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6 **ROB'S BLOG**
Fit for purpose

8 **NEWS**
All that's happening in the world of enterprise and data centre network infrastructures

12 **MAILBOX**
The pick of the recent emails to Inside_Networks

15 **QUESTION TIME**
Industry experts discuss what should be considered a priority when upgrading a data centre to cope with the growing demands of AI

26 **INTELLIGENT BUILDINGS**
Chris Dyke of Allied Telesis looks at how modern corporate offices are utilising the latest technology to become greener, while providing more attractive places for staff to work

30 **INTELLIGENT BUILDINGS**
Brad Stevens of Wesco explains how platform aggregation unlocks the potential for smart facility management

36 **INTELLIGENT BUILDINGS**
Mike Hook of LMG examines the role of MSIs and how they are creating next generation intelligent buildings

40 **CHANNEL UPDATE**
Moves, adds and changes in the channel

42 **SPOTLIGHT**
Rob Shepherd talks to Chad McCarthy about his life and career, and the challenges faced by data centre operators

46 **QUICK CLICKS**
Your one click guide to the very best industry blogs, white papers, podcasts, webinars and videos

48 **TESTING AND TEST EQUIPMENT**
Daniel Klimke of NetAlly explains how dedicated network test equipment enables operational efficiency, cost reduction and enhanced business outcomes

52 **TEST EQUIPMENT**
A selection of the very best test equipment currently available

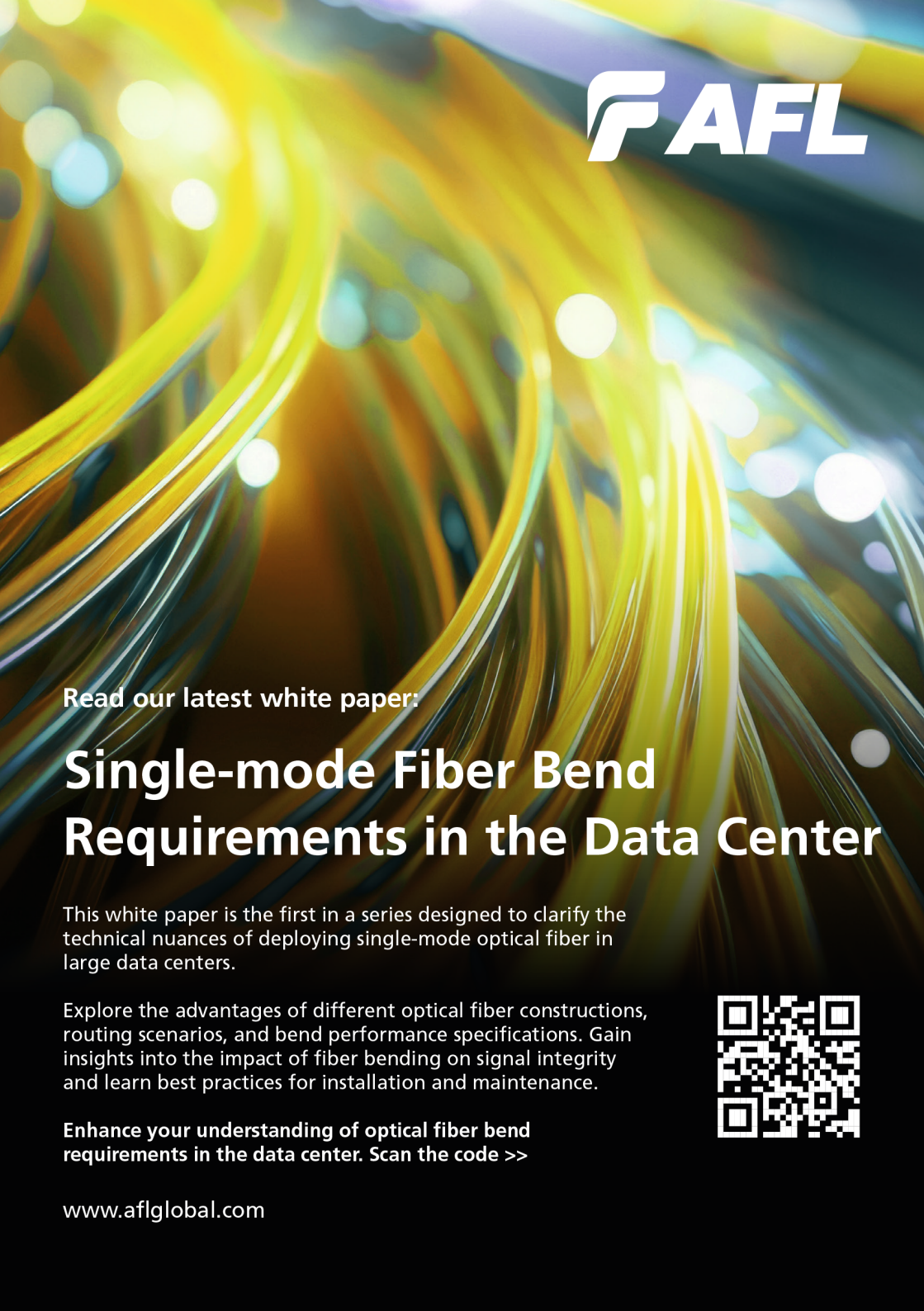
56 **TESTING AND TEST EQUIPMENT**
Steve Cowles of AEM Precision Cable Test charts the evolution of certification in the IoT era

60 **TESTING AND TEST EQUIPMENT**
Kazuichi Ichikawa of Anritsu looks at the key considerations when testing passive optical network installations

64 **PROJECTS AND CONTRACTS**
Case studies and contract wins from around the globe

66 **PRODUCTS AND SERVICES**
The latest network infrastructure products, systems and services

69 **FINAL WORD**
Justin Day of Cloud Gateway looks at whether network-as-a-service (NaaS) signals a new era of networking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The data centre industry is often seen as a new kid on the block, and while that was once certainly true, time has moved on quickly. Many early facilities are now over 20 years old and are beginning to require significant upgrades to remain efficient and competitive. The rapid advancement of technology, especially AI, has highlighted this issue – older data centres simply weren't built to handle today's high density workloads and without modernisation they risk becoming unable to cope.

AI and other emerging technologies demand more power, cooling and connectivity than older infrastructures were designed for. Retrofitting these data centres with the latest energy efficient systems, processing units and high density networks is essential, as without these improvements they will struggle to meet the performance and sustainability standards expected in the modern digital landscape. In this issue's Question Time we've asked a specially selected panel of industry representatives to look at this issue in more depth and assess what should take priority.

Data centres aren't the only structures undergoing significant transformation. The rise of intelligent buildings continues unabated and their ability to utilise network infrastructures in interesting and innovative ways is inspirational. This issue has three excellent articles on this subject. Chris Dyke of Allied Telesis looks at how modern corporate offices are utilising the latest technology to become greener, Mike Hook of LMG examines the role of master systems integrators (MSIs) and how they are creating next generation intelligent buildings, and Brad Stevens of Wesco explains how platform aggregation unlocks the potential for smart facility management.

Whether it's a data centre or an intelligent building, the importance of correct testing and should never be underestimated and we have a special feature dedicated to this subject. Experts from Anritsu, AEM and NetAlly provide fascinating insight into a range of issues including testing passive optical network (PON) installations and why dedicated network test equipment enables operational efficiency, cost reduction and enhanced business outcomes.

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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Horizon3.ai warns about 'head in the sand' approach to cybersecurity

At least half of UK organisations are neglecting to assess their operational cyber risks. This is despite increasing threats in the cybersecurity landscape and the requirements of regulations such as DORA and NIS2.

This view is backed-up by findings from Horizon3.ai's Cyber Security Report 2024/2025, which surveyed 150 UK organisations. The report reveals that only 23 per cent of the companies regularly conduct risk assessments of their IT infrastructure to determine how vulnerable they are to cyberattacks.


Keith Poyser

Keith Poyser, vice president for EMEA at Horizon3.ai, stated, 'Regular assessment of operational cybersecurity is essential to meet legal requirements for IT security. This includes the Cyber Security and Resilience Bill, set to be introduced this year, alongside European regulations like the Cyber Resilience Act (CRA), which also impacts UK organisations working with European Union partners. Companies that neglect to assess their cyber resilience are knowingly putting themselves at considerable risk.'

Rapid GenAI adoption drives new era of application and infrastructure modernisation

Nutanix has published the findings of its seventh annual Enterprise Cloud Index (ECI) survey and research report, which measures global enterprise progress with cloud adoption. This year's report sheds light on generative artificial intelligence (GenAI) adoption, investment priorities and benefits, along with the key challenges organisations face in meeting the demands of these emerging workloads.


Lee Caswell

The ECI survey uncovered that while most organisations have already implemented a GenAI strategy, implementation targets vary significantly. Organisations are eager to leverage GenAI for productivity, automation and innovation, but they also face critical hurdles in the form of data security, compliance and IT infrastructure modernisation. Furthermore, 90 per cent of respondents expect their IT costs to rise due to GenAI and modern application implementation, although 70 per cent expect to make a return on investment (ROI) from GenAI projects over the next 2-3 years.

'Many organisations have reached an inflection point with GenAI implementation and deployment,' said Lee Caswell, senior vice president product and solutions marketing at Nutanix. 'To successfully unlock ROI with GenAI projects, organisations need to take a holistic approach to modernising applications and infrastructure and embrace containerisation.'

Data challenges leave 83 per cent of businesses unprepared for mandated CSRD reporting

83 per cent of businesses lack confidence in the audit-readiness of their environmental, social and governance (ESG) data for compliance with the Corporate Sustainability Reporting Directive (CSRD). According to a survey of 1,000 senior IT and data leaders across the UK and France by Semarchy, while 65 per cent of eligible organisations aspire to be audit-ready and meet looming reporting deadlines within the next 12 months, 25 per cent currently lack confidence in the reliability of their data and only 27 per cent believe they currently have the necessary data management and systems to meet the reporting requirements.


Hervé Chapron

At the same time, 31 per cent of organisations say continued uncertainty around the guidelines has them taking a measured approach to addressing compliance. To accelerate audit readiness for CSRD reporting, 68 per cent of companies plan to allocate more than 10 per cent of their annual IT budgets to compliance, with 26 per cent planning to invest more than 20 per cent.

'With regulatory uncertainty and rising expectations around sustainability reporting, many organisations view compliance as a significant hurdle,' said Hervé Chapron, senior vice president for global sales and global manager EMEA at Semarchy. 'The challenge isn't always a lack of data – it's often about ensuring its reliability and trustworthiness.'

One in four businesses have no data strategy despite rising AI usage

26 per cent of UK and US organisations have no formal data strategy in place, despite increasing artificial intelligence (AI) usage, creating an 'AI paradox' for businesses, according to a survey of almost 200 data leaders from Carruthers and Jackson. Only seven per cent of businesses now go without AI, as the drive for AI efficiency continues to take priority.

Despite this, 39 per cent reported little to no data governance framework but are pushing ahead with AI adoption anyway. In contrast, 37 per cent of data leaders claimed their business adopts multiple governance frameworks, rising from 31 per cent in 2023.


Caroline Carruthers

Caroline Carruthers, co-founder and chief executive of Carruthers and Jackson, said, 'The use of AI tools in organisations has surged in the last year. However, employees lack the data literacy to use them effectively, as their fundamental understanding of data remains largely unchanged from last year.'

Barclays' disruption highlights need for ongoing IT assessment and data management strategies

The recent Barclays IT glitch highlighted the need for high quality technology, infrastructure and architecture. With over 1,600 reported outages, hundreds of customers had funds go missing and banking services interrupted, with some locked out of accounts for almost 24 hours. The event occurring on a monthly payday and also the deadline for self-assessment tax payments, meant the damage to Barclays' reputation will likely be felt for some time.

'IT continuity is fundamental for business success,' commented Jon Bance, chief operating officer at Leading Resolutions. 'The IT applications, technology and architecture of the past are not prepared for the demands of today, and definitely not the future, which leads to more frequent system glitches and major outages. When it comes to the finance industry, an IT mishap can cause serious disruption to operations and damage the business reputation for months after.'


Jon Bance

Conversational AI to generate $57bn of revenue globally over next three years

Juniper Research has forecast that global revenue from conversational artificial intelligence (AI) services will grow from $14.6bn in 2025 to more than $23bn by 2027, generating $57bn of revenue globally over next three years. It predicts this revenue, which originates from enterprise spend on conversational AI platforms, will be driven by the benefits of implementing agentic AI to services.

Agentic AI is a subset of AI which enables solutions to act independently to attain a preset objective, whilst learning from previous interactions. Specifically, agentic AI enables enterprises to automate tasks, such as service enquiries and appointment scheduling, reducing reliance on human intervention.

Molly Gatford, senior research analyst at Juniper Research, commented, 'Conversational AI vendors must carefully moderate the outputs of agentic AI models during early stage implementations. Issues around liability arising from hallucinations or erroneous communications must be avoided before enterprises' trust in agentic AI can be established. This will best position conversational AI vendors to capitalise on this substantial revenue growth over the next three years.'


Molly Gatford

Only 28 per cent of UK businesses began 2025 with good digital health

28 per cent of UK businesses had good digital health in 2024, 36 per cent had average, and 36 per cent had poor digital health, according to a European study from Zoho. Large UK businesses tend to perform better, with 40 per cent rated as having good digital health. 27 per cent of medium UK businesses received a good digital health rating, and just 18 per cent of small UK businesses met the same criteria.

In contrast, Germany performed better, with 33 per cent of businesses surveyed rated as having good digital health. Spain performed similarly to the UK, with 27 per cent of businesses having good digital health, while the figures were 20 per cent of businesses in France and 19 per cent of businesses in The Netherlands.

'The UK still has a lot of progress to be made in terms of business digitisation, but it is encouraging to see progress,' commented Sachin Agrawal, managing director at Zoho UK. 'Benefits are clearly understood, but there needs to be a lot more education and training from businesses and from vendors providing digital solutions to help companies overcome challenges and realise the full potential of their investment in digitisation.'

NEWS IN BRIEF

Artificial intelligence (AI) companies continued to dominate the global investment landscape in 2024, receiving almost a third of global venture funding – more than any other sector, based on an analysis of Crunchbase data. The total AI investment figure, measured at over $100bn, was higher than any other year in the past decade.

The German Federal Office for Information Security has found that an average of more than 2,000 new vulnerabilities are discovered in software every month, of which around 15 per cent are classified as critical.

techUK has appointed FDM Group's Oliver Hester to its Diversity Council to champion and drive inclusivity across the technology sector.

