improved performance and scale it can offer to next generation technologies like AI, the Internet of Things and even autonomous driving applications,' concluded Lawrence. 'We expect to see substantial growth in the edge over the next few years. Edge has the ability to keep building upon each set of application improvements and the advances of previous versions, which will cause rapid improvement in capability development and implementation.'

Over 70 per cent of employers expect a shortage of technology professionals

Over 70 per cent of employers believe that they will face a shortage of technology professionals over the next year, according to research from Robert Walters, totaljobs and Jobsite. Shortages are expected to be most acute at mid-management level (55 per cent), while 36 per cent of employers expect to struggle to secure junior technology specialists. Just nine per cent expect the most severe shortages at senior levels.

Ahsan Iqbal, director at Robert Walters Manchester, commented, 'Britain's technology sector has enjoyed a period of unprecedented growth over the past few years through a combination of overseas investment and a vibrant community of start-up businesses operating in this space. While we are seeing a growing number of young people entering the field with a wide range of skill sets, the legacy of the 2008 financial crisis is creating ongoing challenges for employers.'

Ahsan Iqbal

The research also revealed that many employers believe that Britain's technology sector is unprepared to compete on the global stage. Just 11 per cent felt that the UK was very well prepared while 24 per cent felt that the UK was somewhat unprepared or very unprepared.

Companies risk missing out on attracting new talent as workers say no to slow technology

Companies could be risking losing out to competitors during the recruitment process due to workers' expectations about IT equipment and technology. According to a survey of 1,004 UK workers in full or part-time employment carried out by Probrand. co.uk, as many as 51 per cent would reconsider accepting a job offer if they discovered the technology they would be working with was not up to their standards.

Of those who said this would put them off accepting a job, older devices – which can sometimes operate slowly – were identified as the biggest issue, with 71 per cent claiming this as a sticking point. 53 per cent said out of date or archaic software would be an issue. For 39 per cent, slow internet speeds would be a problem worthy of reconsidering their choice of employment, while 27 per cent felt having to use an operating system they were not familiar with was a problem.

Matt Royle, marketing director at Probrand.co.uk, said, 'It's amazing to see the pivotal role IT equipment is playing in the decision making process when people are deciding whether or not to accept a job offer. However, given how heavily reliant on technology we all are, coupled with a need for flexible and mobile working, it's not entirely surprising. The evidence shows having to cope with outdated or slow running technology, or an unfamiliar operating system, can cause huge issues with regard to employee satisfaction and productivity.'

European workers showing security fatigue

European workers have the worst cybersecurity discipline in the world and are displaying signs of 'security fatigue', according to a study by Aruba, a Hewlett Packard Enterprise Company.

The study of 2,650 European employees some key security based trends emerged. Over half (55 per cent) of European employees are not regularly thinking about cyber security, with 17 per cent not thinking about it at all.

Furthermore, European employees were more aware of the dangers of a security breach. When asked, 42 per cent understood that data loss brought legal ramifications, higher than both the Americas (36 per cent) and Asia (27 per cent). However, the study shows despite this 26 per cent still don't believe cybersecurity is important to them.

Morten Illum, vice president EMEA at Aruba, said, 'If employees understand the risks, but aren't acting on it, the answer is not to provide yet more training, but to bring in enhanced technology that can provide the assistance and the protection workers need to do their jobs.'

Morten Illum

Political uncertainty and rising costs represent the biggest threats to the IT industry

Political uncertainty and the challenges posed by rising costs are considered the biggest threats to the IT industry. This was revealed within the results of Uninterruptible Power Supplies Limited's (UPSL) latest industry survey, which questioned over 800 senior IT and data centre professionals across the UK and Ireland.

The 2018 edition of the poll revealed that over 35 per cent believe political uncertainty is the biggest threat to their business over the coming 12 months. This was closely followed by rising costs – including energy costs – which received almost 32 per cent of the vote. Increasing regulatory burden garnered nearly 13 per cent for third place, with increased competition from new and existing competitors completing the top five responses.

UPSL's sales and marketing director, Tim Wilkes, commented, 'When comparing the latest results to those from 2016, it is clear there's been a significant shift in attitudes. Political uncertainty didn't register as a top 10 response back then but that was before the Brexit vote and the impact that it's had on the value of the pound. That rising costs is a close second is less surprising. In 2016, rising energy costs was the top response for over 77 per cent of respondents, so it says a lot about how the UK's IT and data centre business landscape has shifted in just two years.'

Tim Wilkes

Brits show distrust in Blockchain

New research from IP Expo Europe has uncovered that just over a third of Britons (35 per cent) would not trust an organisation using Blockchain to keep their information secure, as they don't know what it is.

In the research, conducted by OnePulse, a further 11 per cent of the general public, who believe they know what Blockchain is, would also not trust an organisation using it, ultimately resulting in almost half the population showing distrust in businesses using Blockchain technology. Compounding this result, 28 per cent would not trust an organisation using any technology they don't understand, providing a stark reminder for businesses to ensure they don't confuse their customers whilst they continue to improve their technical capabilities.

Andy Steed, director of content for IP Expo Europe, commented, 'Blockchain is a technology that many people in the industry are still struggling to wrap their head around, so it's of no surprise that it's also causing plenty of confusion for the general public. However, what is concerning is how many people are stating a lack of trust in organisations who say they are using it. Businesses need to make sure they are not only deploying new technology like Blockchain in a way that will have a meaningful impact, but that they are taking the time to explain what the technology is in easy to understand language to their customers instead of simply stating that they are using it.'

NEWS IN BRIEF

Peach Technologies and Taylor Made Computer Solutions (TMCS) have joined forces, with TMCS becoming a Peach Technologies company. The terms of the transaction were not disclosed. Together the enhanced group will have sales of around £20m, circa 200 employees and a customer base of over 1,000 organisations.

The UK government has created a new £1m Digital Skills Innovation Fund, which specifically aims to help people take up digital roles. The funding will be used to help women, disabled people, people from minority backgrounds or those living in lower socioeconomic areas to succeed in digital roles such as data analysts, programmers, cyber security specialists, software developers and marketers.

One in five of global companies has implemented an initial software defined wide area networking (SD-WAN) technology project with almost half (48 per cent) investigating them in a more limited form, such as a proof of concept at some sites, according to research commissioned by Teneo.

Rubrik has announced two executive appointments. John Chambers, chairman emeritus and former CEO of Cisco, has joined Rubrik as a board advisor and personally invested in the company. Avon Puri, former VMware vice president of business applications, has been appointed chief information officer (CIO).

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From farm to **table**

Hi Rob

Data can be likened to the analogy of food, which is essential for sustenance and growth. The farm to table experience involves growing and harvesting raw food, cleaning and preparing, creating exciting recipes, and ultimately serving a meal, similar to the process and use of data.

Data either tends to stay where it is created or can attract additional growth in its vicinity. Enterprises are therefore looking to extract value from all the data they collect, driving the need for compute capabilities and new technologies such as artificial intelligence (AI) to achieve this. Returning to the food preparation analogy, this lines up with the use of locally grown and procured food materials.

There are measured steps that an enterprise needs to take to adopt AI technology in harvesting and preparing data. The training and evaluation of machine learning (ML) and deep learning (DL) models are akin to recipe preparation, while deployment of trained models in chosen applications parallel the plating and serving.

Workflow begins with the ingest, transformation and storage capabilities associated with raw data. Handling of the volume, variety and velocity of data with suitable infrastructure is crucial. Structured data goes into databases and data warehouses, unstructured data can go into Hadoop clusters, and more specialised semi-structured data may involve a combination of these repositories. Collectively, these are being incorporated into an enterprise data lake architecture.

The next step involves extracting and preparing specific data sets that can then be used for training the ML and DL models. A data scientist can bring the appropriate tools to clean, massage and curate the data, to provide relevant data sets. This is akin to washing, cleaning and cutting raw food materials and then grouping and storing ingredients that can go into recipes.

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Model training and evaluation is the other major responsibility of a data scientist. This requires an ability to create taste tests – compute jobs – with various degrees of variability in parameters and metrics. Flexible and scalable hardware infrastructure, easy to use management and orchestration tools, powerful frameworks and programming environments enable the data science team to be productive in selecting the right models.

Finally, having selected the models, it can be incorporated in the application software that is looking to adopt analytics to deliver actionable insights, driving a more productive decision making process. The adoption of AI in an enterprise will only be successful if it brings with it significant changes within the enterprise.

To counter this, organisations must pick a business function for AI adoption and select the application software that implements and enables it. This like picking a cuisine to focus on, while selecting an application is like selecting the main course. Launch a pilot program and explore models suitable for selected ML and DL algorithms through training and benchmarking, much like menu selection. Choose the best trained models and integrating into the selected application is where the consumption of the results from all the previous stages can begin. Having successfully completed the pilot phase and implementing it into production, the process can then be repeated with the next application.

Bringing AI into the enterprise may seem like a daunting task, much like how cooking is for those who don't know their way around a kitchen. But just like taking cooking lessons from a chef, the enterprise can follow the systematic process as above, ensuring that data is easily and enjoyably digested – just like your favourite meal!

