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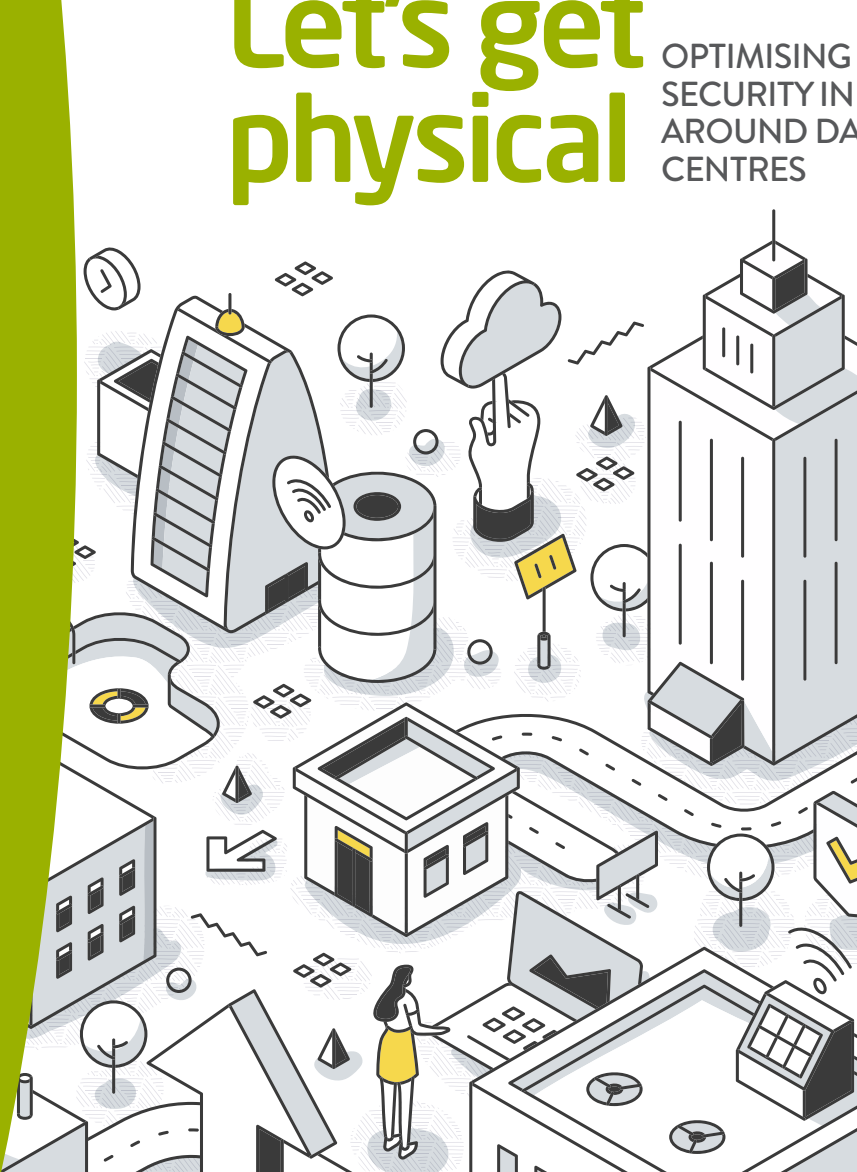

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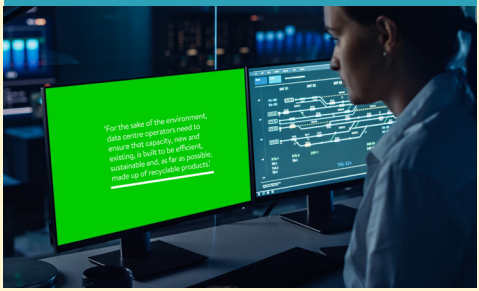

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CHALK HILL MEDIA

For a long time data centres flew under the radar of the public at large. Few knew, or cared, how their online activities were facilitated and as long as the internet worked that was the extent of their interest. However, the coronavirus pandemic has shone a spotlight on these facilities, as their vital role as part of critical national infrastructure has been acknowledged.

While this has had a positive impact in many ways, it has also piqued the interest of those with malicious intent. We all know that the loss or compromise of a data centre can have a disastrous economic impact and cause significant reputational damage to customers affected by any operational disruption. Therefore, for those wishing to cause chaos, data centres are firmly in their sights, so this month's Question Time asks a panel of experts to identify the key considerations for optimising physical security.

With the 26th UN Climate Change Conference of the Parties (COP26) taking place in Glasgow soon, addressing sustainability and energy efficiency will be at the forefront of discussions. The network infrastructure sector has work to do in this regard and in this issue we have two articles on the subject. First up, Mark Hickson of Molex Connected Enterprise Networks explains how to maintain a green building in an internet of things world, while Marc Garner of Schneider Electric explains why surging data centre growth demands a greater focus on sustainability.

Also in this issue we have a special feature dedicated to the often maligned subject of data centre infrastructure management (DCIM) technology. Major players are currently in a process of redefining what it is and what it should do. Jeff Safovich of RiT Tech shares his roadmap for revolutionising infrastructure management and Ian Newall of Vertiv outlines the challenges, opportunities and essentials of data centre IT infrastructure.

With lots more besides, I hope you enjoy this issue of Inside_Networks and if you'd like to comment on any of these subjects, or anything else, I'd be delighted to hear from you.

Rob Shepherd
Editor

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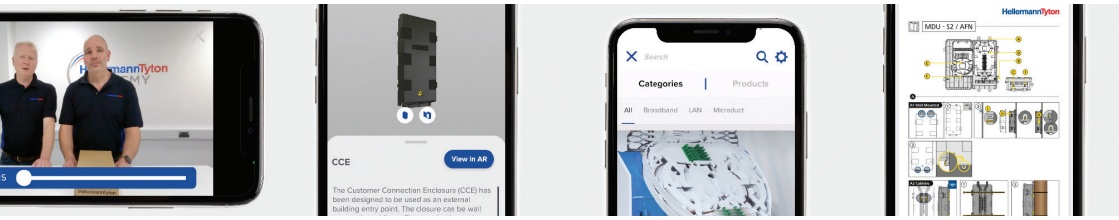

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Uptime Institute survey highlights sustainability, outage and efficiency challenges amid capacity growth

Uptime Institute's annual Global Data Center Survey has confirmed that the industry is enjoying widespread growth, while adapting to increasing complexity and challenges such as evolving efficiency and sustainability requirements, rising outage costs, the ongoing workforce shortage and supply chain interruptions.

It found that organisations are not closely tracking their environmental footprints, despite the global sustainability push. While most data centre owners and operators track Power Usage Effectiveness (PUE) and more than 80 per cent measure power consumption rates, many still are not prioritising vital metrics for improving and reporting sustainability. Just 51 per cent of respondents measure water use in some way. PUE levels remain stagnant – in 2021, the average annualised data centre PUE was 1.57, a minor improvement over 2020's average of 1.59 that is consistent with the overall trend of PUE stagnation over the past five years.

As the sector continues to grow, the shortage of qualified data centre professionals is an issue. Nearly half of owners and operators surveyed report difficulty finding skilled candidates – up from 38 per cent in 2018. Despite progress, the proportion of women in the data centre industry remains low but 30 per cent of owners and operators say the proportion of women working in their data centres has increased over the past year. However, more than 75 per cent of respondents report that women make up just 10 per cent of their workforce, while only five per cent indicate that half of their staff are women.

In 2021, 69 per cent of data centre owners and operators reported experiencing some form of outage in the past three years – a decrease from 78 per cent for the three years to 2020. While respondents indicate that just over half of all downtime incidents are fleeting and have few consequences, the remaining half cause substantial financial, operational and reputational damage. On-site power remains the most common cause of outages.

Rack density levels are creeping up. Rack density is slowly rising but remains relatively moderate and typically well under 10kW per IT cabinet, even at flagship sites. More than one third of respondents stated their most common rack density is currently below 5kW, while nearly half reported between 5-10kW.

The survey also found that more than 60 per cent of respondents anticipate that edge computing demand will increase this year. 26 per cent expect demand to grow significantly, compared to just 18 per cent in 2020.

Andy Lawrence, executive director of research at Uptime Institute, said, 'The stakes have never been higher when it comes to outage prevention, environmental sustainability and overall performance. That's why organisations must continue to carefully reassess their mission critical digital infrastructures and operations to minimise service delivery risk and maximise resiliency.'

Equinix completes acquisition of two data centres in India

Equinix has extended Platform Equinix into the Indian market, following the completion of the acquisition of the India operations of GPX Global Systems. The $161m transaction includes an optical fibre connected campus in Mumbai with two data centres. Equinix's expansion into India will unlock opportunities for Indian businesses expanding internationally and for multinational corporations pursuing growth and innovation in the Indian market.


Manoj Paul

Equinix India will be led by managing director, Manoj Paul, who commented, 'Extending Platform Equinix to India with the addition of two world class, highly interconnected data centres provides a platform for additional expansion across the country, and I am excited about the opportunities ahead. We are well-positioned to be a critical part, as well as a driving force, of the digital revolution in India, helping businesses to leap forward domestically and globally.'

Network Infrastructure Assistant ECS card updated to include City & Guilds qualification

The Network Infrastructure Assistant Electrotechnical Certification Scheme (ECS) card has been updated to include City & Guilds qualifications. The Network Infrastructure Installation Assistant ECS card is designed for people working in the network infrastructure industry in a supportive role to assist other qualified staff with the installation of cables and other work under supervision. City & Guilds has now mapped its qualification to this standard and it has been approved by the relevant industry committees that oversee the process.


Andy Reakes

To be eligible for the Network Infrastructure Installation Assistant card, applicants can either undertake an award in communications cabling such as the City & Guilds 3666/3667 or the Network Infrastructure Awareness Assessment and hold a recognised Level 1 Health and Safety qualification. A current ECS Health, Safety and Environmental Assessment or valid exemption is also required with all ECS applications.

Andy Reakes, head of growth at ECS, said, 'This work by City & Guilds is a beneficial and necessary step for those in the sector. We are working with City & Guilds and other awarding organisations, employers and providers in the sector to promote better formal training and qualification development.'

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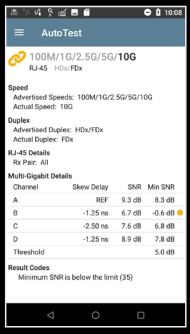

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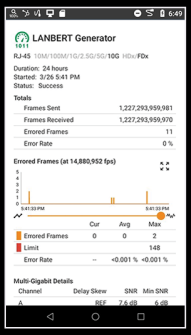

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Poor home connectivity risks jeopardising switch to hybrid working

CityFibre has teamed up with the Chartered Management Institute (CMI) to release some exclusive polling around the UK's move to hybrid working, and how issues with connectivity among workers could be holding back the long-term move to more home working.


Greg Mesch

A majority of the 1,000 managers polled said that their staff had experienced problems resulting directly from unreliable broadband connections while working from home, such as being left unable to use video calls and being forced to drop out of important meetings. Despite this, 58 per cent of managers polled said that no action at all had been taken by their organisations to help employees improve their broadband connections.

Greg Mesch, CEO at CityFibre, said, 'In the new age of hybrid working, it's clear that businesses should care as much about their employees' digital productivity at home as in the office. Relying on yesterday's copper based home broadband services will leave millions of employees struggling to connect and contribute, while costing the economy untold millions in lost productivity.'

Vantage Data Centers enters Asia Pacific

Vantage Data Centers has expanded into the Asia Pacific (APAC) market through two acquisitions. Following the closing of both transactions, Vantage will offer data centre services across Tokyo, Osaka, Melbourne, Hong Kong and Kuala Lumpur to hyperscale, cloud and large enterprise customers.


Sureel Choksi

Vantage's APAC expansion is anchored by two acquisitions. First, it has acquired Agile Data Centers and second the data centre portfolio of PCCW. Giles Proctor, formerly president and co-founder of Agile Data Centers, now serves as president of Vantage's APAC business, overseeing a team that will include nearly 150 employees upon closing of the PCCW transaction.

Sureel Choksi, president and CEO at Vantage Data Centers, said, 'Following successful expansions throughout the United States, Canada and Europe over the past three years, we are expanding to APAC to better serve customers on a global basis. The key to our global expansion has been finding partners who bring local expertise, an established footprint, a strong management team and the ability to scale quickly.'

Order books are filling up but worries about skills shortages remain

The latest Building Engineering Business Survey shows that, while turnover is predicted to grow through the rest of 2021, ongoing materials and labour shortages are likely to worsen. The survey shows that specialist contractors are particularly concerned about the lack of skilled staff able to meet growing demand for the sector's services.