Telehouse Europe is celebrating the success of its first-ever Connect for a Cause charity gala, which raised £40,000 in support of First Love Foundation and Leaders in Community – two organisations doing vital work in the local Tower Hamlets community and beyond.

Research from Juniper Research has found that the global number of internet of things devices protected by cybersecurity solutions will reach 28 billion by 2028 – rising from 14 billion in 2024. This represents a growth of over 100 per cent over the next four years.

It's not game over f

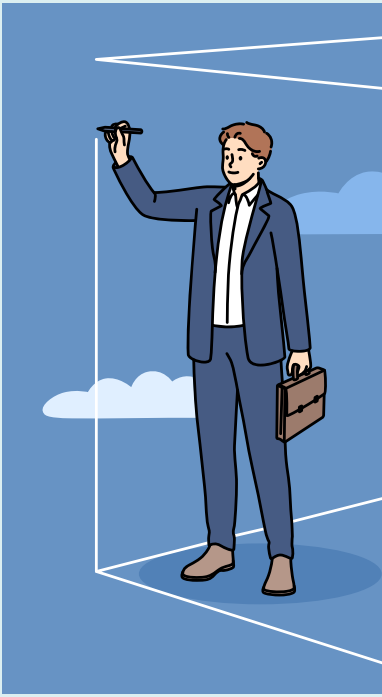
Hi Rob

There is so much discussion around artificial intelligence (AI) and its impact on the data centre industry, but the rapid rise of hyperscale cloud services could mislead some to believe that private cloud solutions are a thing of the past. I think it's also important for AI solutions to be considered as an addition to an entire service suite solution for enterprise, rather than a replacement. Forward thinking enterprises aren't abandoning private cloud – in fact, they are strategically blending it with public cloud solutions to strike the right balance of cost, security and performance.

Cost control is a major factor driving enterprises to continue investing in private cloud. While public cloud services offer flexibility, they can become costly when workloads increase, and unexpected costs related to moving data out of the cloud and scaling operations can often catch businesses off guard.

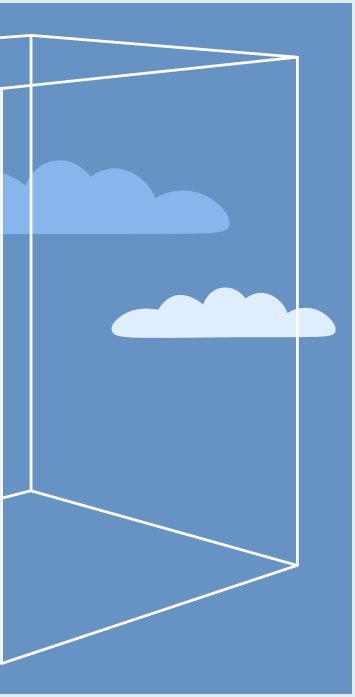
In contrast, private cloud can provide more predictable pricing structures, enabling organisations to plan and allocate their budgets more effectively. Predictability is particularly useful for businesses with steady, long-term workloads, where financial surprises can be detrimental. With rising economic pressures, the ability to control operational expenditure is becoming a priority for businesses of all sizes.

Security and regulatory compliance remain at the forefront of this discussion. Industries like finance and healthcare operate under ever-tightening regulations that demand absolute control over sensitive data. These requirements are only becoming more complex and stringent. In this area, private cloud environments allow businesses to manage their data securely and remain compliant with regulatory frameworks. And, as data protection laws evolve, some enterprises find that private cloud offers the control needed to meet growing compliance demands without the risks associated with shared public infrastructure. Furthermore, the ability to customise security protocols to meet unique business needs adds another layer of assurance.



Performance is another significant advantage of private cloud that can't be ignored. High performance workloads such as AI model development, large scale simulations, and real time analytics require low latency and high reliability. Private cloud infrastructure provides the customisation needed to support these applications effectively, allowing consistent

for private cloud



performance without the unpredictability of public cloud environments. For businesses running mission critical applications, any downtime or latency issues could have severe consequences, making private cloud an important component of their IT strategy.

The trend toward hybrid cloud adoption reflects the growing realisation that a one size fits all approach does not work. Businesses are leveraging the agility of public cloud for less critical workloads while keeping sensitive operations within a private cloud infrastructure. This hybrid strategy enables enterprises to optimise their IT environments to achieve the best of both worlds – scalability without compromising security or performance. With hybrid models, businesses can also scale quickly to accommodate sudden spikes in demand without overcommitting resources.

Of course, we can't forget sustainability. Sustainability goals are becoming an integral part of IT strategies. Many enterprises are seeking environmentally friendly solutions and private cloud providers are responding with energy efficient infrastructure and carbon reduction initiatives. This shift aligns with corporate sustainability commitments whilst delivering the performance and security organisations require. Sustainable cloud strategies not only reduce environmental impact but also appeal to customers and investors that prioritise eco-friendly practices.

Looking ahead, private cloud will remain a cornerstone of enterprise IT strategies. It offers stability, control and the ability to meet specific business needs that public cloud alone cannot fulfil. In an increasingly complex digital landscape, businesses require solutions that provide flexibility without sacrificing security and financial predictability. By combining the best of both cloud worlds, businesses can remain agile, competitive and secure in a rapidly evolving market. Enterprises ignore private cloud at their peril.

Peter Miles
Virtus Data Centres

Editor's comment

Peter makes a very convincing case for the continuing relevance of private cloud. A private cloud offers enhanced security, control and customisation compared to public cloud solutions and organisations can tailor infrastructure to meet specific business needs, optimising performance and resource allocation. These advantages will remain relevant for some time to come.

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Keeping up appearances

As the data centre sector matures, some facilities are now over 20 years old. Inside_Networks has assembled a panel of industry experts to discuss the implications of this and to suggest what should be considered a priority when upgrading a facility to cope with the growing demands of artificial intelligence (AI)

A significant number of the world's data centres are more than 20 years old. Given that it is often considered a 'new' industry, this is something of a milestone – one that isn't necessarily welcome. Why? Put simply, the older data centres become the more they need doing to them to keep them as up to date as they need to be – and AI has put this into sharp focus.

A data centre that was designed and constructed over 20 years ago will struggle to keep up with modern demands. Simply ripping out and replacing infrastructure all at once is, in most cases, not viable logistically or financially. So many owners and operators are faced with making some tough decisions about what to replace and how to ensure uptime while they do it.

It is hugely expensive to replace equipment. For some the major dilemma is whether to invest in mechanical and electrical infrastructure to raise power capacity or spend money on energy reduction measures such as liquid cooling. Others, however, will believe that upgrading to more powerful servers, central processing units (CPUs) and graphics processing units (GPUs) is fundamental.

So, what should take priority? Inside_Networks has assembled a panel of industry experts to give us their views and offer some advice.

WITH AN INCREASING NUMBER OF DATA CENTRES OPERATING WITH INFRASTRUCTURE THAT IS OVER 20 YEARS OLD, OWNERS AND MANAGERS FACE SIGNIFICANT CHALLENGES IN MODERNISING THEIR FACILITIES TO MEET THE DEMANDS OF THE AI ERA. WHAT PRIORITIES SHOULD GUIDE THEIR EFFORTS AND HOW CAN AGING DATA CENTRES BE RECONFIGURED FOR MAXIMUM EFFICIENCY IN THIS RAPIDLY EVOLVING ENVIRONMENT?

CARRIE GOETZ

PRINCIPAL AND CHIEF TECHNOLOGY OFFICER AT STRATEGITCOM

Data centres are no strangers to revamping, refreshing and wholesale rip and replace. Where the fun comes in is when the capacities within the room infrastructure are out of sync with the needs of the equipment placing the ecosystem at an imbalance, like AI.

There are also external considerations like depreciation, ability to remove equipment, cost to recycle, supply chain considerations and how to reuse as much as possible. Older facilities may find this an opportune time to embrace change.

Luckily, we can add capacity, move capacity and even move locations if needed to support our IT loads. While AI is on the horizon, estimates are that only 20 per cent of additional power is attributable to the rise in AI. As an application, AI should be treated as such and the needs for AI should be addressed as components of the ecosystem.

Not all data centres will have the same size, scale or footprint for their AI rollouts. Specifically addressing aging data centres – they scream opportunity. We need to address each application and its needs separately and as a factor in the sum of all parts.

Save for a few industries, AI will supplement computing for some time. I feel there is going to be a period when the screws are tightened and learning engines are internally closed off – if for no other reason than to sort liability, company policies and protection of intellectual property. As such, implementations should be methodical and with purpose. Herein lies the opportunity. What applications could you move? What capacity can you regain? What can you repurpose or improve?

We are at a unique time with multiple cooling options to reject heat and supplement heat rejection. Supplemental systems are evolving. New, more efficient, cooling technologies like direct-to-chip, immersion, and rear door heat exchanger (RDHx) units improve our ecosystem efficiencies.

There is no one size fits all, by any means. Each room or area within the room will have unique needs. There is likely no period in history where capacity planning is more critical. Planning being the operative word and data centre infrastructure management (DCIM) is no longer an option. Now is the time to evaluate and plan.

‘SPECIFICALLY ADDRESSING AGING DATA CENTRES – THEY SCREAM OPPORTUNITY. WE NEED TO ADDRESS EACH APPLICATION AND ITS NEEDS SEPARATELY AND AS A FACTOR IN THE SUM OF ALL PARTS.’

SIMON HARRIS
DIRECTOR OF CRITICAL INFRASTRUCTURE AT BCS

At the heart of this is the need to define specific requirements and get a good brief in place – in essence building a good picture of what customers are going to require. Flexibility is vital, as there needs to be a consideration of what may lie ahead for computing technology.

We are in a period of accelerating chip performance with pre-existing industry guiding principles such as Moore's Law now being questioned. Whilst efficiency breakthroughs may be on their way, there needs to be a plan about how a proposed site could be further adapted to deal with greater power and cooling demands in the future.

Despite the expected need for liquid cooling, it is likely that air cooling will still be part of the solution. Connecting all players in the refresh cycle is key, especially with liquid cooling deployment and its relative lack of maturity in the value chain.

Building partnerships between the client, the technology vendor, the cooling technology specialist and the designers etc will help to create the optimal engineered solution. Objectives must be efficiency, hitting a viable cost point, creating an efficient programme, the continuity of service for incumbent customers and workloads, and future maintenance requirements. This means assembling the right combination of client sponsor, professional team, contractor and supply chain. Refresh projects are not as straightforward as new builds and require different skill sets.

It is also important to understand what is possible with the site. High performance computing deployments will typically be more demanding on the building structure because of rack weights being higher and loads consequently imposed on data hall floors. This is in addition to the usual considerations of utility power infrastructure adequacy and cooling requirements. At an early point of the project clients and professional teams need to thoroughly validate the condition and suitability of critical equipment and infrastructure that is proposed to be reused.

'WE ARE IN A PERIOD OF ACCELERATING CHIP PERFORMANCE WITH PRE-EXISTING INDUSTRY GUIDING PRINCIPLES SUCH AS MOORE'S LAW NOW BEING QUESTIONED. WHILST EFFICIENCY BREAKTHROUGHS MAY BE ON THEIR WAY, THERE NEEDS TO BE A PLAN ABOUT HOW A PROPOSED SITE COULD BE FURTHER ADAPTED TO DEAL WITH GREATER POWER AND COOLING DEMANDS IN THE FUTURE.'

RONAN MCGEE

MANAGING DIRECTOR EUROPE AT DMC GLOBAL PARTNERS

There has been a rapid acceleration in the need to modernise existing data centres to keep pace with ever-evolving technology, the drive for AI capability and increased requirements for energy efficiency and sustainability targets. As existing equipment and systems reach end of life, this is an opportunity for owners to vastly improve existing facilities.

The goal is simple – improve the overall efficiency of the existing facility to support new and emerging technologies, while also keeping capital expenditure to a minimum. However, the challenge in delivering this goal is far less simple – it is complex to achieve and requires significant project planning and design from owners. The main challenge of data centre retrofit/modernisation projects has always been maintaining critical infrastructure service while carrying out the works and avoiding any downtime for customers.

Every facility is different in terms of scale, location and complexity, and there is no one size fits all solution to modernising a data centre. However, I would always recommend that owners prioritise forming a thoroughly detailed masterplan along with their stakeholders. This should also include employing an integrated design team that specialises in designing, costing and programming these types of works. This will help avoid carrying out upgrade works in an ad-hoc and inefficient manner. This masterplan will include a review of the entire facility to fully understand the data before analysing options for improvement, which typically includes:

- Upgrading old installations, which is the most effective way to increase capacity without increasing footprint.

- Reviewing current rack densities to seek improvements – this is a key consideration and will also include a review of the existing floor loadings, cooling systems etc to ensure the space can facilitate modern rack requirements in terms of point loads and additional cooling requirements.

- A review of space planning to maximise potential lettable space.

- Switching to renewable energy sources.

These projects will be commonplace in the industry over the next decade and while there are many challenges to achieving this modernisation, the benefits to having a future proof, efficient facility are significant.

‘THE GOAL IS SIMPLE – IMPROVE THE OVERALL EFFICIENCY OF THE EXISTING FACILITY TO SUPPORT NEW AND EMERGING TECHNOLOGIES, WHILE ALSO KEEPING CAPITAL EXPENDITURE TO A MINIMUM.’

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RYAN HARRIS

DIRECTOR OF SALES ENGINEERING AT SIEMON

AI is pushing older data centres to their limits, with challenges like growing demands on space, power, cooling capabilities, density, latency and scalability. Modernisation requires thinking about how facilities can be reconfigured to meet these demands and ensure they are agile, scalable and capable of supporting next generation technologies.

First and foremost, upgrade your front end storage connections. Many legacy systems operate at speeds that can no longer support the high throughput requirements of modern applications. Upgrading to 100Gb/s connections provides the necessary bandwidth to handle the immense data flow required by AI technologies. This investment lays the groundwork for supporting even faster, next generation server systems using 400Gb/s, 800Gb/s and 1.6Tb/s speeds. By making these upgrades now, data centres will be better equipped to cope with the demands of a rapidly evolving technological landscape, characterised by increased traffic and reduced latency.

Data centres need infrastructure that can easily scale as demand fluctuates. This may involve integrating cloud-based AI training with on-premises resources or deploying trained inferencing models at the edge with high speed servers. Flexibility is key – it enables data centres to meet the dynamic needs of AI workloads while maintaining the agility required to pivot as new technologies emerge.