Guy England
Lenovo

Editor's comment
Lots of food for thought here! I think Guy is spot on when he states that AI can only really be of genuine use if it has a positive impact upon the culture and operational activities within an organisation.

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All things being equal

In recent years there has been much debate, discussion and deliberation about the subject of gender diversity within the data centre and enterprise network infrastructure sectors. Inside_Networks has assembled a panel of industry experts to examine whether any progress is being made and what more must be done to create a more equal balance

▶ In early 2017 an Inside_Networks cover line asked 'Where are the women?' and almost two years later that question appears as relevant as it was then. Although there have been lots of positive opinions and suggestions expressed on this subject, and several various well-intentioned initiatives to readdress the balance and implement programmes to attract, recruit and retain female talent, very little appears to be changing.

in the data centre and enterprise network infrastructure sectors is possible. So why are there so few others that choose to follow their lead?

There are various theories as to why the numbers of women in these sectors is so low. These range from science, technology, engineering and maths (STEM) careers in general attracting a far higher percentage of men and recruiting practices that are not always favourable to women, through to a

HOW ARE THE DATA CENTRE AND ENTERPRISE NETWORK INFRASTRUCTURE SECTORS RESPONDING TO THE LACK GENDER DIVERSITY WITHIN THEM AND IS ANYTHING MORE THAN LIP SERVICE BEING PAID TO THE SUBJECT? WHAT NEEDS TO BE DONE TO MAKE A CAREER IN THESE SECTORS MORE ATTRACTIVE TO FEMALES AND, ON A PRACTICAL LEVEL, HOW COULD THIS BE ACHIEVED?

According to the National Center for Women & Information Technology (NCWIT), in 2015 women held 57 per cent of all professional occupations, yet they held only 25 per cent of all computing jobs. The percentage of computing occupations held by women has been declining since 1991, when it reached a high of 36 per cent.

The data centre and enterprise network infrastructure sectors are notoriously male dominated and it is still somewhat rare to see a woman presenting at an industry event or representing a company at a senior level. However, they certainly exist and their presence shows that making a successful, productive and enjoyable career

basic lack of awareness amongst women about the opportunities and the varieties of jobs that are available and a reluctance to work in a male dominated sector.

Something needs to change and this will involve more than positive sentiment and encouraging words. Therefore, Inside_Networks has assembled a panel of experts to examine this subject and identify why so few females choose to pursue a career in this field and, just as importantly, what should be done to make it more attractive.

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.

TERRI SIMPKIN
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Look out from the stage at keynotes or panel sessions on inclusion and diversity in this sector and you'll see an audience filled with middle class, white, mostly middle aged men. While in no way wanting to be disparaging about this group of professionals, it's clear that the data centre demographic is a concern.

A raft of global research such as that from McKinsey and the World Economic Forum show that diverse workforces are more profitable, more innovative, more resilient and more able to adapt to new business landscapes. We also know that the data centre sector has essentially dragged all the embedded diversity problems such as a lack of women from platform sectors such as facilities management, engineering and IT. However, diversity is not just about gender – it's also about social class, race and neurodiversity, for example, and, in general, we don't have enough representation from those groups either.

The issue is gaining traction and given the lack of talent pipeline, coupled with skills and labour shortages, the smartest thing the sector can do now is get serious about effective, evidence based inclusion practices. Running some implicit bias training and putting a woman on the board for the look of it is not enough. Organisations must look deeper and more broadly into the fundamental structures that are so ingrained into the DNA of the data centre business that they're invisible.

Structures such as recruitment and selection processes, succession planning, reward and recognition and professional development practices must be examined for implicit bias and embedded barriers to those other than traditional labour groups. Discriminatory practices are often unintentional and invisible but they're there. It takes an evidenced based, bespoke approach to scratch away at widely held beliefs about the way organisations and culture works to really see where processes, structures and behaviours can be modified to attract, retain and develop a more inclusive workforce.

There is no silver bullet or quick fix. It takes more than just surface level initiatives to change the way the sector approaches the development of a broader labour pool. The entire digital infrastructure sector must get serious about what it takes to broaden its demographic if it is to reap the rewards known to other sectors, where an inclusive approach to people management is already in place.

'Organisations must look deeper and more broadly into the fundamental structures that are so ingrained into the DNA of the data centre business that they're invisible.'

MICHELLE SENECAL DE FONSECA
AREA VICE PRESIDENT NORTHERN EUROPE AT CITRIX

Women remain a largely untapped resource in the data centre and enterprise network infrastructure industries, despite increased awareness of the need for diversity and new programmes to engage girls and women in this sector. While moving in the right direction, women account for just 22 per cent of the core STEM workforce, yet we make up just under half of the UK labour market.

Recent research by Engineering UK claims an additional 1.8m technically qualified STEM workers will be needed by 2025. However, we can't expect to meet this demand if we continue to accept that just half of the population will make up the significant majority of our STEM workforce.

It is clear that we can no longer make do by tapping into the limited pool of tech talent. It's a short-term mentality, and the shortage of applicants for jobs is leading to a widening digital skills gap, wage inflation, rising costs and reduced innovation.

On a practical level, organisations will need to get their technology, workspace and culture right. Creating the right physical space is important when trying to attract talent from different walks of life. Nowadays, people want to be able to work wherever, whenever and however they like. Technology is a big part of this – people expect access to the best tools, and the ability to work remotely.

Getting the culture right is also critical. A key element when it comes to creating a more diverse workforce will be building confidence – creating a supportive environment for women to be able to learn, try new things, fail and then to succeed. A culture that embodies 'a reason for being' is what ultimately connects people to their place of work, and this will help organisations to improve gender diversity and bridge the growing digital skills gap.

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'On a practical level, organisations will need to get their technology, workspace and culture right. Creating the right physical space is important when trying to attract talent from different walks of life.'

CARRIE GOETZ
GLOBAL TECHNOLOGY DIRECTOR AT PAIGE DATACOM SOLUTIONS

There are a few factors that contribute to lack of diversity in technical fields. First and foremost, we have to start encouraging STEM careers and interest very young in life and in equal measure between boys and girls.

While there are more toys and games to encourage girls to learn STEM, there are not nearly enough. People tend to buy girly toys for girls, as that is what they played with as kids. It is going to take some time for that to change. But availability of great tech toys will certainly help. Start them early!

Many positions require degrees and/ or advanced degrees and, until 2015, more men graduated college than women. Only seven per cent of women graduating college in 2016 had a degree in STEM. Of 2016 STEM graduates, 37 per cent were female and 63 per cent were male. Of those, the majority of women went for science over engineering and math.

More forward looking companies seek out women, but many experts tell women to 'de-genderise' their resumes using initials instead of names making identification difficult. If a company wants true diversity, they are going to have to seek out women candidates and realise that they may have to change some of the job demands. There are lots of senior IT people today without degrees that grew into their positions. School may not be an option for some people, but that doesn't mean that they won't be great employees. We have to start treating resumes and people individually, which is difficult with automated human resources systems.

Also, women leave tech at a 45 per cent higher rate than men. This is due in part to caregiver activities. Pay equality is an issue everywhere. So, when a family decides who is going to be the caregiver, often the partner with the lower wage is the one elected to stay home.

Tech companies could do a much better job of using tech to allow women to stay in the workforce. Programs like remote work, flexible hours, and just using tech to solve some of the issues would be ideal. Tech is rarely an 8-5 vocation. But we can make it easier for women to participate while providing care to children and elderly parents. And once in a tech company, promotions and raises need to exist for women. Women need to learn to market themselves for advancement.

Lastly, humans are inclined to surround themselves with likeminded people. Smart managers surround themselves with great talent, regardless of gender or race. Companies need to reward diversity instead of providing lip service to the issue.

> 'If a company wants true diversity, they are going to have to seek out women candidates and realise that they may have to change some of the job demands.'

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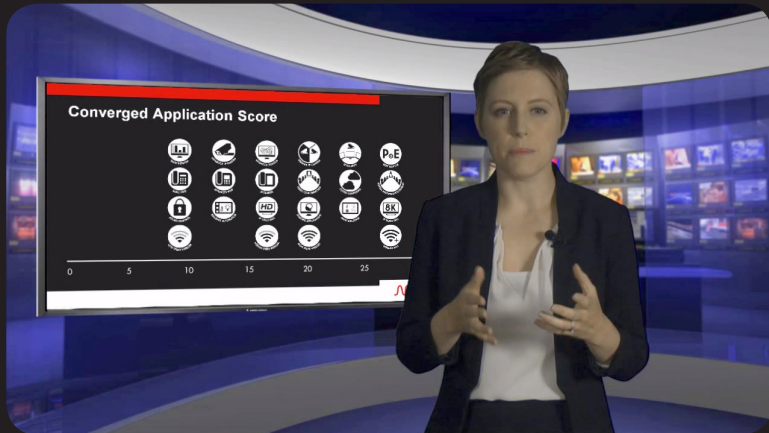
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EMMA FRYER
ASSOCIATE DIRECTOR AT TECHUK

Gender imbalance is a real problem for data centre operators – we are only accessing half the workforce despite an acute skills shortage.

We've identified the problem – it starts in primary school, where girls make study or role model choices that lead them away from technology. While the proportion of female students doing STEM skills is growing, and academically women often outperform men, that isn't converting into the workplace. Women are less confident about their abilities and there is implicit bias – something highlighted in the Heidi-Howard study. Finally, we don't hang on to them – women are more likely than men to leave the sector or move to non-technical roles.