There are shortages of skilled labour in all specialist sectors and this is pushing up labour costs. As a result, 26 per cent of survey respondents said they would hire fewer agency workers and subcontractors in Q3 compared with Q2. 23 per cent said they would hire fewer apprentices despite the urgent need to increase the flow of new skilled people into the industry. 61 per cent said they expect the ongoing shortages of materials and equipment to deteriorate as the year goes on.


Rob Driscoll

Rob Driscoll, the Electrical Contractors' Association's (ECA) director of legal and business, said, 'A backlog of jobs may appear good on paper, but if the ongoing shortages are not resolved soon, in practical terms this will mean a further squeeze on costs and margins for contractors who are at risk of tendering for today and buying negative cashflow problems for tomorrow.'

Vertiv joins the Sustainable Digital Infrastructure Alliance to help drive a climate neutral economy

Vertiv has become a lead sponsor of the Sustainable Digital Infrastructure Alliance (SDIA). It will support the SDIA's mission to bring together key players from across the critical infrastructure arena to meet sustainability goals. Established in 2019, the SDIA is a non-profit network of more than 65 organisations across Europe and beyond, working to catalyse the transition to sustainable digital infrastructure.

Giordano Albertazzi, president for Europe, Middle East and Africa (EMEA) at Vertiv, said, 'Achieving a successful transition to a sustainable and digital future will require the cooperation of a wide variety of stakeholders including governments, as well as organisations from across the energy and technology industries. Vertiv is proud to support a group such as the SDIA, which can help bring together these contributors and align them towards the common goal of developing a sustainable digital economy.'


Giordano Albertazzi

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70 per cent of businesses have experienced network security attacks in the last year

70 per cent of UK businesses have been victims of successful network security attacks in the last year, and 65 per cent have been the victim of at least one ransomware attack in the last 12 months, according to new research from Barracuda Networks.


Tim Jefferson

The research surveyed 100 IT decision makers and revealed that 80 per cent of respondents with company issued devices share their home internet connection with other members of their households, posing a significant security risk. Furthermore, 34 per cent of companies do not issue company devices and instead operate a bring your own device (BYOD) policy. An additional 43 per cent of companies do issue company devices, but still allow BYOD for some use cases such as email.

Tim Jefferson, senior vice president engineering for data, networks and application security at Barracuda, said, 'Organisations are experiencing a high level of network breaches and facing ongoing connectivity and security challenges as they adapt to hybrid work environments.'

Colt Group commits to achieving global net zero emissions by 2030

Colt Group, comprising Colt Technology Services and Colt Data Centre Services (DCS), has announced its commitment to achieving global net zero carbon for its operations by 2030. This forms part of its ambitious journey to accelerate the transition to a zero carbon economy through developing new and existing technologies.


Niclas Sanfridsson

Colt has set comprehensive emissions reduction targets approved by the Science-Based Targets Initiative (SBTi). It will reduce its Scope 1 and Scope 2 emissions by 46 per cent by 2030 and work closely with suppliers to significantly reduce Scope 3 emissions throughout its supply chain, to limit global warming to well below 2°C by 2030.

'I am thrilled to mark this milestone and commit to science based targets,' said Niclas Sanfridsson, CEO at Colt Data Centre Services. 'Colt's goal line is clear – we aim to become a market leader in sustainability by not only reducing our own emissions but also assisting our customers in their own sustainability journeys.'

NEWS IN BRIEF

Asperitas' immersion cooling technology has become the first to comply with Open Compute Project immersion requirements.

Nokia has broken new ground with Vodafone Turkey with a regional demonstration of a 1Tb/s per channel coherent transmission over its live optical fibre network.

Spirent Communications has partnered with MultiLane to offer vendor neutral testing solutions supporting the 800Gb/s ecosystem. This milestone is a result of the two companies' joint mission to enable 800Gb/s infrastructure development and adoption, and help the industry resolve testing challenges.

The Open Compute Project (OCP) has appointed Cliff Grossner as vice president market intelligence. He will lead its market intelligence function and be responsible for driving awareness of OCP, training and certification programs, and guiding inventors presenting their early stage company ideas to potential investors.

During 2021, the Global Mobile Suppliers Association (GSA) has added over 33 new companies to its ranks of new members and associates including mobile network operators, regulators, industry organisations, analysts groups and vendors from across the mobile ecosystem.

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Hi Rob

I hear a lot about climate change and the need to rein in CO2 emissions to protect the environment. One of the big factors in cutting the potential for emissions is doing things digitally. The result is an increasing number of mobile users, as well as many more data heavy mobile industrial applications, producing an explosion in data traffic. In fact, by the end of this year, we'll see over half a billion 5G mobile subscriptions, with 3.5 billion expected by the end of 2026. Internet traffic is also set to double by 2022.

With people online instead of in cars, is the problem solved? Not quite. Telecommunication installations in the networks and the data centres still cause carbon emissions. In fact, the Royal Society has estimated that digital technologies could be responsible for nearly six per cent of greenhouse gas emissions.

There are two main ways to tackle growing network emissions. One is to use sustainable energy sources, while another is to use networks more efficiently – getting more data through the same pipe without building more energy consuming infrastructure. This is where dense wavelength division multiplexing (DWDM) comes in – an optical multiplexing technology used to increase bandwidth over an existing optical fibre backhaul network.

As data demand goes through the roof, more and more frequencies will need to be squeezed through the same optical pipelines. Measuring and analysing these waveforms is vital to developing the next generation of optical components that will keep the traffic flowing.

To do this, researchers have relied on optical spectrum analysers (OSAs). These are designed to measure and display the distribution of power of an optical source over a specified wavelength span. When developing ever denser DWDM systems, a typical use could be the measurement and analysis of a multiplexed optical signal carrying multiple communication channels

th

over a single fibre.

But can we be confident current OSAs are really up to the job? The crunch factor is resolution – can your OSA separate closely allocated communication channels and modulation side peaks of optical transceivers? As those wavelengths get ever closer, today's standard OSAs are struggling. Without adequate resolution, some OSAs can't visualise certain waveforms such as modulation side peaks in the laser spectrum. Today, optical component developers should be looking for an OSA with a resolution down to five picometers. This will ensure optical signals in close proximity can be clearly separated and accurately measured.

Of course, other factors also play a role when choosing an OSA. Can it measure a range of wavelengths, cutting the need to buy multiple instruments? Does it offer self-calibration? What about its close in dynamic range and stray light suppression? Is it quick and easy to use, allowing more time on measurements and less on set-up?

Making more use of these advanced OSAs will help development engineers improve the speed, bandwidth and quality of optical devices. Overall, this will increase the performance and sustainability of the next generation of telecommunication networks, while reducing their carbon footprints. The result will be a greener technology that can help transform all aspects of our lives.

Kelvin Hagebeuk
Yokogawa

Editor's comment

In order to create a more sustainable future it is vital to examine how all aspects of a network infrastructure can contribute to a greener world. Kevin's point about 'getting more data through the same pipe' provides significant food for thought, which all optical fibre technology manufacturers and end users should consider.

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Better safe than sorry

Data centres are firmly on the radars of those wishing to cause chaos and disruption. With the pressure to maintain uptime and keep information secure more intense than ever, Inside_Networks has assembled a panel of industry experts to discuss the key considerations for optimising physical security in and around data centres

Data centres should be designed, built and maintained to withstand everything from terrorism and corporate espionage to natural disasters, riots, vandalism and opportunist theft. These kinds of threats are all too real, as highlighted earlier this year when the US Department of Justice arrested Seth Aaron Pendley for planning to use an explosive to destroy an Amazon Web Services (AWS) data centre in Virginia to, in his words, 'kill off about 70 per cent of the internet'.

With our reliance on data processing, transmission and storage continuing to rise, the loss or compromise of a data centre could have a disastrous economic impact and cause significant reputational damage to customers affected by any operational disruption. Even though most data centre owners and operators understand the implications of an attack, there are a number of physical security considerations that contribute to maintaining secure and continuously available IT systems, applications and services.

To explain the types of physical security threats currently facing owners, operators and users of data centres, Inside_Networks has assembled a panel of experts, who offer their views on how to protect these facilities.

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

GREG THOMPSON

SENIOR DIRECTOR PHYSICAL SECURITY & INFORMATION SECURITY AT VANTAGE DATA CENTERS

Unauthorised access resulting in either wilful or unintentional server tampering remains a constant threat. However, as third-party owned data centres continue to grow in popularity for storing and hosting data and applications by hyperscalers, government departments, banks and utilities, as well as commercial enterprises, the world of data centre physical security is changing accordingly.

In today's hyperconnected digital economy, physical security cannot be a tick-box exercise. Data centres are increasingly centre stage as mission critical components of the internet of things (IoT), cloud computing and much more. Many companies, quite rightly, are already demanding more of their providers' physical security – looking beyond fence height and camera count. This includes not only evaluating the security infrastructure that's in place but what the data centre provider is doing with it.

With this, new technologies and approaches are emerging to help evolve how we think about securing data centres. High fences are great, yet data centre providers that can deliver strong security without sacrificing productivity, and are willing to be innovative and think outside the fence, should be the gold standard.

For example, at Vantage we've implemented customised dashboards that provide individual customers with insights into their daily activities – increasing transparency into what's happening in their specific data centre(s). We're also exploring role based analytics tools that can more quickly assign permissions and security clearances to those who need them, and are authorised for them, therefore expediting secure access control for new or visiting employees.

One of the areas where there is huge potential is artificial intelligence (AI) for perimeter defence and intrusion detection. These solutions utilise cameras and other IoT sensors to determine and identify activity on a campus – alerting security personnel if it's determined to be a threat.

As a matter of course, beyond the vetting procedures at entry, there should be a defence in depth approach to both physical and electronic security systems which meet, and go beyond, rigorous industry standards and customer specific compliance requirements. This will include a robust security management system certified to ISO standards and compliance with SOC 2 Type 2, PCI-DSS and others, as well as 24 hour on-site security patrols, visitor management system, access badges, biometric dual authentication and video monitoring.

'HIGH FENCES ARE GREAT, YET DATA CENTRE PROVIDERS THAT CAN DELIVER STRONG SECURITY WITHOUT SACRIFICING PRODUCTIVITY, AND ARE WILLING TO BE INNOVATIVE AND THINK OUTSIDE THE FENCE, SHOULD BE THE GOLD STANDARD.'

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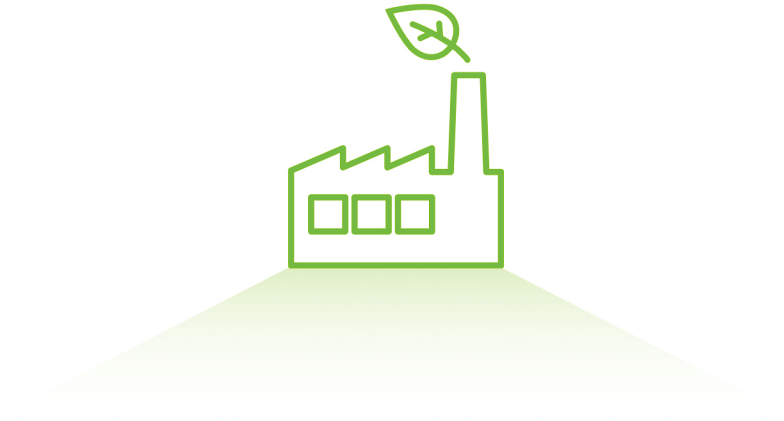

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ANDY HIRST

MANAGING DIRECTOR CRITICAL INFRASTRUCTURES AT SUDLOWS

As data centres are at the heart of most businesses, maintaining the uptime of these facilities is of paramount importance. Notwithstanding the cybersecurity challenges, when it comes to the mechanical and electrical (M&E) infrastructure, usually the main priority initially is the data centre's availability, along with the resilience required. Then comes the physical infrastructure, such as perimeter walls and cameras, and the protocols around gaining access.

Once these are in place confidence should be high in terms of maintaining a facility's uptime and ensuring a security system can catch any potential breaches. However, having visited multiple data centre facilities, and experienced the hoops you must jump through to gain access, it is surprising how many contractors are given access to facilities for installation works or to carry out maintenance without being fully vetted.

There is an assumption that the company a contractor works for has already carried out a vetting procedure. It therefore means trusting an engineer you have not met before with the heart of your business – simply because they wear a badge of the cooling or uninterruptible power supply (UPS) company they represent.

Two things are at play here. One is their competence. I have seen engineers cause damage to facilities and, although they were experienced, it transpired that they had only worked for the company for a short time and had fairly limited exposure to its equipment. The second is malicious intent. Who remembers the old fable about the Trojan Horse? It seems farfetched, but it does happen – a contractor has an issue with a data centre facility owner and wants to get their own back.