Higher density networking technologies can help optimise space but this trades off against increased power and cooling needs. Finding a balance to support deployment efficiency and performance while reducing the physical footprint in older data centres helps with faster deployment on the edge. By using technologies like InfiniBand and High Speed Ethernet, data centres can increase connectivity efficiency while simultaneously reducing their physical footprint. This shift enhances the performance of AI applications by providing faster data access and minimising bottlenecks, which are critical to ensuring AI systems operate smoothly and efficiently.

AI requires substantial computational power, leading to higher energy consumption. In response, data centres must prioritise energy efficient hardware to handle these demands, while reducing operational costs and minimising their environmental impact. With sustainability becoming an increasing concern, energy efficient solutions not only align with global environmental goals but also provide significant cost-saving opportunities in the long run.

‘UPGRADING TO 100GB/S CONNECTIONS PROVIDES THE NECESSARY BANDWIDTH TO HANDLE THE IMMENSE DATA FLOW REQUIRED BY AI TECHNOLOGIES.’

STEPHEN BOWES-PHIPPS

VICE PRESIDENT EMEA DATA CENTRES AND CLOUD AT STATE STREET

In assessing their infrastructure against the needs of current market demand, I believe data centre providers, more than ever, need to determine what is their intended market. In the past, providers could cater fairly easily for hybrid demands but the extreme growth of generative AI (GenAI) architectures is exposing the weaknesses of this strategy.

Broadly, data centre client requirements separate into three distinct categories – wholesale, retail and high performance compute (HPC), which includes research computing, Bitcoin and GenAI. These are not mutually exclusive but to cater to more than one type of market providers will need to have highly flexible infrastructure. In addition, operational models will need to reflect the differing requirements of supporting varying demands of a few high power customers versus that of many smaller retail customers, or a hybrid mix.

If we focus specifically on HPC, the requirement to bring large amounts of power, souped-up cooling systems and flexible power delivery systems will challenge many providers used to only ever selling retail. GenAI relies on vast amounts of data, which will either be delivered locally or through cloud-based systems. Being close to on-ramp cloud providers is important, as is high speed interconnections to other data centres.

However, current IT systems, particularly the technology used to drive GenAI, are encountering challenges around power availability which may, in the end, force clients to switch chip technologies to continue their growth. Advanced technologies such as run-cool chips, photonics and glass etched circuits are already with us and may end up displacing the Nvidia graphics processing units (GPUs) currently dominating the market. If they do, this sea change will result in a lot of large white elephants. Hyperscalers are currently maxing out builds of data centres with 100MW+, betting their shirts on future demand bottlenecks that they can take advantage of. If providers are smart, they will hedge their bets and provide flexible, modular mechanical and electrical infrastructure that is capable of dialling up or down the power and cooling across the white space.

‘HYPERSCALERS ARE CURRENTLY MAXING OUT BUILDS OF DATA CENTRES WITH 100MW+, BETTING THEIR SHIRTS ON FUTURE DEMAND BOTTLENECKS THAT THEY CAN TAKE ADVANTAGE OF. IF PROVIDERS ARE SMART, THEY WILL HEDGE THEIR BETS AND PROVIDE FLEXIBLE, MODULAR MECHANICAL AND ELECTRICAL INFRASTRUCTURE THAT IS CAPABLE OF DIALLING UP OR DOWN THE POWER AND COOLING ACROSS THE WHITE SPACE.’

CHAD MCCARTHY
CTO AND CO-FOUNDER AT NLIGHTEN

Sufficient immediate and forward renewably sourced power, access to optical fibre connectivity and investment in state-of-the-art cooling, intelligent energy management and security technologies are prerequisites of a modern data centre.

With these in place, alongside careful planning and due diligence, there are growing opportunities for repurposing certain existing facilities into edge data centres – conserving the embodied carbon expended during their original construction. Leveraging existing operating permits and fibre connectivity, these sites provide a convenient and local solution for enterprises, content distribution networks, regional cloud providers and AI workload deployments, where low latency is an increasing priority.

Given the growing demands of AI applications, repurposed facilities support a hybrid data centre model that balances the strengths of both centralised and edge data centres. The inference phase of AI, where models apply their training to make real-time decisions or generate new content, is better suited for edge data centres which are located closer to end users and devices, enabling short network paths and real-time processing for applications.

However, with the increase in data centre power demand from AI applications, operators will also need to be more proactive in supporting energy transition through sector coupling. This includes leveraging on-site renewable energy, assisting local energy providers with grid stabilisation, and supporting local communities through heat reuse.

With the latter, to create compatibility and interdependency between data centres and their surroundings, it will be necessary to align temperatures and design for system efficiency, rather than only cooling efficiency. This requires a combination of heat pumps and smart energy use, leveraging both the cold and the warm side of heat pumps to enable dual applications in one system. This prevents the need for large external heat pumps, which in combination with the distribution system can present an insurmountable capital expenditure barrier to heat recovery projects.

Initiatives such as these can further support sustainability and carbon free credentials, while also helping to alleviate demand on land, electricity and water.

‘SUFFICIENT IMMEDIATE AND FORWARD RENEWABLY SOURCED POWER, ACCESS TO OPTICAL FIBRE CONNECTIVITY AND INVESTMENT IN STATE-OF-THE-ART COOLING, INTELLIGENT ENERGY MANAGEMENT AND SECURITY TECHNOLOGIES ARE PREREQUISITES OF A MODERN DATA CENTRE.’

CARSTEN LUDWIG

MARKET MANAGER DATA CENTRES AT R&M

AI requirements are driving increased demands in areas such as compute power, hardware density, energy efficiency, data storage, networking and scalability. Modernising data centres to meet the demands of the AI-driven era requires a strategic, phased approach encompassing several areas.

Technologies such as rear-side power distribution units (PDUs), new cabling and liquid cooling need to be organised in a limited space. High density cabling and racks optimise space usage without compromising on computing power and improve airflow. When choosing a solution, consider thermal management, cable organisation, scalability, ease of maintenance and compatibility with high speed networking.

AI accelerators such as graphics processing units (GPUs) and tensor processing units (TPUs) consume substantially more power than traditional central processing units (CPUs), often exceeding 30–50kW per rack compared to legacy systems' typical 5-10kW. It's key to find out which enhancements are required to meet AI power demands. Advanced PDUs? High-voltage direct current (HVDC) systems? New, efficient cabling? High density rack systems?

Traditional air cooling, generally limited to 30kW per rack, struggles to manage the higher heat output of AI workloads. Liquid cooling, essential for maintaining optimal temperatures in densely packed racks, has lower power requirements. A combination of air and liquid cooling ensures better efficiency, reliability and scalability – but it does require new installations.

Cabling requirements are strongly affected by new data centre architectures, increased rack density and higher power and cooling demands within smaller areas. Copper is needed for optimising latency, and optical fibre to manage vast data volumes.

Increased weight per square metre due to denser racks renders traditional raised floors obsolete, requiring reinforcement or replacement. Additionally, analogue operation lacks the efficiency and scalability needed for the future, emphasising the need for automation to reach elevated key performance indicators with fewer staff. Note that operations become increasingly critical as complexity increases – therefore digital tools like data centre infrastructure management (DCIM) software will play a key a role.

'AI REQUIREMENTS ARE DRIVING INCREASED DEMANDS IN AREAS SUCH AS COMPUTE POWER, HARDWARE DENSITY, ENERGY EFFICIENCY, DATA STORAGE, NETWORKING AND SCALABILITY. MODERNISING DATA CENTRES TO MEET THE DEMANDS OF THE AI-DRIVEN ERA REQUIRES A STRATEGIC, PHASED APPROACH.'

The race is on – matc the demands of AI

The artificial intelligence (AI) revolution is here and the speed in which it's evolving is phe explains why it's vital to deploy uninterruptible power supply (UPS) solutions that are des

The demand for data centres is exponential and this will continue to change the face of the industry very quickly. Although the speed and size of this rapid growth can only be predicted, underestimating its needs could be catastrophic.

Demand driven

McKinsey's trend analysis, published at the end of 2024, suggests that global demand for data centre capacity could rise at an annual rate of between 19-22 per cent from 2023 to 2030, to reach an annual demand of 171-219GW. McKinsey's top end estimate is that global demand for data centre capacity could even triple.

As a result, the race is on to build sufficient infrastructure to house the AI explosion in the form of data centres and AI processing 'factories'. More AI results in more power consumption and this means more power protection is needed. This also means the supply and installation of UPS systems on a substantial scale.

Demand has already started. Centiel's UPS technology is already being employed in multi-MW facilities designed to accommodate the growth of AI.

Speed is the key

The efficiency and sustainability of a UPS system is a given for these types of facilities, and so customer selection now comes down to how big and how quickly can a UPS system be manufactured and deployed without compromising on quality and resilience. It is also important that UPS systems are fully scalable to fulfil the capabilities of any facility on day one and can expand as AI's demand increases going forward.

Centiel's multi-award winning, true modular StratusPower UPS has been designed with AI workloads in mind. But what does this mean?

StratusPower has been designed to efficiently handle the high computing density of power hungry components like graphics processing units (GPUs) and tensor processing units (TPUs). It has been engineered to handle the rapid fluctuations in power from pulsating loads that can stress traditional power systems.

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centiel
continuous power availability

enomenal. Centiel's Louis McGarry signed with AI in mind

Always on

Any interruption to AI systems, no matter how short, can have significant consequences. StratusPower provides a resilient, uninterrupted power supply and practically eliminates downtime. Due to its true modular architecture, StratusPower offers a scalable approach, enabling it to be adapted to the evolving power needs of AI.

AI facilities consume a vast amount of energy. StratusPower has a high efficiency across the load range, which helps to minimise operating costs and environmental impact.

StratusPower is designed to provide the reliable, efficient and scalable power protection needed to support the unique demands of AI workloads, ensuring their continuous and optimal operation. Scalable from 10kW-3.75MW, the StratusPower three-phase modular UPS system can deliver uninterrupted clean power to meet all power demands.

Relied upon

Centiel currently manufactures around 50MW of UPS per month, ensuring the shortest lead-times and deployment for power protection across the globe. In more than 100 countries across five continents, data centres rely on Centiel's UPS products to protect their critical loads.

Our UPS systems are supported by a team of credible experts who can discuss any facility's needs for a fully scalable, efficient, reliable system – and configure a solution to ensure the power to AI processing remains robust. They can also discuss how to maximise efficiencies and minimise total cost of ownership with rapid, flexible deployment.

Working together

At Centiel, we are in it for the long haul and work hand in hand with clients to help them maximise uptime for critical power protection and control costs over the long-term – whatever the AI future holds.

For more information, or to arrange a no obligation evaluation and discuss the best UPS to protect your organisation's critical power, CLICK HERE.

www.centiel.co.uk

Workspace revolution

Chris Dyke of Allied Telesis looks at how modern corporate offices are utilising the latest technology to become greener, while providing more attractive places for staff to work

The construction industry is by many metrics one of the worst polluters of the planet, with a staggering 37 per cent of greenhouse gas emissions coming from its activities and the materials used to enable it. Unfortunately, as a species we are dependent on construction and we continue to build into the environment we inhabit at a faster and faster rate. To help combat this, many companies are looking for solutions to accelerate their net-zero initiatives and a focus on their real estate base is a good place to begin.

RULES OF ATTRACTION

With corporate offices and building choices being so important to the success, or failure, of a business, developers are racing to create workspaces that meet or exceed environmental and sustainability schemes such as the Building Research Establishment Environmental Assessment Method (BREEAM), Leadership in Energy and Environmental Design (LEED) and the WELL Building Standard (WELL). Not only do these certifications help to differentiate projects for clients, but they are also creating a new level of premium workspaces considered to be more attractive places for staff to work, and that may aid with retention and even support new hires. All of this is key where many businesses are driving towards a more office-based hybrid working environment.

With building projects being such high risk and reward, many companies turn to technology to help make them a success at the planning stage, and this can start before a spade is even in the ground. This is where some projects turn to a digital twin – a virtual model of a building or infrastructure project that uses real-time known data to provide insights into the construction process. Digital twins can help construction

teams make better decisions, save time and money, and reduce risk by testing scenarios prior to implementation.

TOGETHER FOREVER

One of the biggest challenges of smart building enablement is making the many systems that a building uses, or will use, work together. This type of system has typically been closed, communicating only with itself and its operator, often using proprietary languages that don't scale and are often insecure.

There has been little incentive to change for decades but all of this has altered as we enter a data driven world and a new breed of providers or master systems integrators (MSIs) have appeared on the scene. These organisations are responsible for ensuring that their clients implement systems that will communicate as required and can be deployed quickly and securely, often across a single network. Furthermore, they will often look to implement a single pane of glass monitoring system that turns the outputs from the disparate systems into easily understood insights that do not require expert knowledge to operate.

SINGLE LIFE

As previously mentioned, the systems used will often reside on a single building or landlord network, and this converged network system will be responsible for carrying the data for all systems, whether it be over optical fibre, copper or wireless media. This network will be the lifeblood of the building and replace networks used purely for a single task such as heating, ventilation and air conditioning (HVAC), CCTV, building management systems (BMS), access control, lighting etc. Like the systems it controls, the network needs to be highly scalable, resilient and easy to

manage – not to mention having a cost model that the operator can easily qualify over a long period of time, often far exceeding standard IT sweat periods.

Securing these incredibly valuable operational technology (OT) assets has come under the spotlight of late, as they are often considered an easier target than perhaps the more mature systems that live in the IT world. Cybercrime syndicates, nation states or ideological groups will often try to disrupt the operation of businesses for their own nefarious ends, and finding a vulnerability in an OT system could be the perfect attack surface to springboard to other systems.

For this very reason, governments and regulators are demanding businesses update their systems to negate this problem with some hefty fines being handed out to those that are non-compliant. This affects all businesses, whether public sector such as hospitals and utility providers through to private sector targets such as internet service providers and financial institutions. All of them are working to harden their systems against current and future threats.

MANAGEMENT DECISION

More platforms are becoming available that help to manage a smart building, each focusing on different disciplines or sizes and types of customers. These can be great for managing a single system or multiple systems from a single vendor. However, bringing together many different systems that have been communicating over legacy protocols is a real challenge.

As important, is how easy it displays the information the customer needs in real-time, so that the building can be at its most efficient as often as possible. By using clear graphics and charts, the customer shouldn’t be overloaded with unnecessary data points. These tools need to be easily customisable, as the information they need at day one and how they consume it may differ enormously from that needed later. Initially, they may want to

outsource it to the supply chain and, as they integrate more assets, they may want to pull it back in house or place it in the cloud, so flexibility is another important consideration.