In my view there are four actions needed to tackle this, which I've listed in order of decreasing success.

- Be good employers, because everyone wants a good employer. Looking around the sector, we generally do this well.
- Go that extra mile because that keeps women on board, especially those with families or returning to work. Here, some operators demonstrate best practice but others lag behind. Returners' programmes can help get mid- to senior- level women to re-enter the workforce after career breaks – an area where there is great need for the tech sector to invest.
- Be a career destination of choice. Data centres have an image problem but the sector provides far greater scope for career development than most realise. We are trying, but could do better.
  - Tell people. Here we are failing. There are 600 organisations specialising in women in technology, but still no coordinated route for employers to communicate with individuals who will become our future technical skills pipeline.

At sector level we are promoting the industry as a career destination, reinforcing the importance of STEM and profiling successful women. Operators are doing what they can but I'd encourage businesses to get behind initiatives like Tech Talent Charter and share data on diversity and People Like Me with STEM role models. We discuss it too much among ourselves, instead of talking to people who have never heard of data centres, or have never considered working in one.

> 'Data centres have an image problem but the sector provides far greater scope for career development than most realise. We are trying, but could do better.'

KAY WILSON
HR MANAGER AT LEVITON

There are a number of factors at play in the broader data centre and enterprise network infrastructure sectors that impact the ratio of women to men in the workforce. In Leviton's Glenrothes and Leigh facilities, we have women in a wide range of roles including finance, marketing, customer service, and manufacturing. In some departments, female employees outnumber males — for example, 75 per cent of shift supervisors in our Glenrothes facility are women.

This is, in large part, because we work to identify, recruit, promote, and retain the best candidates regardless of gender, race or background. Our recent gender pay gap data showed that equivalent roles held by men and women are remunerated equally. We also offer a flexible working policy, job share options, and parental leave and pay benefits that are above the statutory requirements.

But when it comes to the engineering department, which includes product design, development, and manufacturing, our workforce skews male. This isn't unique to Leviton, as many women still perceive engineering as a less attractive field. As recently as 2016, only 17.5 per cent of higher education students enrolled in engineering courses were female.

There are a number of steps employers can take to proactively support women as they consider a career in the network infrastructure industry. For our part, we engage with schools and community groups to give boys and girls alike an early look at the kinds of jobs they could have when they grow up. We actively encourage our female employees to participate in school engineering projects, serve as mentors, become involved in industry groups, and give us suggestions for ways we can encourage more gender diversity in our workforce.

Though I believe gender diversity will naturally improve when a number of factors are addressed on a society wide level, every employer in the sector has a role to play in making their organisation equally attractive to men and women.
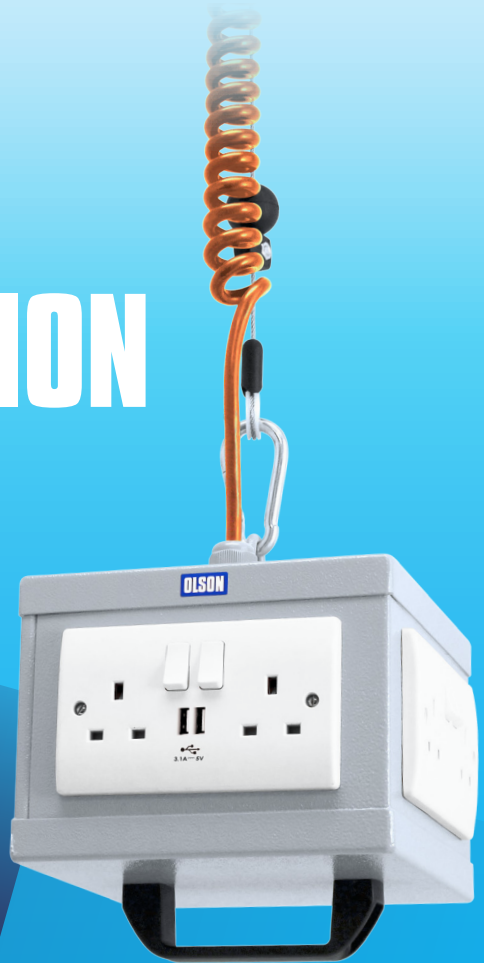
> 'Though I believe gender diversity will naturally improve when a number of factors are addressed on a society wide level, every employer in the sector has a role to play in making their organisation equally attractive to men and women.'

Clearing the air

▶ An efficient data centre environment is all about optimising airflow and managing energy usage effectively. In a world where technology is increasing demand on data centres, it is more important than ever to improve cooling management within these environments.

DECISION TIME
The industry has made its decision and most of us love the ANSI/EIA-301-E 19-inch network rack. These racks are used in hundreds of different types of deployments, but a key market for their use is within data centres, where they can be deployed in the realms of thousands at a time. With so many of these racks being used in these facilities, when commissioning a deployment and considering the costs of the racks, it is easy to assume that this is all you would need for the creation of a data centre.

Once the equipment is installed and powered up, it will start to try and cool itself through its internal fans. This will draw ambient air through the unit. From a physical point of view, these units are fundamentally made as individual items. However, from a service point of view, they are also designed to work in tandem with one another as a complete network solution.

THE HEAT IS ON
In theory, one switch or server drawing in ambient air from the surrounding area and exhausting it so many degrees warmer is not a concern. The issues arise in practice – in a 'real world' scenario when the racks are deployed in their masses alongside other systems and machines, all installed within confined spaces to create

'In a world
on data ce
to improv
environme

Are the racks in your data centre costing or saving you money? The truth is that many organisations are unnecessarily wasting money through inefficient data centre airflow and mismanagement of energy, as Neil Staley of Mayflex explains

complete networks. In these situations, the heated air is re-circulated around the installed equipment within each rack, continuously increasing the ambient temperature within the facility, which ultimately can result in the IT equipment overheating – reducing its performance.

As more and more businesses move their compute power from the PC to the local server rack and to data centre based clouds, the reliance on these facilities is ever increasing, which intensifies the problem of managing effective temperatures within a data centre.

However, the racks that the IT equipment is installed into can assist with this energy management. The deployment of airflow management systems to control the ambient

where technology is increasing demand
entres, it is more important than ever
e cooling management within these
ents.'

temperature of air running through the equipment and mitigate recirculation of warm air helps to ensure that IT equipment is continuously working in optimum conditions to maintain effectiveness.

BLANKETY BLANK

All vertical U-space within a rack that is not populated with equipment should have a blanking panel fitted. Blanking panels not only create a tidy and professional look by covering unused rack space, but they also promote passive cooling within the rack by directing airflow to prevent warm air from easily traversing back to the front of the rack.

Blanking panels can be fitted to cover several U with just one panel. However, it is said that using 1U panels could well be the best way to approach this, as they allow for any moves, adds and changes (MACs) to be undertaken without any issue, mitigating scenarios where a new 1U server needs fitting in a section of a rack that has a 6U plate fitted.

SIDE EFFECT

The same issues can happen within racks where there is space for air ingress at the sides of mounted equipment. Facilities decide on specific rack manufacturers for many

different reasons. A feature rich rack may be chosen as a best-fit option, but with that comes a compromise in the rack not allowing equipment to be fitted with no space down the sides.

Equipment deployed may be – and most probably will be – from different vendors and therefore it is impossible to get every item to sit where no air can infiltrate the rack on the vertical plane.

Vertical baffle systems can remedy this issue and be fitted where all apertures are blocked off. These systems fit between the outside of the profiles and side panels down the entire height of the rack. They can also infill small gaps between the struts that are intrinsic to the construction of the rack, as well as the very top and bottom, which are areas that sit outside of the U profiles and where blanking panels simply cannot be fitted. This system creates a wall around the installed products, thereby driving airflow to exactly where it needs to go – through the equipment.

COOL IT

Fan trays can also be installed within a rack's U-space to support the regulation of in-cabinet temperatures to ensure heat is not damaging the IT equipment.

Whilst blanking panels, baffle systems and fan trays support the optimisation of energy usage from within the rack, aisle containment systems help to separate hot and cold air within the data centre facility using a variety of different methods – hot, cold and return plenum variants. These systems enable the units to operate more efficiently, reducing the risk of failure and extending their lifespan.

STRATEGIC DIRECTION

This all leads towards one thing – strategy. And, more specifically, airflow strategy. Racks deployed with ergonomically designed airflow management and flexible solutions in a strategic way can help create more efficient and more effective data centre solutions and reduce the Power Usage Effectiveness (PUE) rating of a data centre. ∎


NEIL STALEY
Now the company's product marketing executive, Neil Staley joined Mayflex in 1991 working in the sales team. Over the years he has worked in different sales roles both internally and externally and also spent three years working away from the business at an infrastructure solutions partner. Whilst in that role, he worked on estimating, design and project management of structured cabling, CCTV, door access control, fibre optics, access barriers and network troubleshooting. He now works within the marketing department, focusing on product marketing activities across the three core divisions of the business.