You can invest a lot of time and money in security but all it takes is for you to take your eye off the ball in relation to who is working on your critical infrastructure for there to be problems. If you don't think this goes on, ask the 150 people on Flight 2834, where a maintenance engineer was found guilty of the sabotage of an American Airlines plane due to an ongoing dispute!

It is not an easy task to continually monitor engineers on critical facilities but are organisations doing everything they can to validate the experience and reputation of the engineers they work with?

'WHO REMEMBERS THE OLD FABLE ABOUT THE TROJAN HORSE? IT SEEMS FARFETCHED, BUT IT DOES HAPPEN – A CONTRACTOR HAS AN ISSUE WITH A DATA CENTRE FACILITY OWNER AND WANTS TO GET THEIR OWN BACK.'

JAMES VIAN

TECHNICAL AND TRAINING MANAGER AT MAYFLEX

A lot of focus is placed on inbound threats from the internet. However, the physical threat likelihood remains on high alert because of the mission/security critical applications typically hosted within a data centre.

Everything starts with a physical security and threat analysis – this allows you to build a specification model to mitigate any identified threats and ensure a joined-up approach. You should consider everything from an armed person, hostile vehicles and coercion of personnel, to skilled, determined and professional intruders.

A layered security approach should be taken – employing gates and high security fencing at the perimeter, and airlocked double or triple door sets on both the building and internal data centre. These should be complemented by two factor authentication including biometrics and validated credentials. Everyone should be pre-booked, with photo identification required to confirm identity on arrival. All staff and regular visitors should be vetted to at least BS 7858, while mitigation of the 'evil maid' threat can be achieved by retaining personal property before entering a data centre.

A data centre can be split into smaller physical and virtual areas. Therefore, if someone has access to a specific aisle, they are not permitted to enter other aisles. CCTV should utilise analytics to determine if someone enters an area that shouldn't be accessed – and this should be linked to access control to disarm an area when a valid credential is presented.

You can also monitor cabinets for doors opening, power to equipment and environmental sensors to monitor for tampering. This generates alerts in a network operations centre, ensuring that technical and security teams respond accordingly. Anti-passback can be used to prevent credential sharing and ensure you know the location of everyone on-site.

Perimeter security can include a double fence line and gates with anti-vehicle features, vibration and acoustic sensors to detect attacks or climbs. Ballistic doors and windows can also be specified for high risk areas. Fibre optic tamper detection can be installed to the fabric of the building, where a fibre is glued to the wall/panels/roof and monitored for integrity – this is the same technology used to monitor solar panels.

The future threat landscape also includes drones, so anti-drone netting and electronic countermeasures will soon be considered a must. This also prevents birds nesting and the associated maintenance costs!

'EVERYTHING STARTS WITH A PHYSICAL SECURITY AND THREAT ANALYSIS – THIS ALLOWS YOU TO BUILD A SPECIFICATION MODEL TO MITIGATE IDENTIFIED THREATS AND ENSURE A JOINED-UP APPROACH.'

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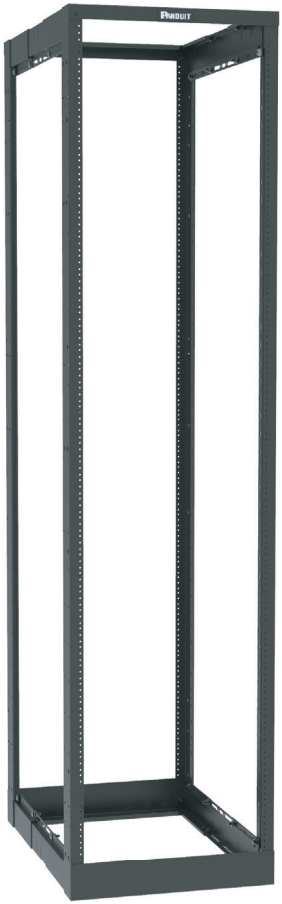

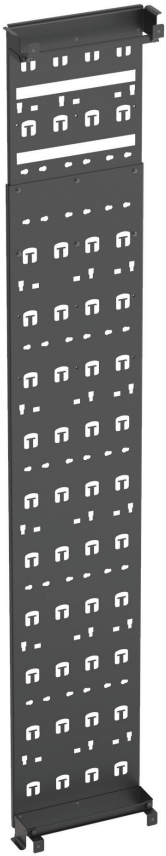

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The cable management panel accessory routes permanent link cables on the side of the rack WITHOUT impacting the valuable equipment space of the frame, giving it a dual function of HIGH density and simple equipment mounting, not to mention it is TELESCOPIC. This panel will work with 45 RU or 52 RU Panduit 4 Post racks and is sold as an accessory.

RKFL30--SA-ENG 9/2021

SUDHIR KALRA

SENIOR VICE PRESIDENT GLOBAL OPERATIONS AT COMPASS DATACENTERS

In short, it's the same threat and a different day. The threats themselves haven't changed a lot. Intrusion continues to top the list of concerns – whether it's an employee with an axe to grind, an activist with an agenda or another scorned party, unauthorised access is a problem a lot of operators are investing in a lot of resources to prevent.

The recent failed bomb plot at an AWS facility would suggest that, indeed, data centres are being targeted. Why? Data centres are better understood. Criminals understand the criticality of data centres to businesses, the economy and people's day to day lives.

Data centres operate as mission critical facilities. Like a utility keeps vital electricity or water flowing, data centres keep information flowing and, therefore, to some minds, have the power to take down organisations or people. For those bad actors who want to cause the most disruption possible, data centres present a prime opportunity.

Physical security was once about protecting against natural disasters. While that remains a top priority, terror threats contribute just as significantly to physical security planning. A lot of data centre operators are investing in and evolving physical security to protect their facilities. From the outside of the building to the people within it, data centre operators are vigilant about threat detection, prevention and monitoring.

Protection starts with smart environmental design and a guarded perimeter, bolstered with monitoring and detection equipment. Motion activated cameras send alerts to the security team, complete with specific details on where the potential intrusion is taking place. In less time than it takes an intruder to get through the fence, a response is activated.

Data centres are unique in that they really don't get a lot of foot traffic. The number of people coming and going is relatively low and easy to control. Access gates, badge readers and intercoms go a long way toward detecting threats and are evolving to include dual factor authentication systems with biometric technology.

Security teams are also evolving to be bigger, more well equipped and well trained. In the future, we'll see more mechanised responses – from robots and drones – to minimise risk to human life. But security personnel will continue to drive decision making when it comes to securing facilities.

'INTRUSION CONTINUES TO TOP THE LIST OF CONCERNS – WHETHER IT'S AN EMPLOYEE WITH AN AXE TO GRIND, AN ACTIVIST WITH AN AGENDA OR ANOTHER SCORNED PARTY, UNAUTHORISED ACCESS IS A PROBLEM A LOT OF OPERATORS ARE INVESTING IN A LOT OF RESOURCES TO PREVENT.'

KATHRYN AVES

MANAGING DIRECTOR AT BLUEPOINT TECHNOLOGIES

I feel it is important to highlight that many of the potential security threats facing data centres have arisen due to the enormous growth the industry continues to experience. Therefore, ensuring any existing expertise, skills and knowledge are extended across an ever-growing network is the greatest security challenge.

Alongside this growth is the increasing demand for smart hands services, particularly for small data centres hosted at multiple physical sites. The benefits of smart hands, such as cost and speed of service, are obvious.

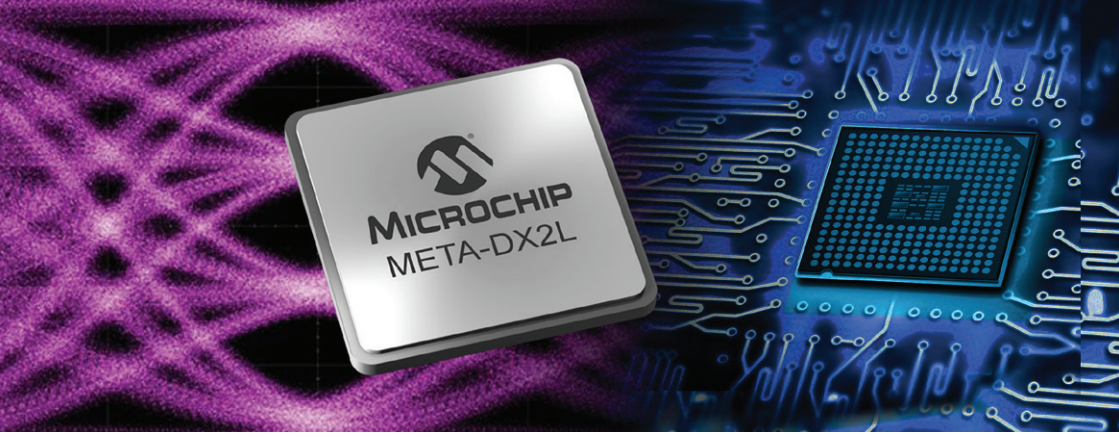
However, the security of data sits in the disadvantages column. While smart hands communicate with remote technical assistance teams to assess and solve problems, there is currently no stipulation in place to ensure that the hands on the ground are qualified to a minimum recognised standard, or have received any level of security clearance. In fact, as it stands, smart hands are not required to be certified technicians, or even be trained in the technologies they are maintaining.

The issue of personnel – from technical engineers to the end user – is always at the forefront of data security. Ensuring the security screening of staff and third-parties is in place, and continually up to date, is an ever-increasing challenge in a fast growing industry, but one that is essential.

Another issue is the placing of critical infrastructure within data centres not meeting necessary security requirements. This is exacerbated by the lightning fast growth in edge computing, itself fuelled by the surge in internet of things (IoT) and industrial IoT (IIoT) devices. There are now 200 billion devices worldwide sending 59ZB of data every day and this mammoth demand is leading to more data racks being installed within smaller data centres – not all of which are fit for purpose when it comes to security.

Finally, growing global political unrest has the potential to become a major threat, as demonstrated by the 2020 US presidential election, during which the campaigns of both White House frontrunners were subject to cyberattacks from hackers from multiple countries. In a world in which information is king, data centres must be aware that they could become prime targets.

'THERE ARE NOW 200 BILLION DEVICES WORLDWIDE SENDING 59ZB OF DATA EVERY DAY AND THIS MAMMOTH DEMAND IS LEADING TO MORE DATA RACKS BEING INSTALLED WITHIN SMALLER DATA CENTRES – NOT ALL OF WHICH ARE FIT FOR PURPOSE WHEN IT COMES TO SECURITY.'



Industry's Most Compact 1.6T Ethernet PHY With up to 800 GbE Connectivity

Routers, switches and line cards need higher bandwidth, port density and up-to-800 Gigabit Ethernet (GbE) connectivity to handle escalating data center traffic driven by 5G, cloud services and Artificial Intelligence (AI) and Machine Learning (ML) applications. These challenges can now be overcome with PM6200 META-DX2L the industry's most compact, 1.6T (terabits per second), lowpower PHY (physical layer) solution.

META-DX2L is offered in the industry's smallest package size, 23 x 30 millimeter (mm), which enables the space savings necessary to deliver the line card port densities demanded by hyperscalers and system developers.

Product highlights include:

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IVAN NOLAN

MANAGING DIRECTOR AND FOUNDER OF SHARP GROUP

Data centres are increasingly at risk from an array of physical threats – from the potential theft of data from those on the inside to defending malicious intent to break in or, in extreme circumstances, to destroy a business.

The ongoing challenge is around who is likely to commit such crimes and their motives, as a potential perpetrator may not always seem the obvious criminal. For example, in April of this year, a misplaced belief that damaging the buildings that 'run 70 per cent of the internet' would frustrate the 'oligarchy' in power in the United States is alleged to have been behind a Texan's plot to bomb an Amazon Web Services facility in Virginia.

This is just one incident that was thankfully foiled. Yet whilst these attacks may be a rarity, data centre operators are more cautious today than they were even five years ago. In my view there are three major physical security risks:

- The insider that has either a grievance or is generally untrustworthy, or an unassuming impersonator
- Corporate damage through espionage or deliberate intent to destroy a government or corporate entity and its reputation
- Theft of hardware such as racks within the servers or theft of data from devices that are secretly taken into a data centre. One example was in 2007, where a Verizon building in London was infiltrated by a group of men who, posing as police officers, tied up five employees before stealing computer hardware.

Security firms have experienced an increase in demand for improved security to mitigate the risk of such threats. There has been a scaling up of operations and technology including the use of increased physical presence, thermal imagery CCTV, tighter control access measures, pre-authorised access checks, and the installation of state-of-the-art security pods to entrances.