MONEY MATTERS

Planning a smart building project requires a great deal of collaboration for it to be delivered successfully and the initial costs may well outweigh the benefits in the short-term. The skills required to provide an integrated building are still specialised and few companies have delivered projects that are successful from start to finish – but this is changing.

Cutting down on the number of disparate systems that need deploying, supporting and maintaining helps a great deal. Adding in the benefits of moving from a reactive to a proactive support and maintenance model also contributes to this, as potential future failures can be headed off prior to them being an issue. This has meant the return on investment in this type of technology has decreased from 10+ years down to around 3-5 years, which in the lifecycle of a building is sufficient to make it attractive.

It's also worth remembering that projects of this type can be implemented on pre-existing buildings and retrofitted, though working with existing legacy systems could make this more of a challenge. Naturally, the more systems that can be integrated will improve the performance and provide a more successful set of outcomes.

COMPELLING INVESTMENT

The long-term financial and operational benefits of smart buildings make them a compelling investment. According to Gartner, internet of things (IoT) expenditure in smart buildings was $53bn in 2020 and is expected to reach $108bn by 2030. The case for smart buildings is further strengthened by market demand, regulation and global sustainability priorities, positioning them as a cornerstone of modern architecture and urban planning. Please don't forget that in 20 years what we consider cutting edge smart buildings today will be just regular buildings, and no doubt the term will have been reinvented for the next generation of occupants. Smart buildings are here to stay and their percentage of the market in terms of uptake will continue to rise dramatically over the coming years. ■

CHRIS DYKE

Chris Dyke is Allied Telesis' UK & Ireland sales director He has over 20 years of experience in the IT industry, serving in various customer support and sales roles. Prior to Allied Telesis he was a partner development manager at Empowered SMS, where he focused on resource management, project delivery and managed support services for IT projects.

Where the action

Brad Stevens of Wesco explains how platform aggregation unlocks the potential for smart facilit

Facility management has been transformed by the rise of connected, intelligent devices and the convergence of operating technologies (OT) on information technology (IT) networks. The increased levels of connectivity and control in smart facilities today come with increased complexities though – managing all the various systems, devices and data sources across a smart facility can be overwhelming without the right tools.

PLAIN AND SIMPLE

Aggregation platforms have emerged as a game-changing solution, enabling a pathway for facility managers to simplify complexity by unifying disparate data streams. These platforms consolidate data from IT, OT, sensors, building systems, subsystems and third-party applications into one centralised, cohesive view. With this centralisation of data, organisations are better able to streamline operations, drive new automations and make more informed decisions.

As connectivity expands, the need for scalable, unified solutions continues to grow. So, what makes a high performing aggregation platform, how do they simplify facility management and what challenges should organisations consider when implementing these solutions?

CENTRE OF ATTENTION

At its foundation, platform aggregation serves as the central hub for facility management in smart buildings. By pulling fragmented data, both current and historical, from various devices and software, these systems can process it in real-time and present actionable insights to users. This consolidation and analysis of information not only improves operational efficiency but also allows for predictive analytics, automation and better resource allocation. Key benefits include:

• Centralised data for greater visibility
Eliminate data silos by integrating multiple systems into one unified dashboard and gain a comprehensive view of daily operations to easily monitor performance and identify potential issues early.

• Enhanced decision making
Leverage historical data and real-time analytics for a holistic picture of facility performance, make informed decisions faster with data driven insights and enable proactive problem solving and strategic planning.

• Streamlined operations and automation
Reduce inefficiency by automating routine tasks and optimising resource utilisation. Enable smart alerts, predictive maintenance and workflow automation for cost savings and improved productivity.

OBSTACLE RACE

Although the benefits of aggregation platforms are significant, organisations should be aware of the obstacles to implementing them and how to navigate those hurdles. Understanding these pain points is essential for finding the right solution. The challenges to consider are:

is

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• Customisation requirements
Some platforms require extensive configuration to align with specific operational needs.

• Risk of in lock-in
Choosing a platform that doesn't integrate well with existing or future technologies can limit scalability and flexibility.

• Integration challenges
Ensuring seamless connectivity with multiple systems and protocols requires careful planning and expertise.

• Communications infrastructure
Today's connected environments demand robust wired and wireless infrastructure to support critical network traffic.

TEST OF CHARACTER

Not all aggregation platforms are created equal. The most effective solutions share common characteristics that set them apart:

• Seamless integration and continuous improvement
A high performing platform must be capable of integrating with a wide range of vendor ecosystems and system protocols. This is key to providing a smooth deployment and implementation of the platform with the customer's existing infrastructure.

Leading providers continuously enhance their platforms with a clear development roadmap to add value, as new integrations and features come online – and they monitor for obsolescence as technology improves. This includes regular software updates, new feature rollouts, security upgrades and continuous support, ensuring long-term usability and access to the latest advancements for their customers.

• Scalability and open compatibility
An aggregation platform should be designed with flexibility in mind to scale with organisational growth and evolution. The best platforms are not just compatible

'A high performing platform must be capable of integrating with a wide range of vendor ecosystems and system protocols. This is key to providing a smooth deployment and implementation of the platform.'

– they actively adapt and expand their integration capabilities over time.

The platform should accommodate expanding device networks, cloud solutions, new integrations and changing facility needs without requiring a complete technology and infrastructure overhaul. Open application programming interfaces (APIs) and pre-built connectors enable smooth interoperability between building systems, internet of things (IoT) devices and enterprise software.

• Real-time analytics with historical data enrichment

To drive meaningful outcomes, an aggregation platform must process data in real-time, while also harnessing historical data for deeper insights. With real-time data, facility managers can immediately respond to operational events and, when coupled with historical analysis of existing datasets, they are able to leverage predictive analytics and trend identification for more efficient long-term planning.

However, with all this data collection, information overload can be a real struggle for many organisations – just having access to data doesn't guarantee it's useful. High performing platforms offer built-in data science and analytics tools and support services to help users determine which data points are most valuable, visualise trends and extract helpful insights for decision making.

• User-centric design and customer-centric support

Intuitive interfaces that are easy to use and customise are crucial in encouraging adoption throughout an organisation. A well designed aggregation platform offers a coherent dashboard that can be tailored to different user roles based on access privileges and job duties. With user-defined customisations, everyone – whether a facility manager, IT team member or company executive – can easily access relevant information while pulling from a wide breadth of company data.

As important as user-centric design, strong customer support is essential to a successful aggregation platform. This includes dedicated account management, technical troubleshooting, ongoing training and proactive system monitoring. A high quality platform provider doesn't just sell software – it is a partner in maintaining the platform and the value it delivers for its customers.

IMPLEMENTATION CHALLENGES

Successful implementation of an aggregation platform hinges on aligning it with existing infrastructure and long-term goals. Some best practices for a smooth deployment include:

• Align the platform with existing technologies

Before selecting a platform, assess your current technology ecosystem and consider how it will need to be compatible with existing IoT devices, building management systems and enterprise

applications. A successful solution minimises disruption, encourages adoption and accelerates time to value realisation.

• Find partners committed to long-term support

Once you've identified the existing systems that need to be integrated, evaluate platform providers holistically based on the technical functionality of their platform, as well as the supporting services they offer. Consider how they plan ongoing updates, what customer support is available and whether they have a clear development roadmap. Finding a partner committed to continuous improvement of its platform will help ensure that your investment remains valuable as technology advances.

• Implement in phases for a smoother transition

Introducing an aggregation platform can be complicated. A phased rollout helps reduce risk and allows teams to adjust more gradually. When you start with a pilot program in a single facility or department, it creates space to gather feedback and refine processes before expanding across the organisation. Using a phased approach also minimises downtime and increases user adoption.

• Assess the readiness of your network infrastructure

When organisations are considering an aggregation platform, they are also looking at blind spots within their environments and operations that need additional hardware and infrastructure support. Work with your integrator and other trusted partners to ensure your wired and wireless infrastructure is ready to support the expansion of critical communications on your network.

THE FUTURE

As in-building connectivity and technologies evolve, aggregation platforms will play an increasingly vital role in smart building management. And with emerging trends like artificial intelligence (AI) driven automation, digital twins and advanced predictive analytics, the capabilities of these platforms will only continue to grow. By selecting a high performing solution and implementing it strategically, businesses can maximise the value of their investment and unlock the full potential of their smart facilities. ■

BRAD STEVENS

Brad Stevens is vice president of IoT and platform sales at Wesco, where he is responsible for driving the company's growth and innovation in the IoT sector. With over three decades of experience in the industry, Stevens is recognised for his strategic vision and leadership in sales operations and global technology solutions.

From data to action – the k smart real estate

Kieran Byrne, architect and engineering manager at Axis Communications, discusses how smar real estate management. He emphasises that while smart sensors collect vast amounts of data,

The tech revolution has hit real estate. The rise of IoT devices offers the industry insights that will play a key role in transforming commercial properties into more efficient and secure environments. The key, though, is that the data smart sensors generate must be transformed into actionable intelligence to affect real change.

Smart data for better management

Modern real estate systems are equipped with advanced sensors that can perform more than just security roles. These sensors operate within a smart ecosystem, collecting video, audio, thermal and access data that, when properly analysed, allow for better decision making. Integrating these systems via open standards ensures adaptability to future needs.


Kieran Byrne

Real-time analytics of video and sensor data can optimise building operations, such as adjusting lighting, heating and cooling, based on occupancy levels.

The use of edge computing – processing data locally on devices rather than in a central server – further enhances efficiency and responsiveness.

The role of video analytics

Video analytics plays a crucial role in three key areas:

- **Security.** Smart surveillance enables proactive monitoring, identifying threats before they escalate.
- **Safety.** Systems improve workplace safety by detecting hazards and guiding emergency responses.
- **Operational efficiency.** Data driven insights help streamline workflows, reduce energy consumption and improve resource management.

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AXIS COMMUNICATIONS

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t technology, particularly internet of things (IoT) devices and analytics, is transforming real change only occurs when this data is converted into actionable insights

Beyond these areas, sustainability is a growing focus. IoT driven energy monitoring supports compliance with regulations like the European Union's Energy Efficiency Directive (EED). Smart buildings can track energy use, air quality and temperature in real-time, leading to better resource management and cost savings.

Network audio – enhancing communication

Network audio is revolutionising commercial real estate by integrating announcements, emergency communications and even ambient sound into a single system. These audio solutions:

- Deter intruders through pre-recorded or live messages.
- Improve workplace ambience with curated background music.
- Provide targeted emergency instructions.
- Integrate with sensors to issue alerts only where necessary.

By combining video, audio and environmental data, smart buildings create a more connected and responsive environment.

Cybersecurity – a critical component of smart buildings

As buildings become increasingly connected, cybersecurity is essential. If IoT devices are compromised they can expose sensitive data, disrupt operations or even threaten the safety of occupants. It is vital to secure devices, maintain software updates and partner with trusted vendors to mitigate risks.

The future of smart and secure buildings

Technology is reshaping commercial real estate, but its real value lies in how data is used. The integration of IoT, analytics and cybersecurity measures ensures that buildings are not only smarter but also more sustainable, efficient and resilient. The future of real estate will depend on proactive system design and the intelligent application of connected technologies.

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Bringing it all to life

Mike Hook of LMG examines the role of master systems integrators (MSIs) and how they are creating next generation intelligent buildings

MSIs have long operated at the heart of digital building infrastructure. From seamless connectivity and systems integration to cloud-based analytics, the services they provide are critical in uniting traditionally separate domains – information technology (IT) and operational technology (OT). As buildings, campuses and entire cities strive to adopt increasingly smart features, MSIs are stepping up to ensure that intelligent devices, networks, datasets and platforms work in harmony. To fully understand which MSI is right for a particular project, it's vitally important to understand what the different types are and how they can work together.

SPEAKING TERMS

MSIs encapsulate a variety of organisations with different focus areas and skill sets. This diversity reflects the multilayered nature of modern IT/OT environments, where networks, automation systems and data analytics each require specialised attention. Broadly, we can categorise MSIs into three main groups:

- Converged network layer specialists
- Traditional MSIs and independent data layer (IDL) providers
- Smart building platform (SBP) providers, also referred to as smart software integrators (SSI)

While each type has its strengths, they often form partnerships to round out their capabilities. These alliances are essential as few, if any, single provider can feasibly excel in all areas of digital building systems integration. The future of smart infrastructure depends on how effectively these three types of work are contracted, completed and managed. Let's look at each in more detail

• Converged network layer specialists

In an era marked by the internet of things (IoT) and edge computing, converged network layer specialists play a critical role. They focus on creating robust IT/OT convergence, ensuring that every sensor, camera and controller in a building or campus environment remains securely and reliably onboarded and connected to the converged building network.

Whilst some have evolved from audiovisual service providers, experience and expertise in networking and cybersecurity is vital in a world of increasingly frequent cyberthreats. With more devices coming online every day, the potential attack surface grows.

Converged network specialists design, implement and maintain secure architectures that prevent unauthorised access, maintain quality of service and support real-time data transmission. For large scale applications like smart

campuses or city-wide sensor networks, their work underpins everything else.

• Traditional MSIs and IDL providers

Traditional MSIs built their reputations on handling building automation systems (BAS), energy management and supervisory control and data acquisition (SCADA). They excel at coordinating multiple legacy systems and making them work as one cohesive solution. However, the advent of IDL providers has expanded the traditional MSI's role.

IDL providers focus on aggregating and structuring data in a uniform manner, using common ontologies and open protocols including MQTT, BACnet and Modbus. This allows for more structured exchange of meaningful information and easier analytics.

As a result, some traditional MSIs have partnered with, or even acquired, IDL providers to offer their clients a deeper data-centric approach. By unifying these solutions, they can better facilitate interoperability between building subsystems, regardless of technology, protocol or vendor.

• SBP providers and SSIs

A more recent entry into the MSI space is the SBP provider, sometimes also referred to as an SSI. These players often leverage their cloud-based solutions to deliver artificial intelligence (AI) driven analytics, predictive maintenance, fault detection and diagnostics, and centralised control dashboards. Their platforms can integrate data from multiple buildings or geographical locations, giving operators a holistic view of resource usage, occupancy patterns and equipment health. Some SBPs have extended their platforms to focus on optimising the user experience with innovations such as phone as a pass (PaaP), wayfinding and space scheduling.

For property owners or operators looking to accelerate their digital transformation, SBPs offer immediate insights through advanced analytics and machine learning. Whether it's optimising energy consumption or predicting equipment failures before they happen, these cloud-based solutions promise agility, scalability and rapid innovation. SBPs are often the ones pushing the envelope on the newest technologies.

'We can expect AI, increasing digitisation and widespread standardisation to drive the next wave of innovation in smart building solutions and digital operations. Organisations must be prepared to adapt, embrace new partnerships and pivot strategies as the technological landscape shifts.'