ESSENTIAL PROTECTION
FOR CRITICAL I.T. EQUIPMENT

Designed for fast and easy set-up, the RE Series rack provides features IT specialists need in an affordable, ready-to-go enclosure including locking front and rear doors, locking side panels, step-less rail positioning, jacking feet and removable top-panel infill plates.
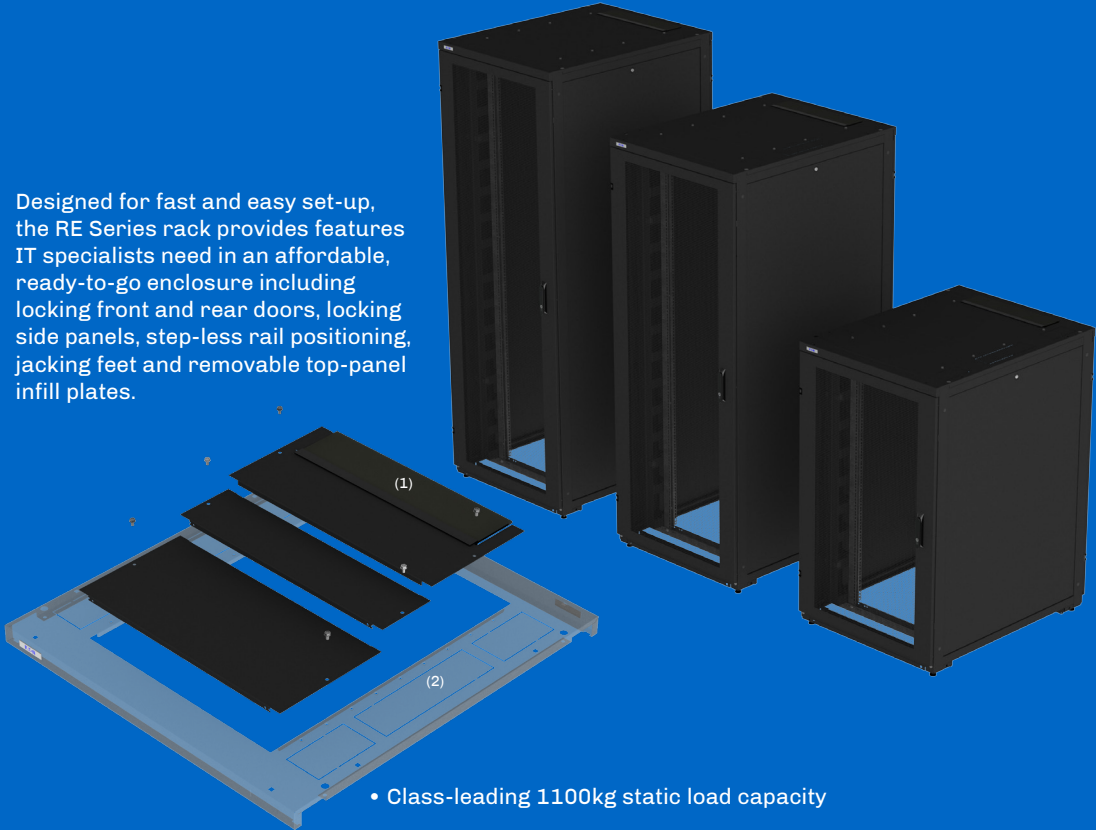
- Class-leading 1100kg static load capacity

- Vertical Cable Managers fitted as standard (800 wide only)

- Top rear brush entry panel as standard[1]

- Recessed side panel locks allowing rack baying (baying kit included)

- Jacking feet allowing adjustment from inside or outside the rack

- Tooless twist-out top panel access[2] (800 wide only)

Available From

DUNASFERN Inc. **AURIGA**

E·A·T·N
Powering Business Worldwide

HellermannTyton

The Zone Cabling Enclosure from HellermannTyton provides up to 2U of patching space within the 600x600mm area of a floor or ceiling tile. It offers support for standard 19-inch patch panels, active equipment, as well as RapidNet panels for use with the pre-terminated cassette based solution.
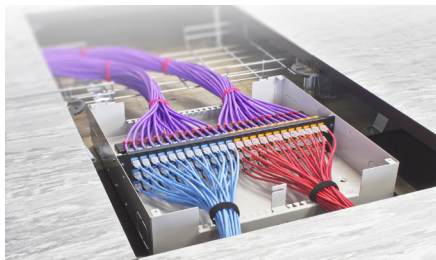
The Zone Cabling Enclosure has a hinged and removable top access door along with removable covers and interchangeable brushes on two sides. It can be secured to raised floor pillars, raised floor pedestal brackets, concrete flooring, ceiling tiles or even walls – making it extremely versatile in any mounted position. Internally, the Zone Cabling Enclosure has front and rear cable management to support patch leads and manage bend radii.

The enclosure is the ideal solution for data centre or office applications where raised floors or suspended ceilings provide suitable hosting space. The enclosure provides reliable, resilient network connections, as well as high performance in a number of applications where additional patching space is required.

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

Austin Hughes

Austin Hughes' rack-mount solutions help manage data centre rack capacity, reduce downtime and energy costs, and improve energy efficiency.

Given the mission critical nature of the data centre environment, InfraPower intelligent rack power distribution units are designed, built and manufactured to provide extremely high levels of resilience. Digital local touchscreen displays, DC power modules and latching relays are standard features within InfraPower Metered and Outlet Switched (WS) PDU and Outlet Switched with Outlet Metering (WSi) PDU models.

InfraPower PDUs can be integrated with InfraSolution networked smart card access control for added cabinet security or InfraGuard for full cabinet environmental monitoring and management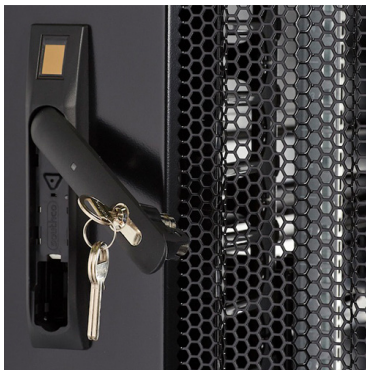. Installing a remote rack IP door access solution allows monitoring, control, alarm and reporting capabilities for all server racks. Sensors are available for complete environmental monitoring and peripherals such as fans and lights can be added to further expand functionality.

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

Excel Networking Solutions

Excel's range of Environ racks, cabinets and open frames offers exceptional quality and a variety of options, making them suitable for a wide range of applications in the enterprise, data centre and security markets, as well as for every day cabling systems.

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

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

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

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

The latest innovation combines all the 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.

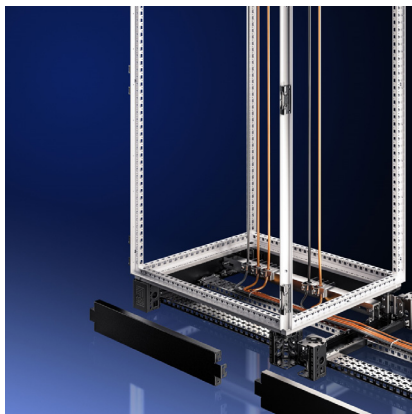All this comes with reduced assembly time, lower costs and greater safety.

The new base/plinth system VX25 from Rittal 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

EDP Europe

Hubbell's RE-BOX commercial cabinets – stocked and distributed by EDP Europe – are specifically designed for housing remote network equipment in a safe and secure environment such as classrooms and offices. The pre-configured RE-BOX can be used as a small remote data centre.

Each cabinet includes dedicated mounting for switches and active equipment, as well as another area for patch panels. The unloaded RE-BOX is a great solution for applications such as horizontal cross connects or the telecommunications room.

The modular design of this cabinet is extremely versatile, allowing the installer to configure the cabinet with a wide variety of accessories to mount any type of components. Knockouts for conduit and rectangular knockouts for metal and PVC trunking are provided, and the door lifts off when open for easy installation with the hinge easily reversed in the field. Flexible mounting for active equipment and top mounted patch panels allow for use of short, one-foot patch cords.

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

Chatsworth Products (CPI)

Technology professionals trust CPI to protect their investments within data centres and telecommunications rooms, and into harsh indoor and outdoor environments.

CPI can respond to any specific requirements with rapid product modifications and kitting to help offer a competitive advantage with its comprehensive portfolio of RMR Industrial Enclosures. Features of the RMR Industrial Enclosures range include:

- NEMA Type 4, 12 /IP 55, 66, adaptable to NEMA Type 1, 2, 3, 3R and 5
- Fully welded, steel construction with powder coat paint finish
- Cooling, cable management and full range of accessories
- Customised options to create the perfect fit for any harsh environment
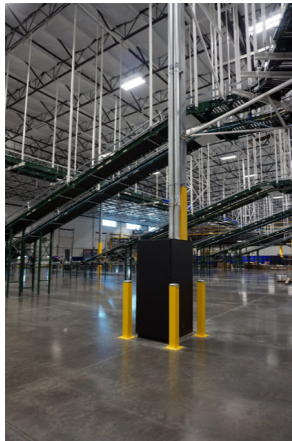
In addition to RMR Industrial Enclosures, CPI's extensive product line includes cabinet, containment and enclosure systems, cable management, cable pathway, environmental monitoring and security, grounding and bonding, power management, rack systems, seismic systems, wall-mount systems, and zone cabling and wireless enclosures.