To address these unknowns, the security industry must implement significant changes to standard operating procedures and be one step ahead of their clients. While such events may be rare, data centre operators must be mindful that it does not take scenes lifted from the script of a Hollywood heist movie to realise the significant disruption security breaches can have.

'WHILE SUCH EVENTS MAY BE RARE, DATA CENTRE OPERATORS MUST BE MINDFUL THAT IT DOES NOT TAKE SCENES LIFTED FROM THE SCRIPT OF A HOLLYWOOD HEIST MOVIE TO REALISE THE SIGNIFICANT DISRUPTION SECURITY BREACHES CAN HAVE.'

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North strengthens leadership team with chief people officer

North has appointed Coreen Bone to the position of chief people officer (CPO). Complementing the company's bold growth strategy, she will help to shape and drive North's people strategy, culture, learning and development programme, and talent acquisition.


Coreen Bone

Bone brings more than 20 years' experience working across a variety of sectors. This includes executive roles at Xerox Business Services, where she delivered strategic and operational people solutions at a global level to support large scale growth and the successful integration of acquired businesses. More recently she was CPO at Allvotec, where she supported and guided employees throughout the coronavirus pandemic.

Commenting on her appointment, Bone said, It's the ideal time to be joining the business. I am looking forward to working across the organisation and to contributing to the transformation of North into an unrivalled end to end service and solutions provider with world class talent and a culture that supports employees and enables them to reach their potential.'

Mayflex produces new app for ordering on the move

Mayflex has launched a new app that is designed to make it as easy as possible for customers to order products and check product and pricing information when they are on-site and on the move. The app is being launched under the Tap the APP campaign, which highlights the simplicity and many benefits that the app brings to the Mayflex customer base.


Ross McLetchie

Ross McLetchie, sales director at Mayflex, commented, 'We've listened to our customers on how we can continue to improve their experience of working with Mayflex and introducing an app was a direct result of their feedback. We've spent a considerable amount of time developing the app to make sure that it adds value to our customers and provides a robust and secure platform to ensure that they can order with confidence, wherever they are.'

STL appoints Paul Atkinson as CEO of its optical networking business

STL has appointed Paul Atkinson as chief executive officer (CEO) of its optical networking business. The appointment is in line with the widened portfolio and increased global reach of STL's activities in this area.

With its core focus of enabling digital transformation at the edge, STL has been delivering industry leading optical fibre solutions for telcos, cloud companies, governments and enterprises globally. The world is witnessing concurrent network build cycles of 5G, FTTX and rural broadband, and optical fibre solutions will be at the heart of these developments.


Paul Atkinson

'Digital networks are key to the fourth industrial revolution, where optical technologies are taking centre stage,' commented Atkinson. 'STL has the right expertise and ambition to service network creators across the globe. I am very excited to lead the optical networking business, which will shape the future digital landscape.'

Experts join forces as AMS Helix to deliver bespoke digital infrastructure solutions

A strategic alliance has been announced between Martin Murphy, ex-chief operating officer at CBRE Data Centre Solutions, and AMS to create a new bespoke digital infrastructure solutions firm – AMS Helix.

AMS Helix is focused on delivering tailored consultancy and advisory services, as well as project and programme management solutions, to companies throughout the data centre, telecommunications and edge sectors. Tailoring solutions to a client's unique and exacting requirements is a core company principle for AMS Helix, and one which will create immense value.


Martin Murphy

Murphy commented, 'I am pleased to be launching AMS Helix with AMS director, Stephen Martin. This strategic alliance will allow AMS Helix to flourish by being able to concentrate on developing distinctive full lifecycle project solutions for clients. We aim to be the data centre projects and consultancy business of choice, with many specialities.'

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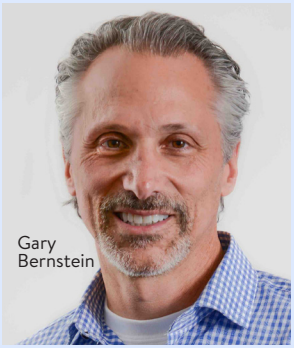
Siemon appoints global data centre and optical fibre specialists

Siemon has expanded its data centre and optical fibre expertise with the addition of two new experts that together bring 50 years of industry experience to the company.


Gary Bernstein

Gary Bernstein has joined as Siemon's global data centre solutions specialist to lead the company's global data centre sales strategic initiatives, create and deliver seminars and training, support Siemon's global sales team and foster strong relationships with customers and ecosystem partners. He serves as a member on various TIA and IEEE standards bodies.

Tony Walker is Siemon's new global fibre product marketing manager. He will enhance Siemon's fibre product offering and support customer needs via product planning, development and lifecycle management efforts based on analysis of industry, market and application trends. Walker has applied dynamic and innovative approaches to successfully expand revenue streams and capabilities for a variety of technology companies.


Tony Walker

Henry Siemon, president and CEO at Siemon, said, 'We are excited to build upon Siemon's industry leadership, expert technical support and trusted quality and performance by welcoming these knowledgeable professionals to our family.'

CHANNEL UPDATE IN BRIEF

Citrix has appointed Carole Valette as its new area vice president for northern Europe, responsible for sales and services operations in the UK, Ireland and the Nordics. Reporting to Sherif Seddik, she will work closely with the internal team and the partner ecosystem at Citrix to drive cloud adoption, as well as the growth and development of the Citrix sales and services organisation within the region.

Extreme Networks has completed the acquisition of Ipanema. The acquisition expands Extreme's market leading ExtremeCloudä portfolio, offering new cloud managed SD-WAN and security software solutions.

Delphix has appointed Josh Harbert as its chief marketing officer.

Nutanix has announced the promotion of Adam Tarbox to vice president of EMEA channel sales. This senior promotion demonstrates Nutanix's continued investment in the channel, as it looks to accelerate the company to its next level of growth, and support partners and customers in their journey to hybrid multicloud.

Stop, look and listen

Marc Garner of Schneider Electric explains why surgi data centre growt demands a greate focus on sustainab

With growing awareness of the need to protect the world from catastrophic climate change, all industries are coming under pressure to operate in more sustainable ways. In the case of IT service providers in general, and data centre operators in particular, concern is focusing on how the insatiable demands of the digital society for more electronic services is forcing the construction of more and bigger data centres, and the amount of power they consume.

CAPACITY PLANNING

In the major European colocation markets of Frankfurt, London, Amsterdam and Paris (FLAP), for example, some 415MW of additional capacity will come on stream in 2021, according CBRE, which also expects that demand will stay strong in 2022 and 2023. This is 100MW more capacity than was added in 2019, the last year before the coronavirus pandemic lockdowns. For the sake of the environment, data centre operators need to ensure that capacity – new and existing – is built to be efficient, sustainable and, as far as possible, made up of recyclable products.

Perhaps less visibly to the general public, there is also growth in smaller data centres at the edge of the network. These are running specialised applications for local customers and often running unattended, from the point of view of on-site supervising IT and maintenance staff. The aggregate power drain from all data centres providing electronic services is of a magnitude to be taken very seriously, as society as a whole struggles to harmonise digital lifestyles with sustainability.

NEED TO KNOW

The IT industry is aware of the challenge and many vendors and other participants have made commitments to achieving carbon neutrality and more sustainable operations. For example, Schneider Electric has committed to helping its customers save 800 million tons of CO_2 emissions between 2018 and 2025, and to encourage

its 1,000 top suppliers to reduce CO2 emissions by 50 per cent over the same period.

Some manufacturers are also making sure their products come with detailed information on their regulatory compliance, material content, environmental impact and circularity attributes. Labelling and appropriate product certifications enable users to implement appropriate disposable and, where applicable, recycling procedures to minimise waste and environmental impact. So, armed with all this information, and cognisant of the importance of the issue of sustainability, what steps can data centre operators take to boost efficiency and reduce their environmental impact?

TOP OF THE LIST

Operating efficiently and reliably should be priorities. Downtime not only affects service delivery, and therefore impacts negatively on business, but recovering from service interruptions can be costly. They can also have negative effects on the environment, necessitate the use of temporary power generators, cause unnecessary travel by maintenance personnel and require the replacement before time of products. A reliable power back-up system based on efficient uninterruptible power supply (UPS) systems is therefore essential.

There are several options available when choosing a UPS to match the specific needs of a data centre. Increasingly, these products are modular in construction, so that power and UPS needs can match the exact capacity needed at any one time and still scale-up easily as demands increase. Newer batteries using lithium-ion (Li-ion) technology have the advantage of longer operational life and therefore need to be replaced at much longer intervals than alternative technologies. Careful disposal is needed at the end of life, but the greater power densities and reduced maintenance requirements make Li-ion an attractive alternative.

TAKING CHARGE

Another key advantage of Li-ion batteries is the greater number of charge/recharge cycles they can endure. This makes them particularly suitable for realising innovative strategies to reduce power reduction such as peak load shaving and microgrids.

In the former case, if the power consumption of a facility approaches a level that will see it exceed limits agreed with the mains provider, which will incur a penalty tariff, excess energy stored in a UPS battery can be used as a temporary power source for the data centre. This not only reduces energy bills but also reduces demand on mains power. Similarly, microgrids allow neighbouring facilities to share the excess energy stored in UPS batteries.

MONITOR AND MANAGE

Both these techniques require constant and accurate monitoring of the status of all assets in a data centre, the power consumption of each and the energy that is available at any given time from the UPS infrastructure. This is made possible by the availability of modern UPS systems equipped with internet of things (IoT) technology, comprising network enabled sensors that constantly report status and energy levels to a centralised management console.

This requires the use of data centre infrastructure management (DCIM) software that allows a data centre, or even several data centres, to be monitored and managed by a specialist central management team from behind a single pane of glass. This is especially helpful in the case of remote distributed edge data centres, which typically do not have trained maintenance personnel on-site.

Fortunately, such tools are readily available and are increasingly delivered via the cloud, so that they can be readily deployed to numerous data centres of all sizes and in all locations. This allows smaller unmanned data centres in remote locations to be subjected to the same rigorous management for the purposes of reliability, efficiency and sustainability as larger data centres with specialist technical support staff on-site. The use of such tools allows central management both to anticipate faults and emergency visits before they occur and to schedule routine maintenance, so that site visits can be kept to a minimum.

EFFICIENCY DRIVE

With the growing availability of more management tools for efficient operation, network enabled assets with long battery life, and ever more valuable product label information to assist decision making for timely maintenance and appropriate disposal of hazardous waste, data centres can become increasingly green, while maintaining reliable digital services. This protects their infrastructure for a more efficient tomorrow. ■

MARC GARNER

Marc Garner is vice president of Schneider Electric's Secure Power Division in the UK and Ireland. He is responsible for leading a team of expert power professionals to support customers in data centres, server rooms, edge computing and mission critical environments. Garner is a 15 year veteran of Schneider Electric and has worked in sales, marketing and leadership roles.

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Less packaging also helps to drastically improve on-site installation times. Having every product individually wrapped in its own bag takes much more time to prepare and then dispose of, often adding hours to high density patching projects. Our Category 6 short, Category 6A slim, Excel Networking Solutions, C15 power cables and cable management bars are now all plastic free, but still supplied clearly labelled and ready for immediate installation.

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Austin Hughes

Austin Hughes' rackmount 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 (PDUs) 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.

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Leviton's environmentally friendly GreenPack bulk packs provide an efficient and cost effective option for large jack installations, with fewer individual parts to manage and less jobsite waste.

In a typical 10,000 jack installation, using GreenPack creates a three per cent cost saving in materials and labour. The corrugated cardboard sleeve and polyethylene terephthalate (PET) plastic packaging is 100 per cent recyclable.

The 12 jack bulk packs are available for Atlas-X1 Category 6A and Category 6 unshielded and shielded jacks, and eXtreme Category 6A unshielded jacks. GreenPack comes available in three jack colours for better network planning.

CLICK HERE to visit the Leviton copper systems website.
www.levitonemea.com

Siemon

Environmentally conscious businesses are no longer just looking for greener products and solutions to help reduce their carbon footprints but for trusted partners that follow sustainable business ethics in line with their own environmental ideologies. This is why Siemon has become the preferred choice for many green projects around the world including Masdar City Abu Dhabi and Park2020 in the Netherlands.

Environmental stewardship has always been an important focus for the company. Since buying its first tree farm in 1962, Siemon has continually supported environmental policies and conservation efforts. A 15,600ft² solar power at Siemon's corporate manufacturing campus reduces the company's annual carbon dioxide emissions by over 373,000lbs a year and an innovative waste management program has helped Siemon achieve zero landfill status.