COLLABORATION AND DELIVERY

To achieve the desired outcomes in modern smart buildings, each of the three MSI functions – network layer, data integration and platform – must be addressed. In theory, a single MSI can provide all these capabilities under one roof. However, in practice, few integrators excel at both the gritty realities of performing smart commissioning tasks in a construction environment and producing user-friendly software at scale.

Clients therefore face a fundamental question – do they choose one all-encompassing MSI, or do they contract multiple specialised providers? Hiring a single firm can simplify management but if that firm lacks a strong partner ecosystem or specific expertise, quality may suffer. On the other hand, multiple specialists can deliver best-in-class solutions yet require a robust collaboration framework to avoid scope gaps and confusion.

MEETING THE NEED

When multiple vendors are involved, projects can falter without clear leadership and defined roles. The lead MSI could be engaged by the client or main contractor, depending on contractual structure and technical requirements. The key is to ensure there is a single point of accountability to coordinate tasks and resolve conflicts.

Ownership structure matters too. A landlord aiming to add long-term value to a property may invest heavily in a future proofed, hyper-efficient smart foundation, while a tenant might prioritise user experience. MSI contracts should reflect these differing goals so that the final solution meets both a landlord's immediate and a tenant's long-term needs.

Ultimately, it is best to pick an MSI, or network of MSIs, with the right mix of skills, partnerships and commercial know-how to manage construction complexities and produce truly integrated, user-friendly systems that unlock value for all stakeholders. They must also be prepared to offer ongoing support, ensuring that digital buildings continue to evolve alongside changing occupant and business demands. By clarifying roles, establishing proper collaboration and considering the owner-tenant dynamic from the outset, clients can set the stage for a successful, future proof digital building project.

SUPPORT STRATEGIES

Ongoing support and lifecycle management are crucial for sustaining integrated solutions once they've been deployed. Whether it's managing upgrades, troubleshooting issues or ensuring that new technologies can be seamlessly integrated, MSIs must offer well-structured post-implementation services.

This has led to the emergence of an extended MSI role – sometimes called

the master systems operator (MSO) – which provides a digital soft landing after project completion to enhance building operations. By bridging the gap between digital construction and digital operations, MSOs help unlock long-term value from integrated technologies.

In a world where occupant needs evolve and systems continuously generate meaningful data, flexible support strategies help maximise return on investment. By planning for ongoing maintenance early, organisations can reduce downtime, adapt to and derive value from future innovations and keep their infrastructure running smoothly.

WHAT COMES NEXT?

As the lines between network specialists, traditional MSIs, and SBP providers blur, expect a wave of mergers and hybrid models. Some network focused integrators might acquire a data layer provider to round out their offerings, while a traditional MSI may create its own cloud-based analytic tools to compete with SBPs.

This consolidation could lead to integrated one-stop-shops capable of delivering end-to-end solutions, but it may not always be preferable. The choice depends on the project's objectives or the context of the contractual engagement process. Aligning procurement with desired outcomes ensures the most effective outcomes are realised.

From ensuring robust network security to implementing AI-driven analytics, MSIs offer the expertise necessary to keep buildings functioning both efficiently and effectively. By creating environments that prioritise health, comfort and productivity, these integrated solutions can also help attract staff back to the office, keeping them motivated and engaged.

LOOKING AHEAD

We can expect AI, increasing digitisation and widespread standardisation to drive the next wave of innovation in smart building solutions and digital operations. Organisations must be prepared to adapt, embrace new partnerships and pivot strategies as the technological landscape shifts. By leveraging the right blend of MSI expertise, businesses and public agencies alike can future proof their investment in the built environment, ensuring secure, efficient, effective and intelligent operations for years to come. ■

MIKE HOOK

Mike Hook is joint owner and board director at LMG. Over his career he has acquired a unique combination of technical and business skills that enable him to convert technological innovation into valuable business outcomes. Hook works closely with property developers, owners, occupants and general contractors around the world to ensure they get full value from their investments through the intelligent use of smart building and ICT technology.

Siemon expands its leadership team with two key senior management appointments

Siemon has announced two key senior management appointments. Karen Devin joins the company as director of global marketing and Trey Somers becomes vice president of marketing and product management.


Karen Devin


Trey Somers

A proven leader and strategist with over 20 years in the industry, Devin has successfully spearheaded EMEA and global marketing and customer experience functions at CommScope and, prior to that, led EMEA regional marketing at Lucent. She will be responsible for leading Siemon's global marketing strategy and driving customer engagement across its core markets.

With over 20 years of experience in product management and consulting, specialising in data centre and smart building solutions, Somers most recently served as managing director at Align Communications and previously held product management leadership roles at CommScope.

'I am delighted to have both Karen and Trey join our team,' commented Henry Siemon, president and CEO at Siemon. 'These appointments will further support our mission to research, develop and educate our customers on the technologies and solutions that will drive their success in a sustainable manner.'

Ben Hirst promoted to commercial director at n2s

n2s has appointed Ben Hirst as its commercial director. He now has responsibility for all n2s revenue streams including data centre decommissioning, copper cabling granulation, technical services and IT asset reuse and remarketing.

Hirst joined n2s in 2009 as a warehouse operative and has held management responsibility for the company's warehousing, recycling, engineering, purchasing and sales operations.


Ben Hirst

Prior to his new appointment Hirst was group commercial manager.

'I am proud to have been promoted to commercial director and am highly motivated by the increased responsibility this brings as the company continues to expand and grow market share,' said Hirst. 'I am excited by the substantial opportunities that lie ahead for our business, our dedicated and talented workforce and our valued customers.'

NetAlly appoints Nathan Collins as EMEA vice president to drive growth and strengthen channel partnerships

NetAlly is doubling down on its commitment to EMEA market growth with the appointment of Nathan Collins as regional vice president. Collins brings decades of expertise to lead the company's expansion strategy, focusing on empowering partners and enhancing network resilience.


Nathan Collins

With over 300 active partners across the EMEA region, NetAlly is transitioning to a fully two-tier distribution model to ensure its solutions are readily available in all major markets. By partnering with local distributors, NetAlly enables faster product availability, better service quality and streamlined operations for both customers and partners.

'The European Union has introduced numerous new regulations focused on security and resilience, while similar critical infrastructure regulations are being enforced in the UK for companies and service providers,' commented Collins. 'NetAlly's network test and security vulnerability solutions will be essential to stay compliant and I look forward to working with our partners on developing their network infrastructure businesses.'

CHANNEL UPDATE IN BRIEF

Michael Welch has been promoted to chief technology officer (CTO) at Aligned Data Centers to lead the implementation of new technologies. Michael Morris has also been promoted to chief development officer (CDO) to front strategic development initiatives, focusing on expanding the company's data centre footprint.

BCS has appointed Charlie Bruinvels to head-up and develop its new Land Intelligence Service, which will provide clients with valuable, detailed information about potential data centre sites across the globe.

Thales and Imperva have launched the Accelerate Partner Network. It comes after the Thales acquisition of Imperva in December 2023 and the input from over 6,700 partners globally.

FDM Group has appointed Sawan Joshi as its new group director of information security to lead the company's governance, risk and compliance initiatives, ensuring the organisation upholds the highest standards of security and regulatory compliance in an ever-evolving threat landscape.

Nick Read has been appointed chair of the board at nLighten. With over 30 years of experience spanning five industry sectors and a deep expertise in telecommunications and digital infrastructure, he will provide strategic guidance to support nLighten's growth.

Driving force

As a veteran of the data centre industry, Chad McCarthy has held leading positions internally and as a consultant for some of the world's biggest colocation players. Rob Shepherd spoke to him about his life and career, and the challenges faced by data centre operators

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

CM: I am by background an engineer, from education specialising in power systems and power electronics, and I have spent most of my working career in data centres. Currently I am chief technology officer and co-founder of nLighten, a distributed European colocation data centre platform company.

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

CM: Data centres came to me! My first design role was for international trading banks, which originally built their own data centres. These were often combined with trading floors and required, at the time, large power systems at high voltages. These niche skills in power systems then carried me over to colocation and hyperscale as the market evolved and grew.

RS: How do you think wider society perceives the data centre sector and is there enough understanding amongst the general population about what they are and what they do?

CM: Although the general population isn't exposed to data centres, they use them constantly without really being aware of it. I think nowadays most people have heard of data centres or read press articles about how large they are getting. However, the importance of data centres to our digital economy is something that might not yet be well understood by the public.

RS: Is the battle for the energy efficient data centre being won and is it really possible to have a sustainable digital infrastructure?

CM: I wouldn't use the word battle but would use the word transition to describe where we are with data centre sustainability. The Energy Efficiency Directive (EED) is progressive in setting new targets and standards – sometimes there some details missing in the lower layers but the objectives are good. The EED is not only looking at the efficiency of data centres in isolation but also how to integrate them into the community energy system, such that aggregate emissions

are lower and overall energy efficiency is higher.

There are also some exciting technology developments in time coincident renewable generation. These address the burden of data centres as a constant load on a utility, which is trying to decarbonise via weather dependent renewable sources. Having the tools to quantify this leads to better results to improve the score and, hopefully, the complete solution.

RS: What implications will the EED have for the data centre sector and what opportunities and difficulties is it presenting?

CM: Minimum heat recovery targets are intended to provide a low carbon source of heat to neighbouring buildings, offsetting fossil fuel heating and lowering emissions at community level. There has been some consternation around these minimum volume targets, as the norm allows for circumstances that may prevent this in the near-term, such as the presence and compatibility of heat networks. I think there is, however, a clear direction and a great opportunity for any operators that can solve the heat recovery target issue.

There are also quite aggressive Power Usage Effectiveness (PUE) targets. One unresolved problem is how to allow for higher temperature heat export, which improves the community

> ‘Great things are achieved by teams not individuals. In the data centre industry this rings particularly true, both within our own organisation and between those we depend on.’

'The EED is progressive and heading the right way but has left some details open for the standards bodies to solve. I think overall it's a very interesting time and very positive for the industry and the sustainability of data centres.'

efficiency calculation and achieves the PUE target for a data centre in isolation.

Again, this is a further example where the norm allows for the energy necessary for high temperatures to be accounted for separately, but the underlying PUE calculation has yet to be revised by the other standards bodies. So, the EED is progressive and heading the right way but has left some details open for the standards bodies to solve. I think overall it's a very interesting time and very positive for the industry and the sustainability of data centres.

RS: How is the growth of artificial intelligence (AI) affecting the data centre sector and what opportunities and difficulties is it presenting?

CM: AI is really booming in America and we are seeing the European implementation waves coming now, with our first AI training clusters in the UK up and running already since late 2024. Availability of power is the key problem – these deployments are very power hungry.

One interesting effect is that energy availability is pushing these deployments out to new markets, which were developing anyway due to changes in network speeds and data use at the edge. So now we have two coincident infrastructure demands both spurring the development of distributed data centres.

RS: Are small modular reactors (SMRs) the answer to providing data centres with the low carbon energy needed to address the workload challenges of AI?

CM: We'll see. It's not a technology we are implementing currently, as our requirements are for smaller and more distributed data centres.

Specifically, to the low carbon element we would always quantify the benefit of moving to this technology because it is not waste free. For example, the nLighten data centres in Spain, UK and Germany are all expected to achieve a Carbon Free Energy (CFE) score of over 90 per cent, which is a transparent real-time comparison of carbon free electricity generated locally and consumed by the data centre. We do have to be very careful about CO2 but it is a naturally occurring and non-toxic gas that has a typical circulation time in our natural biological ecosystem of between 2-4 years. The numbers on

'Nowadays most people have heard of data centres or read press articles about how large they are getting. However, the importance of data centres to our digital economy is something that might not yet be well understood by the public.'

SMRs are very different.

There are, however, many positive aspects to SMRs. For example, many can export directly usable heat, helping to fill the deficits created by the increase in renewable generation, which doesn't have a cogeneration component. The dominant decision criteria for SMRs may be availability of energy in the scale required for current AI needs.

RS: It's that crystal ball moment – how do you see the world of data centres developing over the next few years and what would you like to see happen?

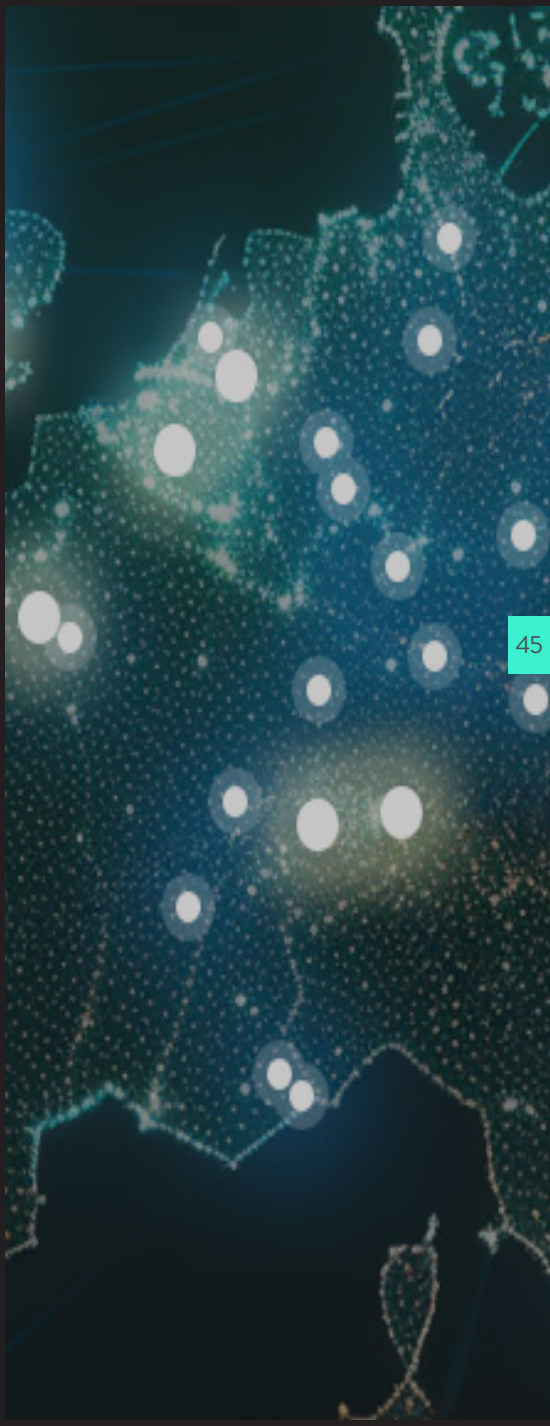
CM: I see sector coupling becoming a key consideration of data centre development. This involves the positioning of data centres in energy systems that optimise the recovery and transfer of energy between users. It also sizes the data centre and energy infrastructure on a mutually compatible scale.