For further information **CLICK HERE.** **www.chatsworth.com**

Siemon partners with IDC for Cloud and Datacenter Roadshow series

Siemon is partnering with International Data Corporation (IDC) on a roadshow of events tailored for data centre professionals. The Cloud and Datacenter Roadshow takes place in eight strategically selected cities across Turkey, the Middle East and Africa, with Siemon participating in Nairobi, Kenya on 20th September 2018, having already taken part in an event in Lagos, Nigeria in August.

Data centres and colocation facilities are the underlying engines for cloud-based technologies and, as businesses globally move towards 'cloud-first' strategies, the roadshow aims to educate and engage with professionals within the sector to enable understanding of the key technologies that can future proof their facilities and enhance service levels for their customers.

James Kiriamiti, Siemon's marketing and partner manager for Europe, Russia and Africa, said 'Over the past five years we have successfully grown our presence in Africa. We recognise a growing flow of investment into emerging markets such as Nigeria and Kenya, which have seen strong growth in infrastructure development, as many companies leapfrog into the digital world.'

James Kiriamiti

Michiel Panders is R&M's new European general manager

R&M has appointed Michiel Panders as its new general manager for all European countries excluding Germany, Austria and Switzerland.

Panders has over 20 years of international business management experience and has worked for leading companies such as Alcatel, Global One and Cisco. 'I am delighted to have Michiel on board,' stated Michel Riva, CEO at R&M. 'He brings with him a significant amount of experience in building key customer relationships and winning teams.'

Panders commented, 'I am proud and excited for this opportunity to develop and strengthen R&M's position throughout Europe. I have always seen R&M as a company with high quality products and solutions – I'm looking forward to working together with my team to excite our customers with R&M's infrastructure solutions.'

Michiel Panders

Mayflex appoints new UK sales director

Mayflex has promoted Ross McLetchie to the position of UK sales director. McLetchie has held the position of regional director for the company's Middle East, Africa and APAC business for the past six years and will relocate to the UK to take up the new role, whilst retaining strategic leadership and development responsibilities for the APAC region.

Prior to joining Mayflex, McLetchie spent 12 years at a couple of the UK's leading systems integrators, the latter part of which carried responsibility for sales and business development of infrastructure, security and wired and wireless networking solutions.

Ross McLetchie

Commenting on the appointment, Andrew Percival, managing director at Mayflex, stated, 'Mayflex has a long-standing tradition of developing its people and building career progression opportunities – this announcement is yet another positive example of this. Ross has repeatedly demonstrated the qualities we are looking for in the person to take on this challenging and exciting role. He is ambitious, hungry, has great market experience and a passion for excellent service and teamwork. Our UK business is growing on all fronts and I am delighted to be welcoming Ross to the leadership team to drive this and our future plans at an even faster rate.'

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Networks Centre announces acquisition of Comms Centre International

Networks Centre has acquired Comms Centre International – a move that firmly places Networks Centre as one of the largest, independently owned IT physical layer distributors in the UK. The two companies will continue to operate out of their respective offices in Strood, Kent and Horsham, West Sussex, ensuring that customers will have uninterrupted service.

L-R Peter Krovina of Comms Centre International and Networks Centre's Duncan Lindsay

Networks Centre's managing director, Duncan Lindsay, said, 'This acquisition is part of Networks Centre's ongoing strategy to grow our market share in the UK and overseas markets. All customers will continue to enjoy the excellent service they're used to with both companies but with the added benefits of access to a deeper pool of technical knowledge, larger stock holding, a training school and wider product range.

We've known Comms Centre for many years, understand their business model and, consequently, this decision was well planned and strategic. We're looking forward to both companies enjoying continued growth and success in the future.'

CHANNEL UPDATE IN BRIEF

Excel Networking Solutions has appointed John Carrier as its new country manager for Australia. During the past 25 years Carrier has developed extensive skills and experience in ICT across a wide range of industries throughout Asia Pacific.

Secure IT Environments has reaffirmed its membership of the UK government's Cyber Essentials scheme, meeting the stringent standards it sets out on basic controls organisations should implement to mitigate the risk from common internet based threats.

FläktGroup has appointed Yan Evans as global director for data centre solutions. Evans steps into the role having previously been managing director of FläktGroup UK and the new position will see him leading FläktGroup's activities in the data centre arena on a global basis and driving sales of its solutions including air handling units (AHU), indirect evaporative cooling (IEC), close control units (CCU), accessories and fan walls.

Extreme Networks is now positioned as a Challenger by Gartner in the Gartner Magic Quadrant for Data Center Networking. Prior to 2018, Extreme Networks appeared as a Niche Player in the Gartner Magic Quadrant for Data Center Networking for several years.
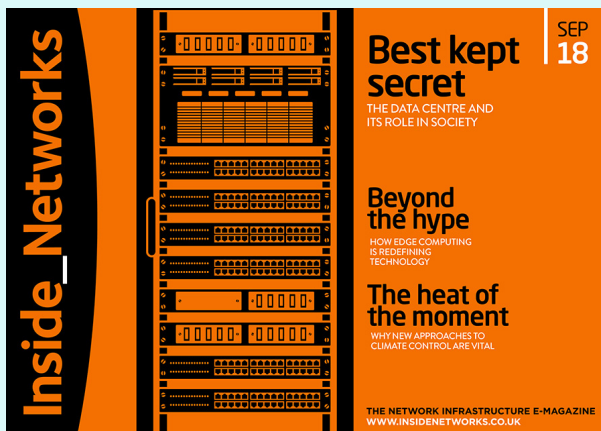
Quick clicks

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

CommScope has published its first FTTX eBook – Fiber to the X Fundamentals – encompassing all aspects of outside plant fibre deployment.
The entire 49-page book is available for download now by **CLICKING HERE.**

Three Ways Intelligent PDUs Improve Colocation Data Center Management is a blog by **Geist.**
CLICK HERE to read it.

Power over Ethernet (PoE): 5 Ways It's Fueling Copper Network Growth is a webinar by **Leviton** that will take place on 19th September.
CLICK HERE to register or view on demand after this date.
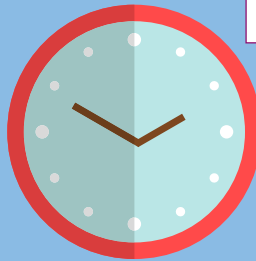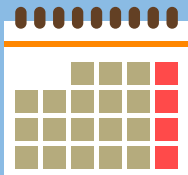
Where Has The IoT Been Going Wrong? is a white paper from **Rethink Technology Research.** **CLICK HERE** to download a copy.

The Excel Explains series of videos from **Excel Networking Solutions** provides important technology updates in bite size sessions. **CLICK HERE** to watch them.

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The **Uptime Institute's** Eighth Annual Uptime Institute Data Center Survey provides an overview of the major trends shaping IT infrastructure delivery and strategy. **CLICK HERE** to download a copy.

Ideal Networks has published a white paper to educate installers on the testing and certification of modular plug terminated links (MPTL). **CLICK HERE** to obtain a copy.
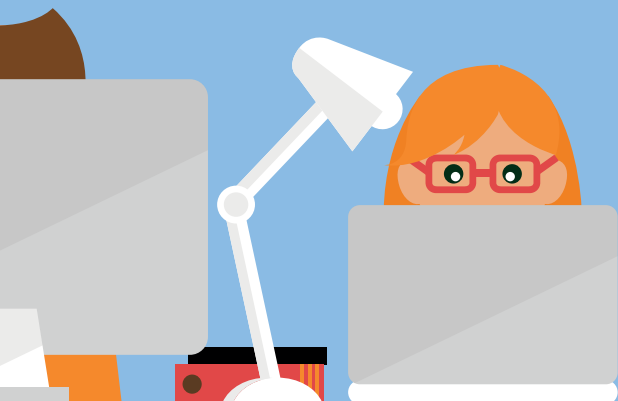
Sweating the assets

Bob Allan of Siemon outlines some of the core benefits that a converged infrastructure and structured cabling bring to intelligent building design, and why it's beneficial at so many levels

According to psychologists, human beings are getting smarter with every generation. It stands to reason then that the buildings these smart people work in need to get smarter too. Imagine working at an office that knows where you can find a parking space in the morning, books you a cubicle for your conference call mid-morning and warms your meeting room to just the way you like it. These little creature comforts are just the start of a smarter future for us all.

INTELLIGENT DESIGN

Developers, architects, facilities managers and other professionals involved in the design and implementation of working environments need to give serious consideration to how a building needs to be designed for it to become a 'smarter' workplace.

Intelligence starts with having the right infrastructure, and the concept of using a single IP network for the support of data, voice, video and low voltage building systems. It's this converged network infrastructure and the structured cabling network that lies at the heart of an intelligent building that makes everything possible. Simultaneously simplifying the cabling infrastructure required and yet amplifying its capabilities, this converged infrastructure also enables the integration of low voltage technologies such as power over Ethernet (PoE) applications for computing or lighting, rather than having disparate power and communication protocols.

SAVING GRACE

Energy savings are seen at multiple levels, ranging from reduced consumption by the devices themselves to optimised energy utilisation. One important benefit

'Intelligence starts with [having the right] infrastructure, and the [concept of using a] single IP network for the [support of data,] voice, video and low vol[tage...]

having the right
concept of using a
e support of data,
tage building systems.'