Today, all of Siemon's global manufacturing facilities are ISO 14001 certified with individual environmental management systems. All of these efforts combined have helped it become 179 per cent carbon negative and the company will continue to drive environmental responsibility and green initiatives for its clients.

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Colour coded

Mark Hickson of Molex Connected Enterprise Networks explains how to maintain a green building in an internet of things (IoT) world

The importance of the IoT in business networks grows every day. In fact, the number of industrial IoT connections will reach 36.8 billion in 2025, according to Inside_Networks, while McKinsey reports that 127 new devices connect to the internet every second.

GET CONNECTED

The IoT has applications in every corner of business, from workplace comfort and asset management to smart manufacturing. By integrating with other technologies such as 5G and machine learning, the IoT has the potential to completely recast the way organisations operate. However, this ever-growing IoT expansion presents many challenges, as organisations focus on reducing emissions.

Connecting and powering these expanding networks requires a corresponding increase in the consumption of both material and energy resources. The environmental impact of an increasingly connected environment is something that must be considered to minimise the impact on the world around us.

POWER PACKED

In the pursuit of energy efficient networks, we are not starting from scratch. Power over Ethernet (PoE) has provided major benefits for many years by delivering data and energy on a single conduit, reducing the amount of cabling required. Since the introduction of IEEE 802.af in 2003, we have been in a state of transition, incrementally improving the power consumption of PoE networks to what we have today – IEEE 802.az – Energy Efficient Ethernet (EEE). IEEE 802.az is backward compatible with legacy interfaces, enabling organisations to gradually upgrade their networks and reuse elements of their old networks and minimise waste.

In typical networks, the majority of the active circuitry continues to draw maximum power whether or not there is data being actively transmitted. It's estimated that networking devices can consume as much as 10 per cent of the power drawn by an IT network. IEEE 802.az takes power efficiency to the next level by enabling devices on a linked network to switch to a low power state during periods of inactivity. The goal is to reduce power consumption by 50 per cent or more without impacting compatibility with existing equipment.

BUILDING MANAGEMENT

Using the IoT to centralise building management systems (BMS) can deliver

significant energy saving performance by orchestrating and optimising different building services systems. For example, automated daylight harvesting can save as much as 45 per cent of the costs of lighting. Other building management integrations that can save energy include window shades; heating, ventilation and air conditioning (HVAC) systems; and plug load monitors. Deloitte reports energy savings of up to 70 per cent when companies implement IoT enabled sensors and smart devices.

Low voltage sensors such as occupancy, ambient sensors, temperature/humidity and air quality can be used to generate real time data and precisely optimise energy usage on a minute to minute, room to room basis. These types of devices and larger smart building systems take advantage of PoE to allow efficient real time integration.

Category 6A is recommended for many PoE applications, as it provides superior data and energy performance. However, Category 6A is not the only option. Legacy networks are still able to add value either by directly connecting to lower power devices – voice over IP, lighting or transformed into wireless access points (WAPs). In terms of data, standards such as 2.5GBASE-T (for Category 5e) and the 5GBASE-T (Category 6) enable greater performance to be delivered on networks that would once have been regarded as obsolete.

POWER OF LIGHT

Implementation of a gigabit passive optical network (GPON) can be a significant contributor to the energy transformation of on-premises networks. Its architecture delivers a point to multipoint topology, in which a single optical fibre serves multiple endpoints by using unpowered (passive) fibre splitters to divide the fibre bandwidth among multiple access points. Primary benefits of the GPON platform are:

'Implementation of a gigabit passive optical network (GPON) can be a significant contributor to the energy transformation of on-premises networks.'

• Greater integration of building services technologies

A converged cabling backbone enables technology and building services to be faster, more reliable and allows a superior connection to data outlets, devices, WAP outlets, cameras and other security devices, as well as other IP systems.

• Install once

GPON is the fastest, highest bandwidth, secure and scalable technology platform to run all types of data.

• Cost savings

Ongoing developments in technology lead to a constant drive to improve performance. This, in turn, necessitates the removal of current copper based networks, replacing them with the latest and greatest solutions. With GPON, the impact of system replacement is mitigated. Installation costs can be up to 50 per cent lower given the effort required to remove existing network and reinstall cable, devices and active/passive equipment. Current copper networks require a direct line to a user and are restricted to 100m lengths. Optical fibres can be run in longer lengths and broken out to multiple outlets. GPON installations also reduce the need for expensive cable pathways, while results include lower impacts on costs and fewer resources required.

• No cooling required

Optical fibre networks inherently run cooler than traditional copper based networks. Switches used in copper networks require significant energy to power them, but they also generate heat that needs to be mitigated to ensure performance. The knock-on effect is that investment in HVAC systems

and energy is required to achieve this end. No additional cooling capability is required for passive optical fibre networks.

• Less resource intensive and recyclable
Optical fibre is made from glass, which is easily recycled where available.

ON THE UP

The philosophy of rethink, reuse and recycle is becoming increasingly well publicised. In networking, simple things such as the ability to reuse outlets, enclosures, patch panels and other passive equipment required for the physical layer can have a huge impact. Products that have capability past their initial install date can save:

- Resources – in terms of minerals and energy to manufacture
- Capital – buy once, reuse multiple times to reduce installation costs
- Downtime – complete reinstalls result in under-utilisation of assets.

The ability to reuse components also helps with scalability and provides flexibility in planning for future upgrades.

QUALITY MARK

When considering upcycling, the manufacturing quality of components is critical. Products that are intended to be used and reused will be developed with that goal in mind, with suitably rugged materials and build processes to ensure they can tolerate repeated installation and removal. Selecting a vendor that subscribes to this philosophy is essential. ■

MARK HICKSON
Mark Hickson has over 25 years of marketing experience in telecommunications roles, from BT and Motorola to Halma to Molex. As the global marketing manager for Molex Connected Enterprise Solutions, he is accountable for many of the company's product introductions and marketing campaigns.

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Schneider Electric and the University of Birmingham Dubai build energy efficient data centre

Students and academics at the University of Birmingham Dubai's new campus are set to benefit from a high performance data centre. Built around Schneider Electric's technology, it includes features such as remote management and performance benchmarking.

The new facilities have been designed as a smart campus, with technologies that enable innovative, multidisciplinary teaching and learning. Students and academics will benefit from Wi-Fi 6 to support learning and research across the campus and between the United Arab Emirates and the UK.

The technology provided by Schneider Electric covers both hardware and software and includes easy metered rack power distribution units, as well as power management for connected loads. Uninterruptible power supply devices provide battery back-up power in case of a sudden loss of electricity. In addition, Schneider Electric's EcoStruxure IT software provides a host of features to enhance the data centre's operations.

Rittal receives first class honours from Oxford University

Oxford University's Gardens, Libraries and Museums division (GLAM) forms one of the greatest concentrations of university collections in the world. GLAM holds over 21 million objects, specimens and printed items.

Faced with the challenges of increased data demand, the Museum of Natural History – one of the museums within GLAM – wanted to upgrade its IT infrastructure to house core network switches. It approached Rittal's IT team, which quickly identified its Data Centre in a Box (DCiB) concept as a solution.

DCiB replicates key data centre capabilities but on a smaller scale and has been developed to enable equipment to be deployed in non-traditional data centre environments. The turnkey package concept provides IT racks, demand orientated climate control, power distribution units, monitoring and fire suppression. It offers a complete solution from product selection through to installation and ongoing maintenance.

Rittal provided an end to end solution – from the manufacture of the kit to the installation, commissioning and handover. Not only is the installation providing energy efficiency and longevity for GLAM, there is the added benefit of noise reduction in the room compared to an existing server room utilising in-room cooling.

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R&M

Proximity acquires edge data centre in Swindon

Proximity Data Centres has announced the addition of a further site. Located in Swindon the 89,000ft² facility provides capacity for up to 2,000 racks. A total of 7MW power is currently available with potential to increase to 14MW.

With excellent road and rail infrastructure, and easy access to the digital optical fibre routes connecting London to Ireland and the USA, Proximity Edge7 is ideally positioned to serve businesses along and near to the M4 corridor. It is also highly accessible to the major research and development hub at Harwell, which is home to numerous research organisations in biotech, genome and space-tech.

Swindon joins Proximity's expanding network of interconnected regional edge data centres, which includes sites in Bridgend, Nottingham, Rugby, Liverpool, Chester Gates and Wakefield. The company expects to have 20 sites available within the next 12 months, all in proximity to major conurbation areas.

Lenovo supercomputer powers British scientists to deliver pioneering research

The University of Birmingham has upgraded its data centre with a new supercomputer from Lenovo, which is powering pioneering scientific research in areas such as computer vision, genome sequencing and materials science.

The University of Birmingham began upgrading its data centre in November 2020. Over the last year the technology at the compute facility has been brought onstream to bring new facilities to scientific researchers, whilst also minimising energy consumption through cutting edge water cooling technology.

A special feature of Lenovo's facility is the ability to use direct water cooling technology. The University of Birmingham's data centre is the only UK facility able to leverage this technology, providing extremely efficient system cooling for optimal system performance, increased reliability and dramatically reduced energy consumption. Water expelled from the system reaches temperatures of up to 50°C and can then be cooled to the required 35°C without compressive cooling systems such as air conditioning – maximising energy efficiency.

Colt DCS to build 45MW Japanese data centre

Colt Data Centre Services (Colt DCS) has commenced construction of its next hyperscale data centre with a ground breaking ceremony in Japan. The 42,000m², 45MW facility will be located in Keihanna Science City in the Kansai area.

This carrier neutral and diversely connected facility will be purpose designed to meet the scalable capacity demands of hyperscale and enterprise customers looking for large scale facilities to meet growing requirements. Following the 2011 earthquake in Japan, many companies realised the benefit of geographically dispersed sites and so there is a large demand for data centres near Osaka as an integral part of disaster recovery plans.

The site will be ready to service Colt DCS customers in early 2023. The facility will employ state-of-the-art cooling technologies to ensure high efficiency, while supporting Colt DCS and its clients' sustainability targets.

PROJECTS & CONTRACTS IN BRIEF

STL has announced a partnership with Sabafon to transition from traditional billing systems to a fully cloud native software as a service based billing support system (BSS) and operation support system (OSS) solution.

Supernap Italia has obtained the three year ANSI/TIA-942 Rated 4 Site/Facilities (DCCC) certification – becoming the first company in Italy to do so.

MLL Telecom has won a substantial optical fibre network extension project from the Association of South Essex Local Authorities (ASELA). This follows the award of a major dark fibre construction contract to MLL in the summer of last year.

In cooperation with Vodafone, Porsche has entered the 5G era at its Weissach Development Centre.

Arctic Wolf Networks has selected Amazon Web Services (AWS) as its primary cloud provider to power the company's cloud native security operations platform.

5G RailNext recently set-up a unique private 5G network to connect passengers on an underground train on the Glasgow Subway. As part of the project, researchers from the University of Strathclyde installed a 'pop up' network using next generation technology to provide track to train connectivity between Buchanan Street and St Enoch stations.

Verizon and the National Football League (NFL) have extended their longstanding relationship with a 10-year partnership, naming Verizon an Official Technology Partner.

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Up and at 'em

With a 35 year long career in technology, Neil Cresswell now operates at the sharp end of the colocation data centre sector and is helping to shape its future. Rob Shepherd recently caught up with him to find out more about his life and career, and his views on the current state of the sector

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

NC: I am chief executive officer (CEO) of Virtus Data Centres. We have 11 data centres providing approximately 200MW of IT load space to our customers in and around London, as well as globally.

I've been with the company for over eight years, joining back when we had only one 4MW data centre in London. During this time, I've led the company to growth with more sites, more employees and more customers. I can honestly say that no two days have been the same. The world of digital transformation evolves quickly – from site acquisitions and building new facilities, to keeping customers and their customers online so that people can work, shop and socialise virtually during the coronavirus pandemic. It has been an exhilarating, fast-paced period of growth for the industry.

'As our industry becomes more critical to all aspects of life – social, business and economic – and more regulated like other utilities, I think promoting the sector will become even more important.'

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

NC: For as long as I can remember, I have always been around technology. My father was a development scientist in the 1960s and 1970s at IBM in the US, working on early magnetic disk development. I studied computer science and business and joined IBM myself in the mid-1980s, which was when I first experienced big data centres.

I then became a programmer for a French bank, spending the next 15 years of my career in banking and trading software development, before moving into web development at the end of the 1990s. The websites needed hosting, which spawned managed hosting, and this migrated into the cloud in 2006 when I was running the cloud, data centres and network business of Savvis in Europe, Middle East and Africa (EMEA). Naturally, the cloud needed to reside somewhere (in data centres) and be connected somehow (via networks), so it's fair to say that I've come down the application stack over the past 35 years!

RS: What excites you about the sector at present?