This will lead to a highly networked platform model of interconnected data centres that don't overload the energy systems. They will also support the local community energy profile and perform synchronised distributed compute workloads to achieve the same result as a large single data centre.

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

CM: Great things are achieved by teams not individuals. In the data centre industry this rings particularly true, both within our own organisation and between those we depend on.

It's a large scale and capital intensive business – a lot of moving parts must come together for it to work well. Being in an extended team that works well is one of the most satisfying experiences of my career. ■



Quick clicks

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

The **Wireless Broadband Alliance** has published its 6G WBA Vision Statement, which details five key points for 6G to achieve ubiquitous connectivity.
CLICK HERE to download a copy.

Selecting The Right Cabling Infrastructure Supplier is an ebook from **Siemon.**
CLICK HERE to download a copy.

Algorithmiq has published a white paper explaining the utility and importance of quantum computing today. The paper is backed by academic and tech institutions like Oxford University, Google, IBM, AWS and Nvidia.
CLICK HERE to access a copy.

Softcat has published its annual Business Tech Report. Drawing on responses from 3,870 organisations across 30 sectors, it reveals how businesses are responding to technological change.
CLICK HERE to download a copy.

Nutanix has announced the findings of its seventh global Enterprise Cloud Index (ECI) survey and research report.
CLICK HERE to download a copy.

The **Semarchy** CSRD Data Readiness Report reveals the biggest roadblocks to Corporate Sustainability Reporting Directive (CSRD) compliance.
CLICK HERE to access a copy.

Small Modular Nuclear Reactors Suitability For Data Centers is a white paper from **Schneider Electric.**
CLICK HERE to download a copy.

More than a feeling

Instead of relying on ad-hoc fault finding, Daniel Klimke of NetAlly explains how dedicated network test equipment enables operational efficiency, cost reduction and enhanced business outcomes

Network performance is paramount for business success in today's hyperconnected digital landscape. Ensuring seamless cloud access and maintaining uptime for critical applications are just two responsibilities of network operations teams, who must keep everything working day after day.

LET'S GET SPECIFIC

Maintaining sophisticated network infrastructures demands more than gut feeling. Many network professionals use a combination of free software tools, built-in diagnostic functions and basic cable test equipment to diagnose and maintain network performance. Though they might seem like inexpensive options, these methods often have serious drawbacks that affect efficiency, accuracy and the final business results.

This stands in stark contrast to dedicated network test equipment – purpose built network specific tools designed for in-depth network diagnostics, troubleshooting and performance optimisation.

OPERATIONS CHALLENGES

Let's look at the challenges that network teams face when using alternative tools.

• Limited functionality

Software tools like open source packet analysers or built-in command line utilities give a limited view into network performance. They also might not have advanced capabilities such as automated root cause analysis, wireless network validation or multigigabit link testing.

• Troubleshooting

The troubleshooting process can be quite time-consuming. Many rely on trial and error or manually aggregating data from disparate sources to determine the cause of network problems – and often do so without specialised tools. This results in a longer mean time to resolution (MTTR), which hampers the productivity of a business.

• Lack of standardisation

Different network teams using different tools may face issues such as discrepancies in data collection and analysis. In the absence of standardisation, this results in incorrectly diagnosed issues and wasted time when troubleshooting.

• Dependence on expertise

Freeware or low cost software tools typically need a substantial level of techno-savvy to derive actionable insight from the raw data they generate. If a senior network engineer is not available, junior level employees can have difficulty in diagnosing and resolving faults quickly when using them.

• Security risks

Some free or open source tools could also be open security risks if not thoroughly

vetted. Moreover, the built-in diagnostics are generally unencrypted and could compromise sensitive data while on the network.

With all these challenges, network operations teams need dedicated network test equipment that ensures reliability, speed and accuracy in both diagnosing and maintaining networks.

TAKING THE ADVANTAGE

Investing in dedicated network test equipment offers substantial benefits for network operations teams and the broader business. Here's how:

• Faster troubleshooting and less downtime

Downtime is expensive – even a slight network disruption can cause productivity losses, with a potential impact on revenue. Dedicated test equipment reduces mean time to repair (MTTR) through instant visibility into network health, by quickly locating specific issues and providing guided troubleshooting steps.

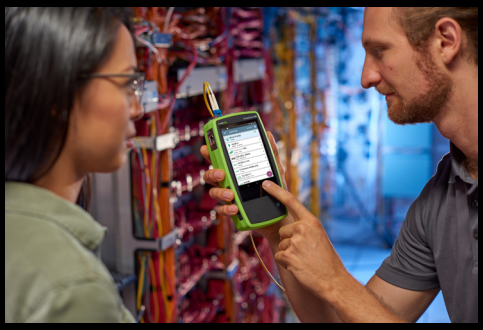
Example: A network engineer could be trying to troubleshoot an intermittent VoIP issue using general purpose tools and would likely spend hours capturing packets of data, manually filtering out relevant

‘Many network professionals use a combination of free software tools, built-in diagnostic functions and basic cable test equipment to diagnose and maintain network performance. Though they might seem like inexpensive options, these methods often have serious drawbacks.’

from irrelevant data and analysing logs. In less than 30 minutes, the root cause – like excessive jitter or an incorrectly configured quality of service (QoS) policy – can be identified with a dedicated network tester.

• Better productivity of IT teams
Streamlining workflows with network test equipment frees-up IT teams to spend more time on high value activities and projects instead of prolonged manual troubleshooting efforts. Specialised tools provide automated testing, guided diagnostics and simple pass/fail indicators, so even junior technicians can identify and resolve issues without needing to escalate to more senior engineers.

Example: A field technician can run dozens of diagnostics with just one button press, compared to downloading and analysing outputs of multiple command-line utilities by hand.



• Improved network performance and reliability
Dedicated test equipment enables proactive network assessments to identify potential issues before they become serious. Certain dedicated tools deliver real time views of network performance to help IT teams pick up early warning signs of congestion, packet loss or misconfigurations.

Example: Validating Wi-Fi deployments with a wireless site survey tool to visualise proper signal coverage whilst minimising dead zones and access point placement results in a better experience at the end user level.

• Standardised testing and reporting
Dedicated network test equipment offers consistent, repeatable testing across all IT teams. Many tools automatically create reports in standard format with test results, service level agreement (SLA) compliance and network performance metrics.

Example: When new network infrastructure is brought online, IT teams can validate that links are configured and working properly, and quickly document their performance before handing the infrastructure off to operations. This allows for a seamless transition along with test data that can be archived for future reference.

• Reduced total cost of ownership (TCO)
Many organisations shy away from investing

in dedicated test equipment because of the upfront cost – however, cost savings over the long-term are substantial. Your initial investment will be far outweighed by the reduced costs of network downtime, inefficiencies and misdiagnosed issues.

Example: Reduced troubleshooting time leads to decreased engineer hours spent identifying and fixing faults, while timely resolution of a problem leads to fewer disruptions in work. Meanwhile in-house IT experts can troubleshoot unique problems without outsourcing their expertise.

• Security and compliance

Network teams are increasingly concerned about cybersecurity threats. Dedicated network test tools often incorporate vulnerability scans, looking for unauthorised devices, rogue access points or weaknesses in network segmentation. Moreover, compliance driven industries such as utilities, finance and healthcare benefit from having audit ready reports that document network integrity and overall security posture.

Example: A financial services firm can test its segmentation policies using network test tools to ensure they are compliant with Payment Card Industry Data Security Standard (PCI DSS) regulations.

• Adaptability to network technologies

As Wi-Fi 6/6E, Multigigabit Ethernet, SD-WAN and hybrid cloud reshape networks, network test equipment evolves by providing dedicated testing capabilities for these emerging technologies.

Example: A business migrating to Multigigabit Ethernet /10 Gigabit Ethernet links in support of Wi-Fi 6/6E can quickly verify throughput, identify bottlenecks and confirm correct link configuration with a dedicated tool – ensuring a seamless transition to higher speed infrastructure.

BOTTOM LINE

Dedicated test equipment is the most straightforward and cost effective choice when it comes to supporting digital transformation. Improving troubleshooting speed, network performance, team efficiency and security allows businesses to optimise their IT operations, reduce costs and lay a strong, resilient network foundation for future growth. ■

DANIEL KLIMKE

Daniel Klimke is director of marketing at NetAlly. He began his career at Leviton and he took a training and channel marketing position at Fluke Networks in 1997, followed by various roles in marketing and product management. This included the transition to NetScout Systems in 2015. He then led the product and brand marketing transition with the divestiture of the business unit and the launch of NetAlly as an independent company in 2019.

TREND Networks

TREND Networks has launched its cutting edge FiberMASTER fusion splicer series. The new S60 and S40 models deliver exceptional speed, precision and reliability, providing fibre optic technicians and network installers with industry leading tools designed to improve both performance and efficiency.

The FiberMASTER S60, featuring active core alignment technology, and the S40, with adaptive clad alignment, both boast repeatability with splice loss as low as 0.01dB – far exceeding ISO/EN/TIA standards and ensuring optimal network performance. The S60 is optimised for trunk networks and high volume splicing in telecom applications, while the S40 is ideal for fibre to the home (FTTH) installations and enterprise networks, providing tailored solutions for different types of fibre optic installations.

In addition to cutting edge splicing technology, the FiberMASTER fusion splicer series is packed with features to enhance user productivity and accuracy. Technicians can achieve splicing in as little as 6-7 seconds on average, with high resolution touchscreen displays that simplify operations.

CLICK HERE to find out more about the FiberMASTER fusion splicer series.
www.trend-networks.com

Cable Management Warehouse (CMW)

Testing copper and optical fibre cables after installation is essential to ensure the reliability, performance and compliance of your network infrastructure. However, investing in test equipment can be costly, especially for occasional use. Once purchased, you're tied to that model until an upgrade is justified.

That's where CMW's equipment hire service comes in. With a selection of industry leading testers, modules and adaptors from EXFO, JDSU, Fluke Networks, Fujikura, NetAlly, Softing, Siretta and Sumitomo, you can access the latest technology without any upfront investment. Hiring gives you the flexibility to choose the right model for each job and you only pay when you need it.

CLICK HERE to check equipment availability or speak to the CMW team by calling 01284 848030.
www.cmwltd.co.uk

NetAlly

Since 1993 NetAlly has been dedicated to engineering the world's best network test instruments. Our family of innovative network test solutions helps engineers and technicians better deploy, manage, maintain and secure today's complex wired and wireless networks.

The new LinkRunner AT 4000 is a cutting edge network and cable tester for modern networking tasks and infrastructure diagnostics. Designed for network professionals requiring a robust toolset for both optical fibre and Multigigabit Ethernet environments, it offers:

- Advanced network discovery and topology mapping.
- Comprehensive diagnostics and troubleshooting features, enhancing network visibility and operational efficiency.
- A robust set of automated tests for precise network validation and troubleshooting, ensuring seamless moves, adds and changes.

CLICK HERE to find out more about LinkRunner AT 4000.
www.netally.com

AEM Precision Cable Test

AEM Precision Cable Test's TestPro multifunction cable certifier is a powerful, all-in-one solution for ensuring infrastructure readiness in smart buildings. Designed for both installation and implementation, TestPro consolidates multiple testing capabilities into a single device with hot-swappable adaptors for seamless transition between testing needs.

During installation, TestPro certifies copper and fibre optic networks in seconds, including Category 6A and Tier 1 fibre certification. It also offers advanced diagnostics like DC resistance unbalance, transverse conversion loss (TCL) and fault distance analysis. When combined with an optical time domain reflectometer (OTDR), it enables Tier 2 fibre certification. LiveWiremap functionality provides instant audible and visual confirmation of connectivity.

For implementation, TestPro ensures network readiness for devices such as digital lighting, security cameras and wireless access points. With an extensive test suite, it simplifies deployment and troubleshooting, reducing downtime and improving efficiency.

Versatile, fast and precise – TestPro is the ultimate tool for modern network certification. **CLICK HERE** to contact our premier distribution partner Mayflex.

www.aem-test.com

Networks Centre

With many #1 UK Fluke Networks Distributor awards under our belt, Networks Centre has the expertise to advise on the best solutions to meet your needs. We can help if you're looking to understand the best testers to use for:

- Twisted-pair or coaxial copper
- Capture switch/server details from a live cable
- Fibre optic networks
- Troubleshooting general issues with copper or fibre networks

Need a tester for a job? With a regularly refreshed fleet of new test equipment available for hire, you can eliminate downtime and try out the top Fluke Networks products before you buy.

Already buy Fluke Networks test equipment and just need customised training? We can provide specialised training on a specific area or product demos to meet your requirements.

To find out more contact our expert team on 01403 754233 or **CLICK HERE** to send an email.

www.networkscentre.com

Certificate of merit

The advent of smart buildings and internet of things (IoT) technologies brought about significant changes in way cabling is designed, deployed ar tested. Steve Cowles of AEM Precis Cable Test charts the evolution of certification in the IoT era

In the ever-evolving landscape of information and communication technology (ICT), testing and certifying cabling infrastructure is vital to ensure it can handle the demands of modern systems. This is especially true as the role of network connected devices expands in the development of smart buildings.

ONE STEP BEYOND

Today's building systems go far beyond the basic networking solutions of the past. Smart buildings integrate a wide array of IoT technologies – from heating, ventilation and air conditioning (HVAC) and security systems to lighting and environmental sensors – all of which require a robust and reliable cabling infrastructure. But certification alone is no longer enough. With more complex and interconnected systems, testing standards and strategies need to be updated to meet these modern requirements.

Historically, information technology (IT) and operational technology (OT) operated in separate spheres. IT handled data and networks, while OT managed physical devices. This separation was a product of earlier technological limitations and organisational structures. However, the rise of smart buildings has shattered this paradigm. Today, multiple building systems – ranging from security and lighting to environmental sensors and network devices – can be centrally managed and optimised for performance, cost efficiency and maintenance.

This integrated approach is at the heart of the IoT, a term that encapsulates the growing network of connected devices. The IoT revolution is making everyday devices smarter and more interconnected, enabling deeper collaboration between IT and OT teams. These advancements allow for real-time data collection and analysis, offering insights that help organisations improve building operations and meet performance objectives.