PoE enabled technologies consume less power and feature greater efficiency due to fewer AC to DC conversion losses. For example, PoE powered LED lights with sensors can help lower energy costs by up to 85 per cent. In addition, a smart building allows consumption levels to be proactively managed using mined data to control facilities management – if a heatwave is forecast, data gathered automatically causes temperature settings to be adjusted, slowly increasing air conditioning in advance and avoiding a sudden surge in energy consumption.

Construction costs are even more significantly reduced. For instance, data gathered during post construction analysis

that makes connecting PoE enabled devices attractive to businesses is reduced power consumption.

highlights that savings of $500,000 per 100,000ft^2 of construction can be made if disparate control systems are eliminated and an integrated platform is leveraged. Add to this the further savings of using PoE to devices, and CAPEX savings of nearly $2m per 100,000ft^2 of construction can be achieved. A single IP network can replace as many as eight or nine different systems, each having proprietary wiring, connectors, pathways and often disparate reporting and data analytics capabilities.

ADAPT AND SURVIVE

As the earlier examples illustrate, the most obvious benefit of a converged infrastructure comes in the form of an improved user experience. If you use a badge to enter a building or if facial recognition is installed, it will identify you, while lighting adjusts according to the task at hand. A work cubicle or desk can be assigned as you drive into the car park and a map will guide you to right the location, where your phone and network access

has already been ported. Without building access control platforms integrated through the network, it is impossible to provide this level of personal customisation for users.

In the past, complex workplaces have relied on disparate and often proprietary building management platforms. A converged cabling infrastructure integrates systems across the building, connecting and controlling the entire workplace from a single platform. It's the equivalent of running a building in data form and there are many benefits to achieving this. One software database means data is shared between systems around a central control point, lowering running costs and simplifying building administration. Systems can be configured to respond based on the information gathered, so if lighting sensors identify that there are just two people working in a space, it can be air conditioned appropriately rather than being over conditioned to support 50 people.

SUPPORT STRUCTURE
On the facilities management side, a converged infrastructure supports a far more analytical approach to maintenance activities. Rather than maintaining a building according to pre-scheduled reoccurring events, it can become needs based. By monitoring energy consumption on a particular device, it is possible to tell if components need changing, rather than just doing it routinely, and over time needs based maintenance can cuts costs by 30 per cent.

The same needs based logic can be applied to managing meeting facilities. 35 per cent of all conference room reservations go unused, so being able to access real time data and show whether a booked space was actually utilised means it can automatically be released for others, enhancing both the office experience and productivity. Working in this way has a very significant impact on property costs. Developers typically estimate allowing for 100ft² of workspace for each employee, but this can be reduced to 40ft² per employee, without
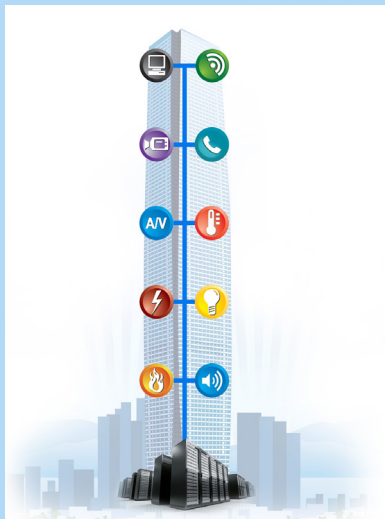
sacrificing productivity or comfort, just by managing working patterns and the available space better.

A FOUNDATION FOR SMARTNESS

High speed data applications and low voltage PoE installations should use high performance shielded cabling, so a critical foundational element in any intelligent building is selecting the right cabling to support a networked infrastructure.

Low voltage PoE delivery to end devices leads to temperature rises, which can negatively impact system performance and lead to irreversible damage to the cables and connectors. Selecting shielded cabling with improved heat dissipation properties minimises these risks. Capable of supporting 10Gb/s for data transmission, high throughput Wi-Fi networks and PoE applications such as lighting, Category 6A and Category 7A shielded copper cabling solutions are ideal.

In light of the latest Construction Products Regulation (CPR), selecting the right class of cabling is now not a discretionary choice to be overlooked, it is a requirement with some potentially strong legal implications.

IN THE ZONE

As horizontal cables running from the telecommunications room to intermediate connection points housed in zone enclosures, zone cabling supports the convergence of data and voice networks, Wi-Fi device uplink connections and a wide range of sensors, control panels and detectors.

Combining these connections within zone enclosures saves significant cost for today's highly automated buildings by supporting rapid, less disruptive reorganisation of work areas and

equipment and simplifying deployment of new devices and applications.

BUSINESS BENEFITS

Progressive companies are already gravitating towards intelligent buildings because they understand exactly what a smart workspace will do for their organisations. Although the sky's the limit when it comes to the potential for offering anything from simplified methods of booking a meeting room, to finding a workspace that's perfect for an afternoon conference call, it all starts with the right design of a converged network infrastructure, supported by the right structured cabling solution. ∎

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BOB ALLAN
Bob Allan is global business development manager for intelligent buildings and strategic alliances at Siemon. He has over 15 years of experience in the IT industry and currently works to educate customers on intelligent buildings and the use of a single converged, IP-based structured cabling system to connect and integrate multiple building systems.

Nexans

Nexans has introduced Converged Application Scoring – or CA Scoring – as a new means of measuring the ability of a network to support simultaneous applications in real world conditions.

Convergence means that more and more devices like wireless access points (WAPs), cameras, building sensors and security devices are being connected to the office network at the same time as bandwidth is being pushed to support increased data, video, and media content. As a consequence, the network not only has to support these growing bandwidth demands but also provide increasing power using PoE to the growing number of devices.

This requires a new way of testing and evaluating cabling performance.

Nexans' CA Scoring defines how the cabling network's performance will affect the user's experience. Using realistic test scenarios, it measures how network infrastructure will perform against future demand and converging applications when stressed in real world environmental conditions.

To find out more about CA Scoring **CLICK HERE** and to download the application note **CLICK HERE.**
www.nexans.co.uk/LANsystems

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

Mayflex

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

Mayflex offers expertise and a portfolio of products from leading vendors. At the heart of the network is structured cabling to allow PoE driven devices such as wireless access points, door access control, IP CCTV cameras to be installed across a single IP network. Intelligent PDUs and monitoring devices help manage and control the network.
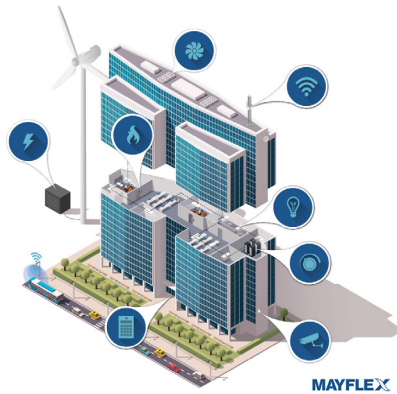
Converged systems provide rich and deep data that IT and facilities managers can obtain, in both real time and historic formats.

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

R&M

R&M has created dedicated digital ceiling solutions based on tried and tested cabling systems for office buildings. Sensors and controls for lighting, air conditioning and surveillance can now be networked simply and safely with building services engineering and the Internet of Things (IoT).

The digital ceiling provides IP infrastructures for intelligent building management. Sensors and controls for lighting, air conditioning and surveillance, even power for LED lights, can be brought together in the data network. LEDs, and possibly larger devices, can be powered via data cables using PoE, whilst also obtaining unique IP addresses in the LAN. Surveillance cameras, smoke alarms, temperature and motion sensors or WLAN antennas on the ceiling may be integrated in the IoT in the same way.

R&M's U-Box – a multifunctional distributor housing that can provide up to 24 data network or PoE connections – is at the heart of these solutions.

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

Less is more

Matt Salter of ExcelRedstone argues that for a truly smart and secure future, converged networks are more important than ever

▶ Our industry has been talking about the importance of converged networks for as long as I can remember and, yes, progress has certainly been made educating the market. But I'm sorry to say that we can't put the issue to bed just yet.

HARD SELL

The main problem holding back the success of the converged network is understandable – those who are constructing our buildings are ultimately not the ones occupying them. One is focused on the upfront delivery, whereas the people who inhabit the building are the ones who experience and maintain it.

Cost will always be a focus when constructing a building. Always. And hand in hand with cost is the pace of delivery. So, you can see why consultants are happy for tried and tested contractors to deliver their own parts of the puzzle with their own networks in order to expedite delivery.

> 'The fact is you can't secure against what you don't know about.'

These contractors have successfully delivered it this way before, and the model has worked fine for years. Therefore, it's a hard sell for consultants to risk adding complications to a build process when the focus is on efficient and cost effective delivery when the current method works 'fine'.

But 'fine' isn't good enough.

networks built upon trust. There's one for your TV, one for computers, one for smart home devices – each installed by different people. One may have used a high quality Wi-Fi device patched, and with passwords changed securely. Another may have bought a cheap router with known security holes.