NC: Data centres are the lifeblood of modern civilisation – without them, society simply couldn't function in this digital age. Data centres and networks are the arteries

and organs of the internet and all that runs and relies on it, which is increasingly everything.

We enable all the great technology advancements our customers are achieving in the world – cloud computing, world wide web and app services, social media, remote working and learning platforms, video and music streaming, shopping, travel, health and medical research. Everything runs from a server in a data centre somewhere. Whilst that is exciting, it is also a huge responsibility for data centre providers to keep it safe, secure and available.

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

NC: Differentiation of data centres can be found in many aspects of the design, build and operations of each facility. However, the quality of operations and operational excellence is where the truly great data centre providers excel.

There are some design innovations that can make a difference in terms of efficiency and robustness but, in the main, the core infrastructure parts are pretty similar within every data centre. The difference lies in how you design, build, test, maintain, change and operate the facility – ensuring robust and reliable availability is delivered. Inevitably, things will break – it's how you plan for these incidents, and your response to check and test all is restored and working effectively, which makes the difference.

This leads me to another differentiator – experience. A data centre needs to be designed, built and operated by people who have had many years doing the job and know what to look out for. The criticality of the job changes – even in the last few years. We now talk about delivering television-like quality, where a second of downtime is unacceptable, for example, when you're watching a movie or live television. This requires battle hardened people in this high criticality arena, who have built best practice with tried and tested processes, that have evolved over years of experience, ensuring the best possible levels of service, whilst being used to advanced levels of precision, response and quality.

RS: Is the battle for the energy efficient data centre being won?

NC: Yes. Data centres are already far more energy efficient in comparison to

previous models of computing. The most efficient way to deliver a unit of computing (energy per compute unit) is to put it in a modern, large, advanced data centre on a cloud platform.

Advancements in power and cooling have also enabled greater data centre efficiency, and today data centre providers are at the forefront of deploying some of the most sustainable buildings globally. Some data centres are already committed to using 100 per cent carbon zero energy – powering sites solely via wind, solar and tidal energy sources.

> 'When you are walking along a street or in the country there are always great sights and buildings to see. There is an exciting world of opportunity out there, and if you always look up, you will see it.'

We appreciate that as customers grow globally, pushing up their data centre space requirements, the industry is both dutybound and regulated to lead innovations in how to make all facilities the most energy efficient they can be. We continue to work internally and with our supply chain to achieve this objective.

RS: What, if any, opportunities does the Open Compute Project (OCP) offer data centre operators?

NC: I think the OCP has a big part to play in driving efficiencies in data centre rack, server and network topology, which will hopefully also improve energy efficiencies. More compute units should equate to less money and time to deliver, and whilst reduced timescales and costs are benefits it should also support a positive impact for the environment and sustainability.

RS: Do you think trade associations have an important role to play and are they doing enough to promote the sector?

NC: Trade associations are having an increasingly important role to play in promoting the sector. We have seen real and positive results from this in the UK during the coronavirus pandemic.

techUK has a data centre council on which many leading UK data centre companies sit and collaborate on industry wide issues. Through techUK we were able to engage very early, and directly, with the UK government on a weekly basis. It resulted in securing the data centre

industry as part of the UK's critical national infrastructure, and for employees to be declared as key workers, which helped us enormously.

As our industry becomes more critical to all aspects of life – social, business and economic – and more regulated like other utilities, I think promoting the sector will become even more important.

RS: What key lessons have data centre operators learned from the coronavirus pandemic?

NC: The necessity, benefits and ability to engage with central and local government, as well as the sharing of experience and learnings with other data centre providers as a collective industry sector, has been a very important lesson on its own. Another key learning has been around planning for the worst, such as an outage, which is already in our industry's DNA.

However, the pandemic highlighted other outcomes that needed to be monitored and planned for, such as health and wellbeing concerns, which are obviously about people, not just the data centre plant. As operators, we must ensure we are able to get key employees to the sites to keep everything running, and complex people management must be implemented to ensure that this is achievable 24/7/365.

We also learned that consistent and clear communications to employees, customers and suppliers is essential. In this particular crisis we chose to err on the side of caution in all things, which has proved to be the right strategy.

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

NC: I'm a believer in continuous learning – I learn new things about business, technology, networks and markets every day. That's what keeps it exciting, because no-one can ever know everything. The top three most useful pieces of advice I have been given are:

- Always read the question (RTQ). My father's career in science and engineering demanded that he applied precision and quality. He was the one who instilled in me the mantra of RTQ – meaning that we should always take time to really read and understand the question and problem to avoid diving into an answer or solution prematurely. This has certainly helped me to understand the direction of our markets and customer issues and solve complex problems by breaking them down.
- Make it happen. John F Kennedy said, 'Things don't happen; things are made to happen.' In business, it's people who make things happen. There are many things you cannot control, but there are many you can if you think them through, plan and execute.

  Ideas are great, but execution is better – and be ready for events to change. As Mike Tyson said, 'Everyone has a plan until they are hit really hard in the face.' This sentiment has definitely been something we've all had experience of during the coronavirus pandemic.
- Lead by example. Business and teams are about people, and I try to treat all people how I would expect to be treated, whoever they are. So, we talk about three personal golden rules – work hard, tell the truth and be nice to people.

Finally, a really good and simple piece of advice is something I once heard from a headmaster – when you are walking along a street or in the country there are always great sights and buildings to see. There is an exciting world of opportunity out there, and if you always look up, you will see it. ■

Quick clicks

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

Schneider Electric's IT Channel Perspectives is an audio podcast series featuring expert insight from channel leaders from across Europe.
CLICK HERE to access it.

Top 30 Data Center Sustainability Metrics is an infographic from **Sunbird Software**.
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The Future of Mobile Devices is a report from **Molex.**
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Rack Level High Density Liquid Cooling is a white paper from **nVent Schroff.** **CLICK HERE** to download a copy.

Grid-Interactive Data Centres: Enabling Decarbonisation and System Stability is a white paper from **Eaton and Microsoft.** **CLICK HERE** to download a copy.

What Are UPS Batteries And Why Are They So Critical? is an article from **Vertiv.** **CLICK HERE** to read it.

Research from **Buymobiles** has revealed how smartphones could become much more eco-friendly over the next two decades. **CLICK HERE** to read it.

The journey ahead

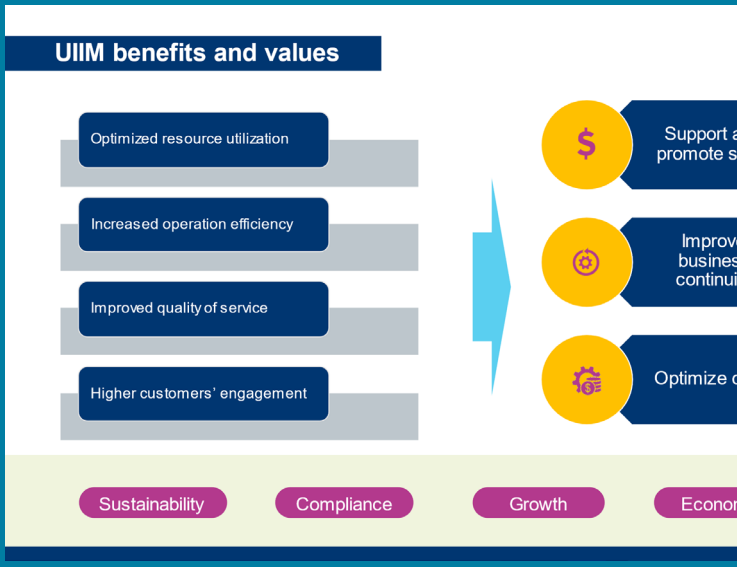
Jeff Safovich of RiT Tech shares his roadmap for revolutionising infrastructure management

For the modern day driver, the concept of consulting a road atlas ahead of setting off on a journey must seem as absurd as the notion that pay phones were once the only means of communicating while on the move. In the world of motoring, physical maps are proverbial dinosaurs – archaic tools rendered extinct by the emergence of the satellite navigation systems that are now as common to cars as seatbelts.

ON THE ROAD

After a somewhat bumpy start in the 1990s, these digital navigators have become essential travel aids, relied upon to not only plan routes and deliver directions but to serve as a source of up to the second traffic information. Humans' trust in the technology has grown as it has matured and broadened its bandwidth in respect of the real world data it consumes and considers.

No longer concerned with merely mapping motorways and city streets, these in-car companions process all available elements – from accident and road closure reports to toll charges, speed limits and the positioning of police enforcement cameras. Such a broad view



brings intelligence and, in turn, delivers the efficiencies we now largely take for granted. Sophisticated satnav systems adjust to live scenarios and driver habits, continually recalculating and tailoring the guidance they afford those behind the wheel to optimise the costs, comfort and duration of a journey.

Car manufacturers' warm embrace of a universal approach to assimilating data is also delivering unprecedented protection to those taking to the roads. Lane keeping aids, external cameras, cloud based communication, and collision avoidance and blindspot information systems all help improve safety by exploiting data that could – quite literally – impact on the wellbeing of drivers and passengers.

KNOWLEDGE IS POWER

As demonstrated by the motoring industry, knowing all there is to know can bring clear and obvious benefits, which is why there is a very real need to accelerate the adoption of universal intelligent infrastructure management (UIIM) tools within data centres. Just as city centre road networks have become increasingly busy and complex, so too have the environments charged with maintaining the world's flow of digital traffic and 'garaging' the vast volumes of data generated by governments, businesses and society as a whole.

Technicians armed with little more than a computer spreadsheet with which to register assets, monitor and plan migrations and expansions, and optimise operations are the data centre sector's equivalent of paper maps – a resource once relied on but frankly no longer, if truly ever, fit for purpose. To put it even more bluntly, the data centre infrastructure management (DCIM) systems of yesteryear have crashed into obsoletion as a result of their

'Unprecedented intelligence will inform provisioning for new assets and services at lightning quick speeds, assess the risks and rewards of strategic decisions and major network changes, and produce automated work orders that signpost engineers directly to their required destinations.'

shortcomings. Plagued by a capability chasm between purpose and product, traditional DCIM systems are a dead end for those driving towards optimal performance and sustainability.

BIGGER PICTURE

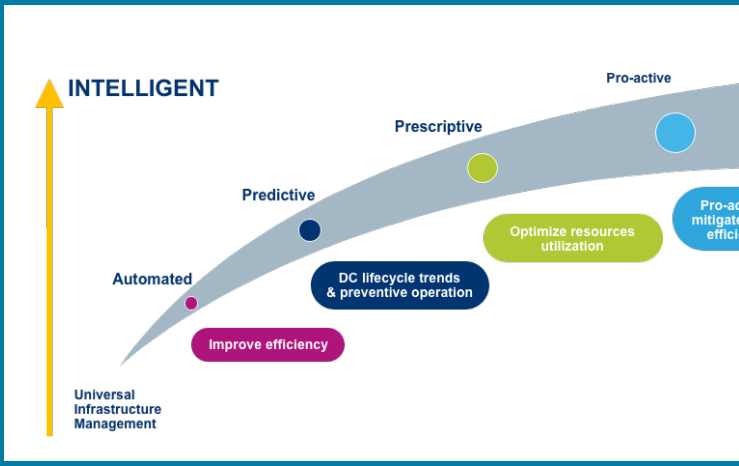
Rather than being easy to implement and integrate, intuitive to use and providing a single source of truth in real time, DCIM deployments have historically been expensive and ineffective detours. Any platform that fails to see the entirety of the data centre environment and the critical contribution of each component within it makes it unroadworthy. A universal approach to data gathering is therefore needed to eradicate these previous blindspots and solutions must have a thirst for knowledge that far surpasses that of a satnav.

The route finders of the future must integrate with and interrogate their surroundings, no matter how expansive, retrieving both historical and current information from physical assets and legacy systems. They must create a comprehensive picture of a data centre's topology, charting the role of every asset and its interdependencies.

Once equipped with this universal understanding of a facility, be it an enterprise, edge, colocation or geographically dispersed operation, such an innovative aid will be empowered to impart its intellect and demonstrate itself to be a dependable co-driver that can be relied on to provide a federated, real time view of a data centre's direction of travel. Aside from navigating away from any network crashes and unnecessary downtime, this single source of truth of everything from asset availability and resource utilisation to connectivity and the health of IT components will guide data centre managers towards optimal performance.

ROAD TRIP

The true value of a UIIM tool, however, will lie in its ability to read the road ahead. Unprecedented intelligence will inform



provisioning for new assets and services at lightning quick speeds, assess the risks and rewards of strategic decisions and major network changes, and produce automated work orders that signpost engineers directly to their required destinations.