EVOLVING TESTING NEEDS

As buildings evolve, so do the cabling systems that support them. The simplicity of the past – where basic cable certification was sufficient for ensuring the infrastructure's ability to support network applications – has given way to a more complex landscape. Modern smart buildings require a higher level of testing, as the infrastructure needs to support not only traditional network data but also power and specialised requirements for devices like IoT sensors, cameras and digital lighting. Let's take a closer look at some of the critical testing considerations that go beyond traditional certification.

• Power over Ethernet (PoE) testing

One of the most significant changes in modern cabling infrastructure is the increasing use of PoE. Many IoT devices, including wireless access points and security cameras, are powered via the same

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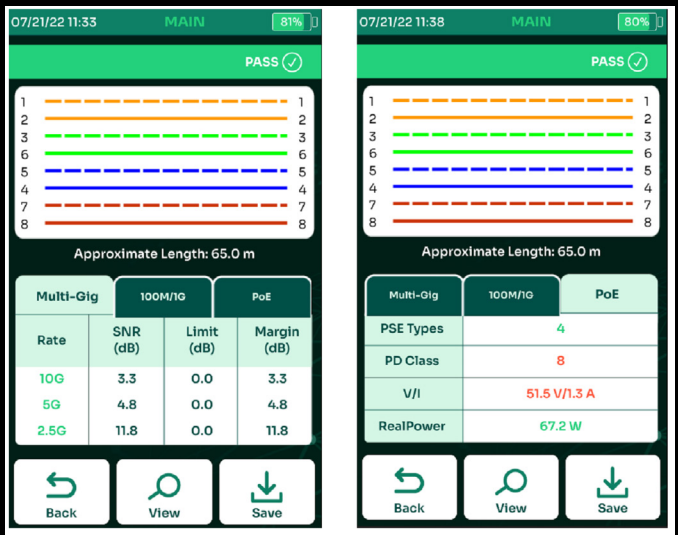
cables that carry network data. This introduces additional challenges, as the cabling needs to support both data transmission and power delivery over the same link.

Traditional certification tests do not account for the power requirements of these devices and testing for PoE readiness has become essential. For example, testing for DC resistance unbalance (DCRU) ensures that the cable can handle the power delivery without causing issues like power loss or overheating, while PoE load testing post-deployment can ensure adequate power is reaching the powered device at the end of the link. This type of testing helps avoid potential issues when network components and powered devices are installed and ensures that the infrastructure can handle future PoE requirements.



MultiGigabit SNR Test with PoE Load

• Link speed and signal integrity

With the growing use of high bandwidth applications, it is crucial to test cabling to ensure it supports the required link speeds. Multigigabit Ethernet links are becoming standard, with devices like Wi-Fi 6 access points and high definition cameras requiring speeds up to 10Gb/s.

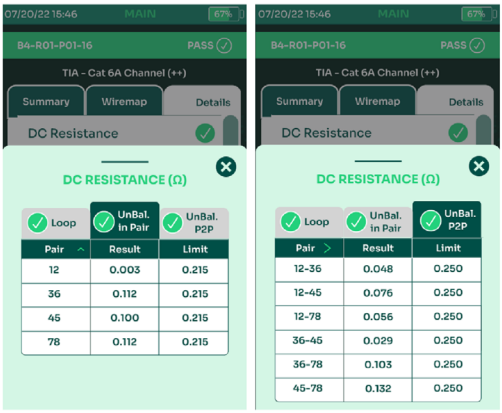
Signal to noise ratio (SNR) testing, which ensures that the cable maintains a strong signal despite potential interference, is another consideration. For high bandwidth applications, testing for sufficient SNR becomes essential, ensuring the cabling infrastructure can support the full capacity of modern devices without degradation in performance.

• Single Pair Ethernet (SPE) and hybrid fibre optic testing

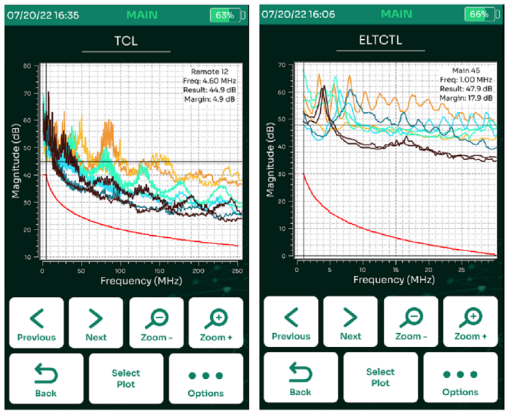
Another emerging smart building technology is SPE. Smaller, lighter and cost effective, SPE provides a solution for connecting low bandwidth devices such as sensors and cameras over long distances. As these devices become increasingly important in the IoT ecosystem, ensuring that the cabling can support these technologies is crucial. SPE requires a different set of testing parameters compared to traditional Ethernet cables, so it's important to consult test equipment manufacturers to ensure compatibility.

Similarly, hybrid powered fibre cables, which combine fibre optic cables with copper conductors for power delivery, require a specialised testing approach. Measuring both the optical loss in the fibre and the DC loop resistance in the copper conductors simultaneously ensures that the

‘The simplicity of the past – where basic cable certification was sufficient for ensuring the infrastructure’s ability to support network applications – has given way to a more complex landscape.’



DCRU In Pair and Pair-To-Pair



TCL and ELTCTL

cable infrastructure can deliver both data and power efficiently.

A COMPREHENSIVE APPROACH

For a smart building to function as intended, the cabling infrastructure must be carefully designed, installed and tested. A traditional certification test simply cannot account for the modern demands placed on the system. Today’s networks need to support devices that require higher power, higher speeds and more robust security – all of which demand a more detailed testing process.

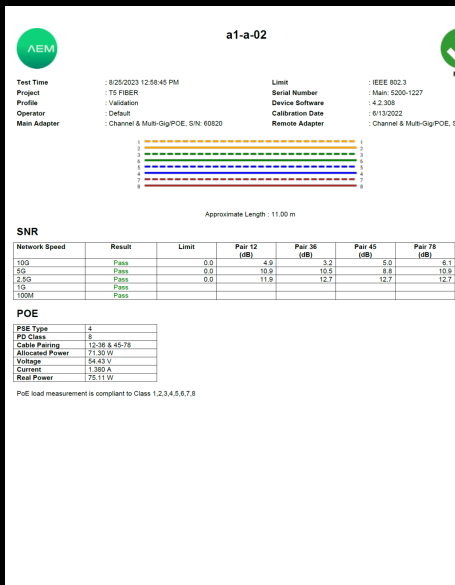
For example, when deploying cabling to support IoT technologies, particularly those that use PoE, additional test parameters should be selected. By adjusting your test equipment to include parameters like DCRU, transverse conversion loss (TCL), and equal level transverse conversion transfer loss (ELTCTL), you can assess the readiness of the infrastructure to support PoE and ensure noise immunity. This additional testing will help identify potential issues before devices are installed, reducing the risk of failure after deployment.

After networking devices are deployed, the SNR and PoE load tests previously mentioned should be done. This ensures necessary PoE power is reaching the end of the link and there is no excessive noise from alien crosstalk or external noise influence. Testing the network connectivity to ensure connection to correct switch/port/VLAN should also be performed.

DOCUMENTARY EVIDENCE

As the demand for more complex testing grows, so does the importance of accurate documentation. Providing in-depth test reports, which detail the type of cabling tested, the results for parameters like link speed, SNR and PoE performance, ensures that the infrastructure can meet the requirements of modern devices.

These reports can also be used for troubleshooting and ensuring that



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Pass

Test Time	: 8/25/2023 12:58:45 PM	Limit	: IEEE 802.3
Project	: 75 FIBER	Serial Number	: Main: 5200-1227
Profile	: Validation	Device Software	: 4.2.308
Operator	: Default	Calibration Date	: 6/13/2022
Main Adapter	: Channel & Multi-Gig/POE, S/N: 60820	Remote Adapter	: Channel & Multi-Gig/POE, S/N: N/A

Approximate Length : 11.00 m

SNR

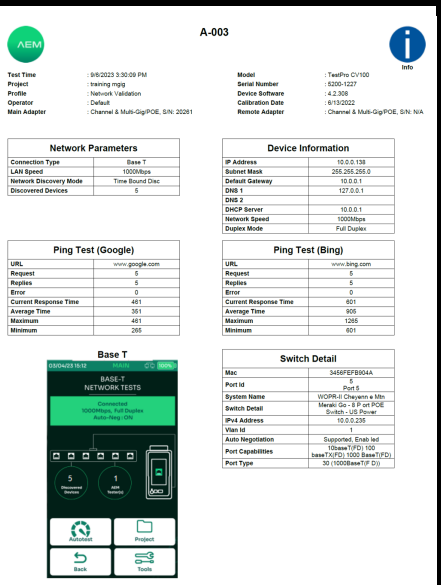
Network Speed	Result	Limit	Pair 12 (dB)	Pair 36 (dB)	Pair 45 (dB)	Pair 78 (dB)
10G	Pass	0.0	4.9	3.2	5.0	6.1
5G	Pass	0.0	10.9	10.5	8.8	10.9
2.5G	Pass	0.0	11.9	12.7	12.7	12.7
1G	Pass					
100M	Pass					

POE

PSE Type	4
PD Class	8
Cable Pairing	12-36 & 45-78
Allocated Power	71.30 W
Voltage	54.43 V
Current	1.380 A
Real Power	75.11 W

PoE load measurement is compliant to Class 1,2,3,4,5,6,7,8

MultiGig SNR w/PoE Load Report



A-003

Info

Test Time	: 9/6/2023 3:30:09 PM	Model	: TestPro CV100
Project	: training mgig	Serial Number	: 5200-1227
Profile	: Network Validation	Device Software	: 4.2.308
Operator	: Default	Calibration Date	: 6/13/2022
Main Adapter	: Channel & Multi-Gig/POE, S/N: 20261	Remote Adapter	: Channel & Multi-Gig/POE, S/N: N/A

Network Parameters

Connection Type	Base T
LAN Speed	1000Mbps
Network Discovery Mode	Time Bound Disc
Discovered Devices	5

Device Information

IP Address	10.0.0.138
Subnet Mask	255.255.255.0
Default Gateway	10.0.0.1
DNS 1	127.0.0.1
DNS 2	
DHCP Server	10.0.0.1
Network Speed	1000Mbps
Duplex Mode	Full Duplex

Ping Test (Google)

URL	www.google.com
Request	5
Replies	5
Error	0
Current Response Time	461
Average Time	361
Maximum	461
Minimum	265

Ping Test (Bing)

URL	www.bing.com
Request	5
Replies	5
Error	0
Current Response Time	601
Average Time	905
Maximum	1265
Minimum	601

Base T

Switch Detail

Mac	3456FEFB904A
Port Id	5 Port 5
System Name	WOPR-II Cheyenn e Mtn
Switch Detail	Meraki Go - 8 P ort POE Switch - US Power
IPv4 Address	10.0.0.235
Vlan Id	1
Auto Negotiation	Supported, Enab led
Port Capabilities	10base T(FD) 100 baseTx(FD) 1000 BaseT(FD)
Port Type	30 (1000BaseT(F D))

Network Discovery w/Switch Detail Report

the cabling remains reliable over time, especially as devices are added or moved. Moreover, the ability to generate reports that detail the power load and remaining headroom for PoE ensures that issues related to power delivery are identified early, before a device fails to power-up.

BEST IN CLASS

From ensuring PoE readiness to testing for multigigabit speeds and power delivery, the right test equipment and strategies are essential for ensuring that smart building systems perform at their best. The need for thorough testing and certification has never been greater, and with the right tools and knowledge there is an opportunity to provide enhanced services and drive new revenue streams for the businesses that support these technologies. In this rapidly evolving landscape, staying ahead of the curve with cutting edge testing equipment will help ensure that smart buildings are optimised for performance, reliability and the future. ■

STEVE COWLES

Steve Cowles is product line manager at AEM Precision Cable Test. He has been involved in the voice/data industry for over 35 years, with the last 25 focused on test equipment applications for copper and fibre certification, Wi-Fi, PoE, Ethernet and DSL. Cowles has been a BICSI member for over 30 years and holds the RCDD and NTS credentials.

Seeing the light

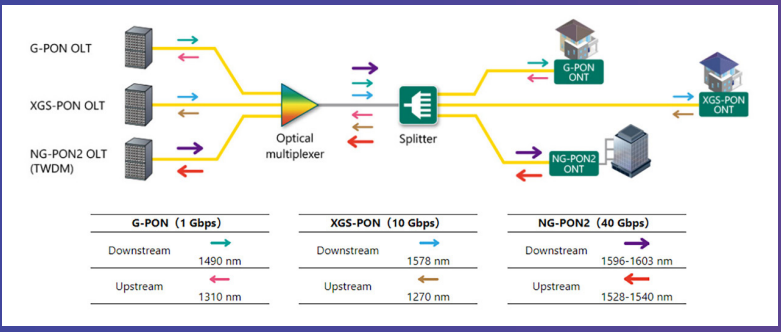
Kazuichi Ichikawa of Anritsu takes a look at the key considerations when testing fast evolving passive optical network (PON) installations and detecting difficult to find faults

As artificial intelligence (AI) driven chat and image/video generation services become mainstream, networks are once again facing the need to address rapidly increasing data traffic and processing demands. To meet these demands, PON technology is evolving.

SPLIT SECOND

A PON essentially uses an optical splitter to split a single optical fibre from a central office to enable multiple subscribers to share the fibre. The optical splitter is a passive device and does not require a power supply. It increases line usage efficiency and can be cascaded. Other components of the network include the optical line terminal (OLT) and optical network terminal (ONT), both of which require power. The OLT is the optical communications termination equipment installed in the central office of the operator and the ONT is the termination device at the customer's premises.

From 2003 to 2004, the International Telecommunication Union Telecommunication Standardization Sector (ITU-T) developed the G-PON standard, which supported downlink speeds of 2.4Gb/s and uplink speeds of 1.2Gb/s. The XG-PON standard followed, with downlink speeds of 10Gb/s and uplink speeds of 2.5Gb/s. In 2016, XGS- PON was created, with 10Gb/s support for both downlink and uplink traffic. To accommodate ever ever-increasing demand for data communications, the NG-PON2 standard was developed, which supports 40Gb/s downlink and 10Gb/s uplink traffic by combining time division multiplexing (TDM) and wavelength division multiplexing (WDM).



A key feature of XG-PON and subsequent standards is the splitting ratio supported by the optical splitter, which is increased to 1:128 or 1:256 from the previous splitting ratio of 1:64. However, as splitter branches increase, the optical power per branch decreases. This implies that test devices, such as the optical power meter and optical time

domain reflectometer (OTDR), require sufficient measurable (dynamic) range.