The trouble is, you just don't know. Straight away with multiple networks you're going to have issues getting your devices to talk to each, and you don't truly know what's going on. Then a year down the line you could find out that there's another network for your home security system that you didn't even know existed! It's a simplistic example, but I just want to illustrate a point – why would you accept such lack of control and visibility in your own building?

TRUST ISSUES

There was a story in the media about how a Las Vegas casino had data stolen via a thermometer in a fish tank. Incidents like this are certainly going to cause scepticism and distrust around Internet of Things (IoT) enabled devices. But this is a problem that will face all networks – legitimate and illegitimate devices will be brought on to the network and with each one comes a degree of security risk.

The initial instinct may be that separate networks are surely better, in that they can contain and minimise more risks, but consider that HMS Titanic took this approach of isolation (with separate airtight containers that were meant to contain breaches), and we know all know how that turned out...

All you're doing is introducing network complications that will likely give you a lack of visibility and blind you to potential risks across multiple networks. You aren't going

RISKY BUSINESS

This can lead to a myriad of networks that, at best, will hold back innovation, and, at worse, pose security risks due to them being more difficult to manage and monitor.

So, let's start with security. By having multiple networks – each for different functions – you have little knowledge of their quality, performance or what they're really up to. Imagine you moved into a new home and you have multiple separate

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to take a proactive, completely clear, centralised approach to security. They can lock it down, continually monitor and know exactly what the network's doing. They can spot anything out of the ordinary, whether that's abnormal traffic from a PC, part of the network disappearing – or even a rogue fish tank thermometer.

The thermometer story won't be the last we hear of incidents like this, but we also mustn't let it detract from the obvious benefits that the IoT will bring to the smart building landscape.

UP TO SPEED

The insight and control that these systems offer means that by not embracing these technologies, some buildings will simply be left behind. Research by Memoori indicates that that growth in smart building connected devices will be driven by commercial real estate – from approximately 710 million devices in 2015 to almost 3700 million by 2021.

That's staggering growth and think of all the data that can be gained from a typical building – power use, occupancy, traffic patterns, security, lighting and environmental control figures. There is a wealth of information that will improve occupant satisfaction and optimise building operation.

Importantly, much of this will be driven by the interconnected nature of IoT. Smart lighting and environmental control will never truly be that smart if it can't utilise data on the building's occupancy patterns, and isn't able to adapt resources accordingly. For that, you need them to speak to each other – so keeping things in isolation simply won't work.

BRAVE HEART

Whether the motivations are tenant

to have an IT team for each network, so you're not going to get the optimal, proper oversight from your team.

IN THE KNOW

One of my colleagues told me about an incident where a link to a building management system (BMS) was severed shortly after the building was opened, but as the occupants had no idea of what should and shouldn't be there, they didn't notice its lack of presence for some time. The system was operating in the background, with no supervision. No one realised for ages as the system 'just worked' – but that's no way to operate a secure, smart building.

The fact is you can't secure against what you don't know about.

One unified network allows IT teams

attraction, legislation or driving down costs, a smart building can only be smart if you understand what it's doing, and how you can improve it. Now I'm not going to spin yarns of doom and gloom about 'the old way' of doing things, but I come back to the point - is 'fine' good enough for what we want to achieve?

The focus on security is increasing as more and more stories about high profile attacks hit the news. And for us to gain the significant benefits to be reaped from the IoT, we should aim higher. Those smart IoT devices are coming, and we need to ensure our networks are ready. So, what's stopping us?

We still don't know everything there is to know about smart buildings. It's still an evolving market, and I think there can be some hesitation on technologies that may be perceived as unproven or too bleeding edge. But consultants need to be brave in pushing forward smart building technologies.

BACK TO BASICS

End clients need to be more informed – to encourage consultants – but also be understanding that sometimes there may be some unknowns right now, and yes, it may mean more upfront cost. But they also need to take a long-term view of the operational expenditure and performance of the building that will ultimately be gained.

Then, those of us in the industry need to continue to learn, to innovate and spread the word. To come together with all parts of the delivery chain to ensure that we collectively learn and can collectively deliver on all the potential benefits that smart buildings will bring. But for all of that to work, we also need to go back to basics. We need to understand the benefits of

converged networks and ensure they are considered an integral part of any forward thinking project.

STRONG FOUNDATIONS

Even if you don't have every part of your smart building strategy nailed down, a converged network will give it a foundation to build and evolve that strategy now and in the future. ■

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MATT SALTER

Matt Salter is sales director at ExcelRedstone, leading the charge for buildings to work harder and more efficiently for the benefit of those that own and occupy them. He began his career on customer sites, installing IT infrastructure – giving him direct experience in some of the technologies that are key to smart buildings. His career flourished into project and operations management, which gives him unparalleled expertise in the practicalities of complex projects within buildings as well as the ever-changing requirements of customers.

Schneider Electric and Interxion partner to deliver new Dublin data centre

Interxion's DUB3 data centre, which was opened in December 2016, is a 2,400m² single storey, fully concurrent maintainable facility with various fault tolerant infrastructure features. To ensure maximum energy efficiency, DUB3 was designed with a focus on energy saving, modular architecture, incorporating cooling, as well as maximum efficiency components.

As a long-term partner, working with Interxion on many global data centre projects, Schneider Electric contributed various components of physical infrastructure from its power, cooling and software solutions portfolio, ensuring rapid construction, delivery, and seamless integration between all critical components throughout DUB3's design and deployment stages.

At DUB3 Interxion utilises Schneider Electric modular UPS systems to provide continuous power to the IT racks within the new data centre. When the outside ambient temperature exceeds all options for free cooling at DUB3, adiabatic coolers work in conjunction with external chillers. The cooling infrastructure includes computer room air conditioners (CRACs), containment systems and StruxureWare for Data Centers data centre infrastructure management (DCIM) software.

Virgin Atlantic takes off with Exponential-e

Exponential-e has secured a strategic partnership with Virgin Atlantic. Exponential-e will deliver and manage the airline's infrastructure network across business critical locations around the world, thereby becoming one of Virgin Atlantic's Network Guardians.

Network Guardianship provides Virgin Atlantic with networking, management, governance, security solutions and cloud connectivity. These enable the brand to deliver a uniform level of service to staff and customers around the globe. The infrastructure Exponential-e is implementing will serve as the backbone of Virgin Atlantic and Virgin Holiday's technological team, which focus on utilising the very best technologies to continue an innovative-led approach to customer service delivery.

Since 2012 Exponential-e has had an extremely successful relationship with Virgin Holidays, giving the company an in-depth understanding of the Virgin culture and customer-centric mindset. Both companies have a shared focus on innovation, with a view to improving the customer experience. In an industry where there is little to differentiate one airline from the next other than price, Virgin's ethos has been to pioneer new services and connect with consumers on a human level.

Eaton and Modulo-C provide real time monitoring for ATMB

Eaton has teamed up with Modulo-C to provide the Autoroutes et Tunnel du Mont-Blanc (ATMB) road network with a smart method of monitoring its entire autonomous IT network. ATMB's top priority is to keep the roads open 24/7, using its IT network to act as the eyes and ears of the highway, monitoring real time traffic data and weather.

The ATMB road network is made up of one tunnel, three main toll stations, a secondary road and two additional tunnels that join up with the Mont Blanc tunnel. It's a strategic communications link between the countries and is considered to be vital to the local economy. Beyond that, it is both a significant human and technological feat, operating 24/7 throughout the harsh winter weather.

Eaton and Modulo-C approached ATMB with a concept, based around the Intelligent Power Manager (IPM) Infrastructure software, to enable ATMB to manage and monitor the power across its network through a single pane of glass. The IPM infrastructure allows ATMB to understand and monitor power across its network, as well as environmental and physical capacity metrics. Using this information, ATMB has the power to plan changes, anticipate challenges and make intelligent management decisions to optimise efficiency and ensure business continuity. Eaton also provided metered PDUs that enable ATMB to accurately and remotely measure and monitor the power consumption of each IT device within a rack, enabling a comprehensive analysis of power consumption and efficiency across the network.

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PROJECTS & CONTRACTS IN BRIEF

INAP is partnering with Colt DCS in its Welwyn Garden City facility, where INAP will build out a standalone, self-contained data centre space. The existing data centre will be fully operational in after INAP layers in its new cloud stack and network technology.

Menzies LLP has selected and implemented the services of StarLeaf. With 400 employees spread across London and the home counties, Menzies required a voice and video communications solution that would reduce the need for staff to travel between offices and improve communications with UK and international clients.

WorldLink, Nepal's largest internet service provider, has successfully leveraged Juniper Networks' networking solutions to tackle the networking constraints and complexities of an exponentially growing consumer market.

Leviton

To support and educate members of the enterprise and data centre cabling industry, Leviton has developed a variety of free, expert-led webinars. These live, interactive events cover a wide range of topics related to copper and fibre optic cabling infrastructure, industry standards and technological trends.

On-demand recordings of each presentation are accessible via the Leviton website. Available webinars include Understanding How CPR Impacts You, Anticipating Cat 8: Plan for 25/40GBASE-T Networks Today, Navigating Cloud Data Centre and Enterprise Network Cabling Options, and Cabling Strategies for Data Centres, PoE and Wireless.

Topic information and registration details are available 24/7 online.