Advancing autonomy in data centres is a logical next gear and will offer operators a fast lane to providing a super-efficient service, while helping to reduce total cost of ownership. Importantly, the actionable insights and analytics it generates will ensure the industry can maintain its rapid growth – a necessity to meet the world's insatiable demand for data – and temper its increasing power needs.

Armed with the detail to forecast fluctuations in usage, accurately provision and eliminate waste, data centre managers will be better able to enhance the energy efficiency of their facilities. The concept of using intelligent systems to source statistics that support sustainability may break new ground in the sector but it is territory service providers and customers have little choice but to become accustomed to.

WARNING SIGNS

As warned by the sobering report from the United Nations' Intergovernmental Panel on Climate Change (IPCC), the world is now drinking in the last chance saloon as a consequence of human activity. Climate change is today's reality and data centres are duty bound to do their bit to reverse the damage. Exploiting UIIM technologies to do so will empower operators and their clients to take command of their own destinies and, like the state-of-the-art systems in today's vehicles, is a step change that can be trusted. ■

JEFF SAFOVICH

As chief technology officer, Jeff Safovich heads up product innovation at RiT Tech. With over 25 years of technology experience, he is a passionate technologist. He led a development group at Comverse and has co-founded three start-ups, including SphereUp, which was acquired and Zoomd which went public. Safovich is a guest speaker in conferences and innovation hubs, where he promotes technology innovation as a driver to foster business growth.

Panduit

SmartZone Cloud is Panduit's enhanced Microsoft Azure cloud based enterprise DCIM software. It integrates power and environmental monitoring with cabinet access, asset tracking and physical infrastructure connectivity management. Data centre managers, engineers, operators and customers can monitor critical infrastructure resources and make informed decisions about capacity, changing environmental conditions and performance from any authorised device and via unlimited users worldwide.

Providing single pane of glass dashboard visualisation is a vital step towards improved data centre agility and increased efficiency. The capability to track critical infrastructure resources helps stakeholders achieve service level agreements (SLAs) and allows customer defined users access to SmartZone Cloud's real time monitoring, management and reporting of key attributes across assets, power, cooling and provisioning.

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

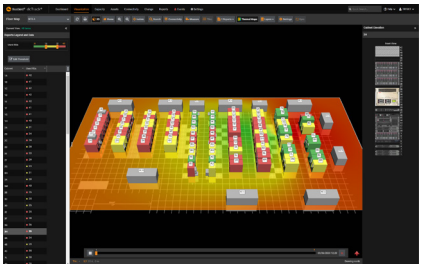
R&M

In the data centre segment, data growth is boosting demand for efficiencies in the areas of energy and operational management. As the migration to 100Gb/s, 200Gb/s and 400Gb/s continues, further developments include enterprise data centres increasingly moving to the cloud and the rise of hyperscale data centres, as well as hybrid, edge and integrated data centre solutions that include racks, power cooling, monitoring and cabling.

To support all of this, more optical fibre cabling is required. However, according to Andreas Ruesseler, CMO of R&M, just adding fibre isn't enough. In order to optimise capacity and space usage, DCIM and ultra-high density solutions will be absolutely necessary. Furthermore, to keep infrastructure manageable in the longer-term, intuitive user interfaces and artificial intelligence (AI) will be required.

CLICK HERE to read his blog.
rdm.com

Sunbird Software



Sunbird Software is dramatically simplifying data centre management with elegant software. Companies like Kingfisher, Paddy Power, and G-Research have standardised on Sunbird's DCIM platform to maintain uptime, drive efficiency and boost remote collaboration and productivity.

Industry experts choose Sunbird because we provide a fast and quantifiable return on investment (ROI). Leading customers report ROI such as getting 900 per cent more users to leverage the system for reporting compared to their prior legacy DCIM tool, 90 per cent less time spent manually checking equipment, 50 per cent increase in asset tracking efficiency, 40 per cent more utilisation out of facilities and power resources, and 33 per cent reduction in new cabinet deployments – saving $10,000 for each cabinet not deployed.

Our solution provides full circle capabilities including asset, capacity, change, energy, environment, power, visualisation, security, business information and analytics, and connectivity.

CLICK HERE to schedule a demo of Sunbird's second generation DCIM software that is fast, easy and complete.
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Bringing control the chaos

Ian Newall of Vertiv outlines the challenges, opportunities and essen of data centre IT infrastructure

Following a year of unprecedented activity in cloud migration and digital adoption, data centre construction is booming in Europe with new project builds increasing by 60 per cent from 2021 to 2022, compared with the 2019 to 2020 period. And the European data centre market is expecting revenue growth of up to 46 per cent over the next four years. Meanwhile, according to Gartner, global data centre infrastructure spend is set to grow by $200bn this year, largely driven by hyperscalers, with sectors such as retail, healthcare, education and finance bolstering data centre operations.

OBSTACLES AND CHALLENGES

Despite large investments in today's data centres, significant inefficiencies still exist. Rising data demands and infrastructure costs are placing operators under pressure to increase data centre availability and utilisation. It's within this context that data centre operators are turning to infrastructure management and monitoring software to improve operational efficiency and the health of their equipment – especially following the rise of remote working as a response to the coronavirus pandemic.

Another pressing concern driving purchasing decisions is the need to deliver streamlined, uninterruptible service in the face of data centre outages – a problem that translates to commercial, reputational and financial risk. The overall number of outages is still growing and, according to Uptime Institute, last year 63 per cent were due to IT software, configuration and networking issues, with communication between systems cited as a notable obstacle.

BETTER EFFICIENCY

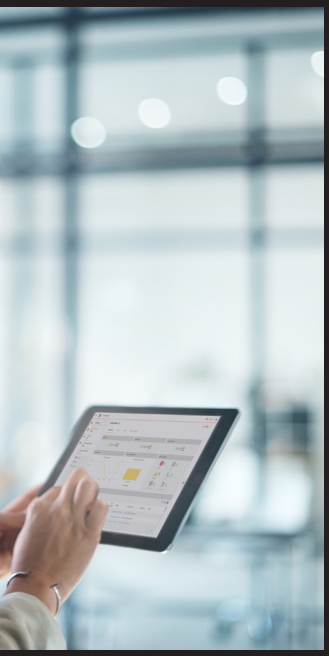
Adopting today's monitoring and

to

tials

management tools allows operators to collect the data required to run critical infrastructure efficiently. Offering a comprehensive view of a system's operational performance, monitoring software can give real time insight to help manage capacity, maintain high availability readiness and reduce risk. By alerting operators to critical problems caused by mechanical or human error, both remote and on-site, the deployment of monitoring tools means issues can be identified proactively, resulting in reducing or eliminating outages.

When evaluating the solutions afforded by monitoring technology, it's important to identify the situations causing the pain points in managing a data centre or critical facility. Who is affected? What's the frequency of occurrence? What costs do these challenges entail? What's the impact on end users?



PERFORMANCE BOOSTER

Data centre operators need to know exactly what connections and capacity exist in their facility to easily make changes for peak performance. With IT configuration challenges in mind, the best monitoring tools allow operators to effortlessly place and monitor specific devices based on system intelligence. By doing so, you can customise the processes bespoke to your organisation's needs.

Furthermore, the introduction of the latest IT management platforms overcomes the most persistent obstacles to the remote management of distributed and hybrid architectures. Built on a common architecture, with open standards, platforms and application programming interfaces (APIs), they enable fast and scalable deployments of IT devices from the enterprise to edge to match network growth.

REMOTE CONTROL

Designed for enterprise, edge, cloud and colocation environments, modern platforms support a secure remote working experience. This allows system data to be accessed and controlled quickly and seamlessly, in turn, helping data centre operators meet worker requirements for advanced engineering and design, video editing and other high resolution streaming applications.

Remote management and control of IT devices is crucial in ensuring IT workers can quickly respond to and remedy situations across enterprise and edge sites. Through serial sessions and remote keyboard, video, mouse (KVM) – hardware that allows server administrators to control multiple computers – deploying new IT devices, updating firmware and troubleshooting

systems becomes simple.

In the case of power outages, an IT team has a secondary means to connect to networking devices – giving workers access to the likes of switches, routers and firewalls via a serial console through Ethernet or cellular connection. As infrastructure becomes more complex, remote visibility and access to IT devices provide the means for operators to ensure users have uninterrupted access to perform their daily activities.

'While monitoring innovations can help organisations realise the advantages of increased utilisation, optimised efficiency and greater staff productivity, it's not a magic bullet. When planning monitoring initiatives, you must consider what technological and infrastructure software innovations will come next.'

MANAGEMENT DECISION

Modern monitoring tools also enable better power system management. Having a comprehensive view of the data centre power system, from incoming utility power to rack power distribution, creates a dynamic one line diagram, helping to ensure business continuity. Operators can forecast power consumption based on current and historical data. Using data centre capacity objectives, you can plan deployments and map out your IT equipment's dependency on the power system, aiding in risk assessment and enhancing team coordination.

Another element of today's monitoring solutions is the provision of advanced thermal management capabilities, evenly distributing available cooling capacity between IT devices and the facility. Its tools enable monitoring, reporting and alarm management for the entire mechanical chain – from chillers and cooling towers to computer room air conditioning and air handler units. Operators can also utilise 3D heat maps to quickly identify thermal issues, improve response times and make action plans.

Cutting down response times for equipment alarms and critical tasks means better digital and overall business continuity. The latest monitoring tools offer around the clock access to a data

centre through a mobile device. This gives real time visibility into a critical facility – allowing you to maximise capacity, prevent unplanned downtime and monitor overall organisation performance.

PLANNING FOR TOMORROW

With budget and performance priorities in mind, it's important to remember to choose scalable monitoring tools whose implementation can be timed and aligned with business considerations. Operators should decide what functionality is most essential by beginning with the main issues negatively impacting operations. As priorities shift, so too should the infrastructure and monitoring plan.

While monitoring innovations can help organisations realise the advantages of increased utilisation, optimised efficiency and greater staff productivity, it's not a magic bullet. When planning monitoring initiatives, you must consider what technological and infrastructure software innovations will come next. For example, a strictly reactive approach to managing issues within critical facilities may not be enough for your organisation to achieve its availability and sustainability goals.

Similarly, relying solely on monitoring technology using historical and current data isn't the same as deploying a system that will predict the future impact of a failure. A more predictive approach that's built on the foundation of infrastructure monitoring solutions might be needed, such as data centre management as a service (DMaaS). This approach goes beyond enabling the collection of a data centres' operational data via software. It's also about tapping into a larger data lake, integrating operational data and analysing at scale to inform all aspects of critical facility management.

MAKING A DIFFERENCE

What sets successful IT infrastructure and data centre operations apart from the rest is how they manage assets in an agile environment. Operators utilising a holistic approach via infrastructure management and monitoring tools are better equipped to proactively identify issues before they escalate – especially across enterprise and edge deployment. By using these tools, operators can also ensure the right information goes to the right people at the right time, resulting in better management decisions, reducing day to day costs and increasing efficiency. ■

IAN NEWALL

Ian Newall is sales director data centre software solutions EMEA at Vertiv. He helps data centre and IT managers improve process automation across IT device provisioning, enabling them to gain real time device data to manage the space and power capacities across their sites. Newall holds over 20 years of experience in channel sales leadership, forging relationships, creating and executing sales strategies with distributors, value added partners and managed service providers.

Yokogawa

Yokogawa has launched a new optical spectrum analyser (OSA). The AQ6380 is designed to offer the extreme high precision needed to develop the next generation of optical fibre communication components.

With demand for data capacity set to expand hugely, dense wavelength division multiplexing (DWDM) will be used to meet this need. However, as telecommunication channels become more closely spaced, OSAs can struggle to separate individual channels.

The Yokogawa AQ6380 OSA offers unequalled optical performance to enable engineers and scientists to develop and improve the speed, bandwidth and quality of the next generation of communication networks, while its ease of use ensures it can be operated quickly and efficiently. The AQ6380 is demonstrably the world's best grating based OSA, outperforming its nearest competing solution on wavelength accuracy, resolution, dynamic range and actual measurement speed.

The AQ6380 has excellent optical wavelength resolution down to five picometers (pm), allowing closely spaced optical signals to be clearly separated and accurately measured. Waveforms that were previously not even visible in a typical OSA, such as modulation side peaks in the laser spectrum, can now be accurately visualised.

With a wavelength range of 1200nm to 1650nm, one unit can meet diverse wavelength measurement needs. To maintain high accuracy, the AQ6380 features on-board calibration based on a built-in light source. Its newly designed monochromator achieves a close-in dynamic range of up to 65dB, allowing signals in close proximity to be accurately measured. It also offers best in class stray light suppression of 80dB, preventing stray light interfering with measurements. Fast measurement is another plus, with the AQ6380 capturing data points in only 0.23 seconds.