To register for upcoming and on-demand webinars **CLICK HERE.**

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R&M

R&M is currently integrating Transportkabel DIXI, which has been renamed Reichle & De-Massari Czech Republic. With the acquisition, R&M has acquired great expertise in fibre optic technology and a range of cables to extend and optimise its product offering.

The plant in Děčín mainly produces loose tube cables with singlemode and multimode fibres. The portfolio of standard cable constructions offers cables with up to 216 fibres. The range includes cables for LAN and data centre cabling, as well as FTTH and access networks. Special cables that fulfil the requirements of the highest fire classes are another specialty, as are cables featuring increased protection against mechanical damage when laid directly in the ground.

R&M has also opened a new production and office facilities in Bangalore, India. This new facility is dedicated to production and warehousing of fibre optic solutions for data centres and FTTx applications. This investment in India is driven by growth projections and India's strategic position as a regional delivery hub.

Find out more by **CLICKING HERE.**

www.rdm.com

CMS

Riello offers a complete range of single and three phase UPS – from 400W to 6.4MW – for applications ranging from home offices to data centres. Get your Riello UPS now at CMS.

The Riello iPlug series is the ideal solution for household and small home office systems. Its compact size and versatility, as well as push button operation, LED status panel and user-replaceable batteries, make iPlug easy to install within a domestic environment to protect systems from surges and blackouts. When mains power fails the inverter and built-in battery powers the load.

The Riello Vision Tower range, with its advanced communications and connectivity options, is the ideal solution for installations requiring superior protection and versatility in the power supply system including peripheral network devices, servers, and network back-up systems.

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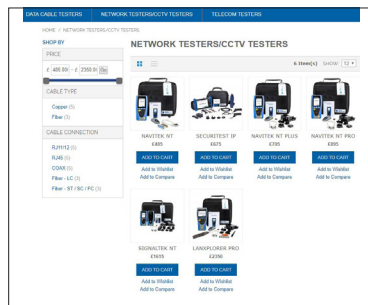**www.cmsplc.com**

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Ideal Networks

Ideal Networks' UK customers now have a new way to purchase a wide range of data cable, network and CCTV testers, with the launch of a dedicated online shop. It offers the total range of products from Ideal Networks, from network testers and troubleshooters, to IP CCTV testers and cable certifiers.

With helpful tools such as product comparisons and filters, as well as comprehensive product information, the new online shop has been designed to ensure that buyers can identify and purchase the best product for their specific requirements, as easily as possible.

Ideal Networks will continue to work closely with its global network of trusted distributors. However, the new online shop provides users with more options, ensuring that they can purchase testing equipment whenever and wherever needed. The checkout system allows users to make purchases without having to register an account and all major cards are accepted. Free next day delivery is provided for all orders.

Visit the new Ideal Networks online shop by **CLICKING HERE.**
www.idealnetworks.net

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Under pressure

Ian Dixon of Colt Data Centre Services examines how the charge towards the cloud has helped fuel substantial growth in new data centre developments, and why shared services and economies of scale are the name of the game now

▶ Even the largest of organisations need to build or leverage large data centre facilities in order to unlock savings or make use of processing and storage on-demand. The modern data centre is therefore tasked with two key roles – delivering a seemingly unending level of capacity and maintaining high levels of operating performance.

NEEDS MUST

Whether you are charged with building or remodelling a data centre exclusively for your organisation, or doing the same for a larger shared services facility with multiple tenants, the same considerations apply. Planning is critical to ensure that you have, and can deliver, the capacity that people need, when they need it. Moreover, that you can deliver the performance levels expected, be that fast storage or processing horsepower, or simply the speed at which you can provision services

when requested by a customer.

Modern data centres are vast, and contain a substantial amount of technology. Yet the space is finite and there are thresholds that ultimately impose hard limits on just how much can be held inside one facility, and how the contents can operate effectively 24/7.

PREDICTIVE TEXT

True capacity planning means being able to crystal ball gaze and predict future IT needs – what the data centre must provide in central processing unit (CPU) cycles, storage, space, and power in order to support the business or, in the case of a shared services facility, support a broad range of clients scaling up and down across the year.

The latter is the real challenge. With a constantly fluctuating overall customer base, each with different demands, a degree of over-specifying of resources is

needed to ensure enough of a reserve is on-hand when customer demand jumps, but not so much that if customers scale back, you as the data centre operator are left nursing costly over-capacity and recurring bills for bandwidth, energy, as well as the physical cost of unoccupied floor space.

PLANNING FOR POWER

In-country data storage is creating substantial demand for additional data centre capacity across the European Union (EU), particularly in markets such as the UK and Germany. This also means there is high demand for additional energy to power these data centres and the hardware sitting in them. Compounding the challenge is the fact that as data centre demand and new site construction is sky rocketing, energy networks across Europe and elsewhere are under their greatest pressure to service demand.

There is only a finite amount of power available in a local electricity sub-grid, potentially limiting the scope for a data centre to draw down as it reaches full capacity. In order for a local power provider to maintain continuity of service to everyone on the same subnet, including homes, hospitals and street furniture, a data centre may well find itself at the back of the power queue unless it has its own generating capability in the form of solar, wind or standalone generators.

With power demands growing, the extremely small margin for overcapacity in most electricity markets may not be able to fully satisfy the needs of the data centre, hampering business as well as operational performance.

PLAN OF ACTION

The peak power consumption of a data centre is a key consideration when architecting everything from the cabling to networking infrastructure, to how many server racks you place on each floor or segment of the facility. Get it right, and you will ensure that the facility can scale without interruption. Get it wrong, and you will fight a constant battle between a shortage of power and an inability to keep the facility cool enough to operate, itself putting further pressure on power needs and operating performance.

It is also a reason why deploying the latest energy efficient infrastructure technology is factored into capacity planning. Doing so will ensure energy use is as low as possible. Modern switches and interconnect technologies are now delivering substantial advances in power use, enabling them to deliver substantially lower power consumption per port or per gigabit compared with previous generations of the same hardware.

'Capacity planning tools are essential for today's data centre operators to help them calculate the resources and power draw that a data centre will require.'

MONITOR AND MANAGE

Meticulous power performance monitoring and planning is needed because electricity generating capability across Europe is actually falling. This is due to the decommissioning of coal-fired power stations. The exception is France, which remains largely reliant on an established

nuclear power programme and has a much lower exposure to fossil fuel based electricity generation.

This move away from coal, intended to improve air quality, is removing electricity generating capability from Europe's major nations at a rate faster than nuclear, solar, biomass, wind and wave power can fill the void.

For example, in the UK, generating capability has been steadily declining for over a decade. In 2014, total electricity production stood at 335TWh, while consumption was 302TWh. This is down from peak generation of 385TWh against consumption of 285TWh in 2005. Add to this that energy prices have risen steadily from 2010. For data centres, this represents a major operational expenditure (OpEx) challenge to overcome and a dwindling level of grid capacity nationwide that can be leveraged for new and expanding facilities.

Data centres are not the only energy consumers having a big impact on local and national power infrastructure load. Everything from the growing Internet of Things (IoT) to smart motorways are putting pressure on power grids.

ENSURING PERFORMANCE

Any data centre operations team needs to focus on ensuring the performance of what is being served from the facility, whether its running on the customer's own hardware, or rented hardware provided by the facility itself. Maximising the performance of cloud or private applications, while maximising the use of available infrastructure. Every activity that is undertaken in a modern data centre including provisioning, monitoring, capacity management and automation supports this goal.

With the advent of widespread server virtualisation, the process of provisioning,

deploying and configuring a server resource is increasingly a software action, rather than that of physically installing a server in a rack.

Nonetheless, the rise of virtualisation has implications for data centre operators. Densely packed racks of physical servers all running at 100 per cent load, each with multiple virtual instances in play, will test any facility's ability. Be it to maintain operating temperature, deliver energy as well as ensure enough bandwidth is coming into the building to service traffic to and from those servers.

TOOLS OF THE TRADE

Capacity planning tools are essential for today's data centre operators to help them calculate the resources and power draw that a data centre will require, based on current and future projected use.

The tools for the job range from simple Excel spreadsheets to custom 3D renderings of the data centre floor map, complete with automated asset discovery, integration with power and cooling systems and other sensors around the facility.

Sophisticated capacity management tools can even suggest outsourcing options when major power, space and cooling upgrades to the physical site are cost or time prohibitive. The same tools can also be used to provide information to customers of shared data centres, helping to automate some of the management of collocated hardware, or provisioning of virtual services on rented hardware.

GOING FORWARD

New and revamped data centre facilities need to be carefully architected to make most efficient use of available resources. Alongside this, operators must ensure that high energy functions such as cooling are up to the task. Most critically, communications infrastructure will operate 24/7/365, with customers and end users expecting a consistent and high degree of operating performance and data throughput. This can't be compromised by overheating servers, power outages or an inability of a customer to scale up their installation on short notice to address a spike in demand. ■

IAN DIXON

Ian Dixon is vice president operations at Colt Data Centre Services. He has over 25 years of experience in the data centre and telecommunications industry and has been engaged in delivering data centre services to customers since 1997. Dixon has held various senior roles at Colt over the last 10 years, including heading up the technical design team that developed Colt's Modular Datacentre offering and for managing UK sales for data centres and managed services.

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