The AQ6380 is also designed for ease of use, with a high resolution, 10.4-inch LCD touchscreen and built-in analysis functions including DFB-LD; FP-LD; LED; spectral width (peak/notch); SMSR; optical power; WDM (OSNR); EDFA (gain and NF); filter (peak/bottom) and WDM filter (peak/bottom).

Pushing the app button brings up an overview of the pre-installed testing apps, while a guide through wizard leads the user through an easy measurement set-up process. Additional testing applications will be available for download from the Yokogawa website.

For further information about the AQ6380 **CLICK HERE.**
tmi.yokogawa.com/eu

Panduit

Panduit has introduced the OptiCam 2 termination tool, which is designed to offer 100 per cent right first time termination of OptiCam connectors to optical fibre cables. It calculates insertion loss value on completion of the camming process, with red and green light indicators that provide additional visual confirmation of termination.

Using the tool, installer productivity increases and time spent on the jobsite is reduced. Project rework time will also be decreased, therefore helping contractors to improve overall profitability.

The OptiCam 2 termination tool provides step-by-step visual guidance to ensure the field fibre and fibre stub are in alignment before camming. This allows less experienced technicians to terminate fibre with confidence. A simple, ergonomic and symmetrical design allows left or righthanded termination in both handheld and benchtop orientations.

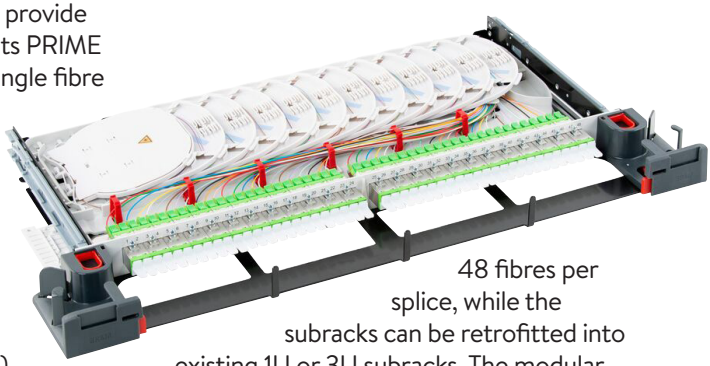
The tool is the most technologically advanced, feature rich option for field terminated connectors in enterprise applications.

To find out more **CLICK HERE.**

www.panduit.com

R&M

In the last mile, large quantities of optical fibre need to be connected and managed – often in cramped spaces. To provide a solution, R&M is expanding its PRIME family with two modules for single fibre management on network Level 3. The new distribution modules provide as many fibres as possible for subscribers in a PRIME rack and administration is made easier by crossover free fibre routing. Two and four-fibre fibre to the home (FTTH) network connections are supported.



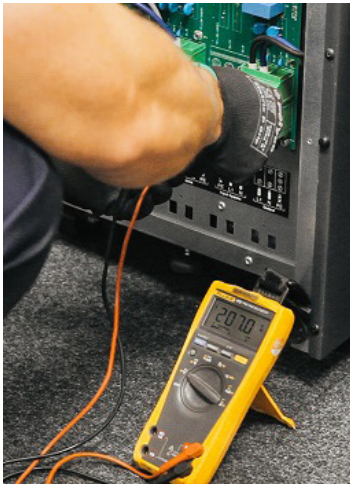
The PRIME Single Termination Unit (STU) accommodates connectors for up to 48 terminations (LC-D, SC and E-2000). The PRIME Single Splice Unit (SSU) connects 48 fibres per splice, while the subracks can be retrofitted into existing 1U or 3U subracks. The modular concept also includes compact FMTS tool-free, indexed splice trays for fibre management.

For further information **CLICK HERE.**

rdm.com

Secure Power

Monitoring the environmental conditions for uninterruptible power supply (UPS) solutions is becoming increasingly challenging and climate control procedures are having to work much harder to maintain optimum atmospheres.



Preventative UPS maintenance is absolutely critical to managing back-up power environments and ensuring UPS performance. Routine UPS service visits will not only analyse external environmental conditions but also pay particular attention to the condition of the UPS system, its internal components and UPS batteries. As UPS batteries are central to functionality, extra care should be taken to adopt specialist methods such as temperature compensated UPS battery charging, where UPS battery life can be significantly extended.

Maintaining an optimum environment for UPS systems where temperatures are kept between 20-25°C, with good airflow and no foreign dust particles, will also contribute to prolonging UPS lifespan.

For more information about Secure Power's UPS battery services, UPS solutions and other power protection services **CLICK HERE** or call 0800 080 3118.

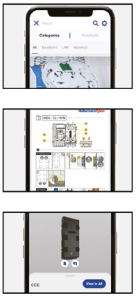
www.securepower.com

HellermannTyton

NEW Mobile App

The new HT Connect app from HellermannTyton is designed to bring products to life in a live environment. Using augmented reality (AR) through a mobile phone or tablet, you can see a wide range of products on your desk, on a wall or even out on-site.

Using HT Connect, it's possible to take a closer look at our products, with many of the selected models having moving parts such as opening doors, removing covers or lifting trays. You can use your touchscreen to rotate the products and zoom in up to 500 per cent.



HellermannTyton MADE TO CONNECT

HT Connect also provides additional product information including data sheets, installation guides and videos, where available. This gives installers and engineers in the field everything they need at their fingertips when it comes to optical fibre network installation.

The HT Connect app is available to download on both the Apple App Store and Google Play.

CLICK HERE to find out more.

www.htdata.co.uk

All you need to know

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Blazing a trail

With the worldwide cannabis industry expected to be worth around $95bn by 2028, Carrie Goetz of StrategITcom explains how and why ASIS has created a security best practices document for the sector

Cannabis legal countries and localities vary as to whether it is medically legal, recreationally legal, decriminalised, theoretically legal due to unenforced laws, or some combination of the above. removed cannabis from its 'most dangerous drug' category, while several countries and areas of countries have followed suit. Furthermore, a significant number are in the process of legalisation and expungement.

Medicinal uses can be traced back to ancient times, but today show promise for chronic pain, seizures, post traumatic stress disorder and a myriad of other ailments.

LAW AND ORDER

The World Health Organization (WHO) has

By removing cannabis from the strictest schedules, research can now openly begin to explore ways that this plant can be used to treat various conditions.

The laws and their enforcement are as varied as the localities of their origin. Their variances make it challenging to design secure facilities and even harder to

create designs that are sufficient for one authority versus another. Enter ASIS, an organisation comprised of global security experts, which creates physical and cybersecurity methodologies and standards.

SENSITIVE SUBJECT

Understanding that cannabis facilities handle personally identifiable sensitive information, cash and products, ASIS decided to create a best practices document covering security for the cannabis industry, which includes hemp, marijuana and other cannabidiol (CBD) products. The paper was written with the participation of several industry experts and edited by myself and Tim Sullivan. The document provides guidance for a relatively new industry to protect workers and patients alike.

'Understanding that cannabis facilities handle personally identifiable sensitive information, cash and products, ASIS decided to create a best practices document covering security for the cannabis industry, which includes hemp, marijuana and other cannabidiol (CBD) products.'

The paper was then presented to the ASIS standards board and is slated to be the first international standard for cannabis security by the end of the year. In creating the document, the contributors reviewed related regulations and requirements from states, countries and other governing bodies to develop recommendations to assure that employees and customers can share a safe, secure experience, while protecting business interests and product safety.

NEED FOR WEED

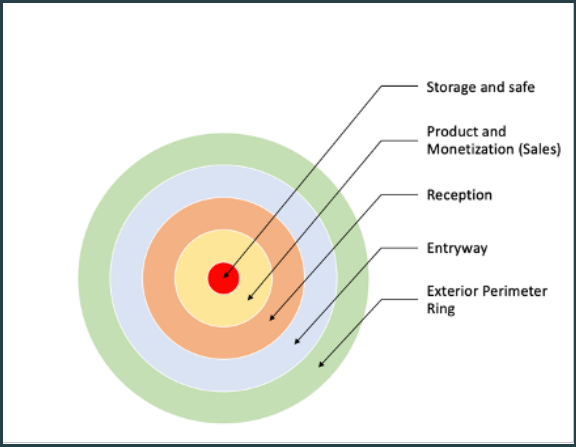
The security needs across the cannabis industry vary according to the type of operation. Addressed in the guidelines are the requirements of inside and outdoor grow operations, cultivation, manipulation, extraction by-products, retail, transport and the security team itself. In most localities a security plan is considered a vital part of the application process. Regardless of whether it is mandated, it is undoubtedly prudent to have a security first approach.

At the heart of security planning is the overall security team. Best practice recommends identifying an internal security team before site selection, rigorous employee hiring and the configuration of a comprehensive security plan wherever possible. This team will also be essential in a liaison capacity with local authorities and assuring that the company has cohesive security measures, which must answer any regulatory requirements and community concerns early in the process.

Continuity in security, from inception through incident reporting, is best served by those knowledgeable in these topics. Unfortunately, in conversations with cannabis providers and others in the industry, the earliest plans proved to be inadequate. As a result, additional measures have become necessary to enhance site security and systems.

SITE FOR SORE EYES

With the security practitioners in place, site selection can begin. Often, real estate is the leader in this effort, when one location may be more advantageous than another from a risk avoidance perspective. Neighbourhood crime is one such example. Using Crime Prevention Through Environmental Design (CPTED) principles begins with a site's physical security protection. It includes clear lines of sight for security, maintenance of clear perimeters, ease of use for surveillance and preventative measures. The concentric circles for retail operations are shown below.



Moving inward, the rings of protection assure that the most critical areas are surrounded by other areas, and can effectively slow and deter entry and access to money, products and other items of value. In some instances, one location may be more favourable to CPTED principles than another. Variances in physical enhancements can be in the form of the overall site, neighbourhood, zoning or physical characteristics, or any combination of the above.

PHYSICAL FITNESS

The entryway must provide both security for personnel and act as the second physical security barrier to entry. Entry security measures will include things such as tamper resistant doors and locks, bollards where necessary, surveillance cameras, proper lighting and may also include biometrics in addition to audible and silent alarms.

Intake or reception must provide protection to personnel and privacy, with any personally identifiable information collected upon entry. Locations and focal points for cameras and surveillance must take this into consideration. Furthermore, cybersecurity concerns are equally important. As money generally does not change hands in this area, reception acts as another barrier before anyone accesses an area with product and money.

Product areas and places where monies change hands should have a high level of surveillance accompanied by silent alarms, locking money drawers and products that are locked and not readily accessible. The innermost circle will contain safes, product stores and have the most restrictive access requirements. This high security area should be on the inside of the building, and the on-site safe should be located away from exterior walls.

GROWING UP

For cultivation and growing areas, needs exist for theft deterrents, product safety, boundaries to eliminate cross-contamination from adjacent land, and procedures to sustain the plants themselves. In addition, these areas should be equipped with heavy surveillance that

must accommodate the changing height of plants and personnel movements.

In all areas, both cyber and physical security should adhere to least privilege and zero trust principles, so that no employee receives any access they don't implicitly need. Many of these principles follow those of the banking and pharmaceutical industries, minus the deep regulations. But where life safety is a concern, a safety first approach is paramount.

INCIDENT REPORT

When mishaps or incidents occur, it is essential to log, investigate and train to assure that any infringement is a singular incident. As with all security programs, each site will need to evolve and grow with the environment to which it 'lives'. External factors are equally as important as internal factors, and all must be addressed after any breach. A good incident response system will help with forward guidance for education, training and other preventative measures based on incident insights. Some also incorporate artificial intelligence to offer better predictive measures.

At the heart of these security measures lies a network infrastructure that supports power over Ethernet, sensors, alarm buttons, cameras, point of sale and other necessary systems. Whether the site is company owned or leased, attention must be given to proactive and reactive systems to assure privacy and safety for all involved. As with all security and related systems, designs should support not just current needs but needs for the foreseeable future with respect to bandwidth and low voltage supplied power. Standards based systems will provide many alternatives for end devices and ensure interoperability between them.

SELECTION PROCEDURE

When selecting components and functionalities, never underestimate the power of a request for information (RFI). RFI documents help companies ascertain features and functionalities amongst a variety of products and enable specifiers and consumers alike to glean valuable information to build the best systems, solve interoperability concerns, learn about vendor support and upcoming features that will become useful. ■

CARRIE GOETZ

Carrie Goetz is principal and chief technology officer at StrategITcom, with nearly 40 years of global experience in designing, running and auditing data centres, IT departments and intelligent buildings. She is an international keynote speaker and holds an honorary doctorate in mission critical operations.

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