FAULTS AND PROBLEMS

The main cause of a fault in an optical network is a dirty or damaged optical fibre connector end face, which leads to attenuation or reflection of the optical signal. Reflected light adds noise to the signal, while attenuation degrades signal power, potentially causing a receiving error at the OLT or ONT. As splitter connection points and fibres are installed in outdoor enclosures and underground utility holes, often in hot and humid conditions, engineers need to take care not to damage or contaminate the end faces.

Other factors such as excessive bending of the fibre, poor connections and insufficient splice fusion can also attenuate or reflect an optical signal. Engineers need to pay careful attention to excessive fibre bending in narrow and confined spaces, which can, in the worst case scenario, permanently damage or break the fibre. The number of optical splitter branches must also be considered. An increase in splitter branches translates into less optical power per branch, thus requiring a higher loss budget. This is the difference between the output power of the optical transmitting module and the minimum sensitivity of the optical receiving module.

DIGGING THE DIRT

If the end face of an optical fibre is damaged or contaminated with finger grease, dust or other foreign matter, it can attenuate or reflect an optical signal, as well as damage or contaminate the opposite fibre it is being connected to – potentially leading to a communication failure in the PON. Optical fibre end face inspection enables engineers to check the end face of each connector and clean or replace it, as necessary, during installation.

As the size of damage or dirt on the end face of an optical fibre can be too small to visually check, an inspection probe with a built-in camera is used. In combination with analysis software, the inspection probe automatically checks the end face using machine vision and displays the results on a screen. Pass/fail judgement results can be generated automatically by the analysis software. The IEC 61300-3-35 international standard is used to determine the thresholds required for the end face to pass the inspection for each type of optical fibre (singlemode or multimode) and each connector type – physical contact (PC) or angled PC (APC).

FEED THE METER

An optical power test verifies the installation and fault conditions of an optical fibre. An optical power meter is used to evaluate the loss at each branch of the optical splitter, as well as the output power from the transceiver connected to an OLT at the subscriber's premises. This test is done with the fibre end face

'The main cause of a fault in an optical network is a dirty or damaged optical fibre connector end face, which leads to attenuation or reflection of the optical signal.'

inspection during PON installation or maintenance to check PON system requirements are met.

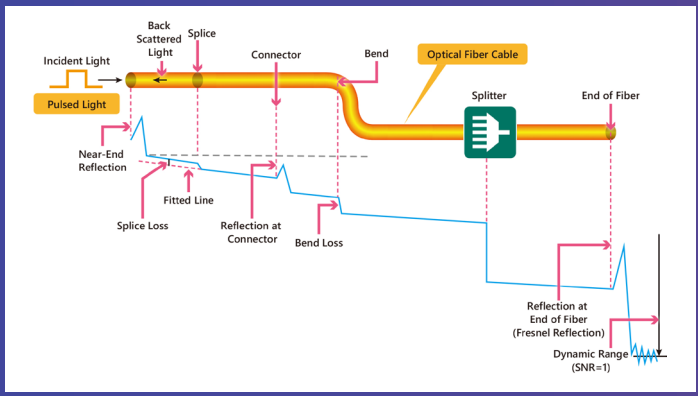
If optical power is lower than required, it is difficult to locate the cause with an optical power meter alone, instead requiring the use of an OTDR. Even with optical power meeting the requirement, the fibre cable may have other problems such as excessive bending, poor connection and insufficient fusion, risking communications stability over the long-term.

In an optical fibre test, an OTDR is used to detect the location of events such as power loss, reflection or failure point along a fibre. Connected to one end of the optical fibre, the OTDR launches optical pulse signals into the fibre, then measures and analyses the scattered light that returns from the optical fibre, as well as reflected light arising from poor connections or cable breaks. The OTDR can detect and evaluate several characteristics such as optical fibre distance, connector, splice, optical splitter, loss at fusion and connection points, transmission loss, macro-bend loss and total return loss.

BRANCHING OUT

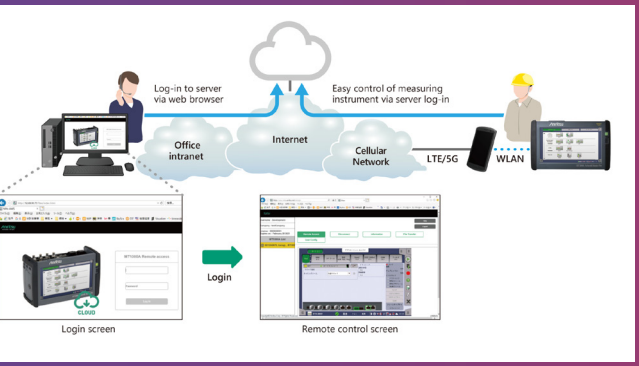
In an XGS-PON with multiple optical splitters cascaded, the maximum number of branches is 128. When an optical splitter with a splitting ratio of 1:8 is cascaded with another splitter with a 1:16 ratio, the loss is theoretically estimated at 21dB – 9dB for eight branches plus 12dB for 16 branches.

Besides the optical splitter, other losses need to be added such as loss due to splicing, connectors installed at various locations along the fibre cable, as well as transmission loss within the fibre. Loss due to bending also needs to be accounted for and, as a result, the total loss is larger than the theoretical value. For this reason, when an OTDR with a low dynamic range is used, the optical power that returns from the fibre after passing through the splitter is lower than the receiving sensitivity of the OTDR. If the OTDR has a low dynamic range, it becomes difficult to detect loss, reflection, failure points and other events that occur after the optical splitter.



It is therefore important to select an OTDR with a dynamic range performance that is significantly higher than the total

loss of the PON. Further, XGS-PON and NG-PON2 use longer wavelengths than G-PON. As optical loss due to bending increases in proportion to optical signal wavelength, care should be taken to reduce fibre bending.



FEATURES AND BENEFITS

Lack of familiarity with testers on-site and complex procedures, especially for inexperienced engineers, reduces operational efficiency. To address this, leading test equipment displays intuitively understandable event icons, each representing a specific point such as the optical fibre end, PON splitter, fibre bend, optical connector or fusion point. This equipment also automatically makes pass/fail judgments based on preset threshold values. To further reduce mistakes and increase work efficiency, these devices provide an automated test function using scenarios to guide the worker through the work procedure.

Some manufacturers also enable remote operation of OTDR via a wireless LAN, allowing the engineer to control the OTDR inside the subscriber's premises and view its measurement screen using a tablet terminal. This reduces the number of times an engineer travels between the construction site and the subscriber's premises. In some cases, a field engineer may encounter problems that are too complex to solve independently. To enable an experienced engineer or administrator to assist remotely, a device can connect to a mobile network via wireless LAN and then via the cloud.

THEORY OF EVOLUTION

PON technology is evolving quickly and becoming more complex due to the demands of increased data traffic and processing being placed on networks. As a result, testing PON networks with up to 256 branches and longer wavelengths becomes more demanding, as these networks are more sensitive to faults. High dynamic range instruments and automation are key to validating complex PON installations and analysing difficult to find faults. ■

KAZUICHI ICHIKAWA

Kazuichi Ichikawa is assistant manager at Anritsu Corporation. He joined the company in 1987 and has over 20 years of experience as a test and measurement equipment engineer for the fibre optic communications industries. He has worked in hardware and software development throughout his career and is currently engaged in digital marketing.

Immersion cooling OCP proof of concept completed at Stellium Datacenters' UK hyperscale facility

Stellium Datacenters has completed an Open Compute Project (OCP) proof of concept at its high performance computing (HPC) hyperscale data centre near Newcastle.

This follows the integration phase of an immersion cooling system into Stellium's OCP-Ready certified infrastructure in collaboration with Submer and its partners. Based on OCP design and engineering protocols, Submer's installation represents the first ORv3 showcase deployed in Europe, a specification within the broader OCP concept that focuses on rack design and power supply regulation.

In combination with ExxonMobil's DC 3235 Super fluid, the compute is powered by MiTAC's Capri 2 servers with AMD central processing units (CPUs) and server components provided by Circle B. Other key contributions to the solution so far include TE Connectivity busbars, Murata power shelves, Edge-Core network switches and FormericaOE immersion optical fibre cables.

Virtus announces new facility in Milan to support European digital demand

Virtus Data Centres is set to establish its first facility in Italy. Located in Cornaredo, this new site represents a key milestone in Virtus' European expansion strategy.

The facility will be developed on a 71,000m² brownfield site, which has zoning in place for a 44,000m² facility. With the capacity to deliver 70MW of grid power, the site will provide ample capacity to support hyperscalers, enterprises and service providers.

The development will commence in Q2 2025 with the demolition of existing structures and recycling of materials. The new facility is expected to be ready for service in 2027, bringing additional capacity to one of Europe's most important data centre markets.

The Milan data centre is designed to support the increasing requirements of artificial intelligence (AI) workloads, hyperscale environments and high density computing, while ensuring operational efficiency. The project will incorporate best practices to reduce environmental impact including energy efficient designs, access to renewable power, waste reduction measures and responsible water usage.

Maximilian Raynor creates designer dress made from recycled data centre materials

Designer Maximilian Raynor and Equinix recently teamed up to take wearable tech to a different dimension, with the creation of a one-off garment that brings the internet to life by using recycled materials in new and innovative ways. Described as the 'personification of the internet herself', Raynor and his team spent 640 hours working on the project, which features enough optical fibre cable to run the length of 72 Olympic swimming pools.

Raynor explained, 'The project's really been an educational one, especially coming to the data centre and really seeing the kind of tangible nature of the internet. We all think of the cloud as this thing that exists in the sky that's not real. You come here to Equinix and you realise that there's a material quality to all our phones and everything we do on computers.'

PROJECTS & CONTRACTS IN BRIEF

Portus Data Centers has created a strategic partnership with Megaport, which has deployed a point of presence (PoP) at Portus Data Centers Munich, allowing joint customers to benefit from wider reach and enhanced connectivity capabilities.

Vantage Data Centers has partnered with VoltaGrid to deploy more than 1GW of power generation capacity in markets where grid power is constrained.

StarHub has successfully completed its nationwide rollout of a Nokia XGS-PON network in Singapore, connecting hundreds of thousands of homes across the country to 10Gb/s internet speeds.

AVK has created a new service hub in Lelystad, Netherlands. Opening in April 2025, this hub will enhance in-country support, improve service responsiveness and strengthen regional client partnerships. By reducing reliance on UK-based infrastructure, AVK is ensuring rapid service delivery for Europe's growing data centre market.

The 75th Berlin International Film Festival live streamed its opening gala event for the first time to cinemas in seven cities across Germany outside Berlin, using Colt Technology Services' network as a service (NaaS) solution.

Panduit

Panduit's RapidID creates a network map using patch cord scanning techniques to support smart, scalable and efficient connectivity solutions. It is designed to reduce the time and cost of patch cord documentation by up to 50 per cent.

Using prelabelled Panduit patch cords and the RapidID Bluetooth enabled handheld scanner, network engineers can place, trace and replace cables to create a comprehensive network map far more effectively. The network mapping capability automates the labour intensive and often error prone cable documentation process to reduce the risk of a network outage and costly downtime. RapidID is a practical alternative to traditional manual approaches and is suited to building a new telecom room, locating installed cables or replacing a network switch.

Each prelabelled patch cord has a unique barcode and by using the handheld scanner an engineer can automate labelling, tracing and troubleshooting in three easy steps:

- Install Panduit cables that feature the barcode labels.
- Download the mobile app from iOS or Android app stores to a tablet device.
- Scan barcodes using the Bluetooth enabled handheld scanner.

To find out more **CLICK HERE.**

www.panduit.com

Excel Networking Solutions

Excel Networking Solutions' copper cabling systems provide robust, high performance solutions that support diverse networking needs with sustainability at the core. The range includes cables across multiple categories, such as Category 7A, Category 6A and Category 6, offering options for both screened (F/UTP, S/FTP) and unscreened (U/UTP) solutions.

Key features include compliance with Construction Products Regulation (CPR) Euroclass classifications, comprehensive third-party verification and compatibility with Excel's end-to-end networking solutions. Additionally, pre-terminated assemblies simplify deployment, offering flexibility with connectors like jacks and plugs tailored to user requirements. Available in various lengths, colours and constructions, Excel's cables are built for reliability and scalability.

CLICK HERE to view the full portfolio of Excel's copper cabling products or call the sales team on 0121 326 7557.

www.excel-networking.com

Austin Hughes

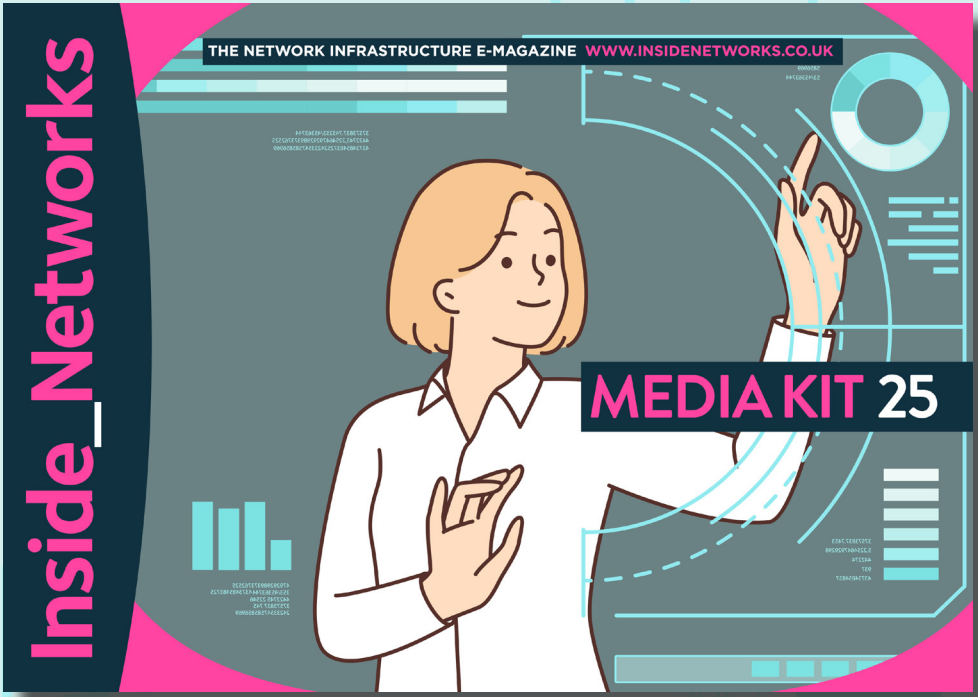
Austin Hughes' rackmount solutions support data centres and high density installations that power AI technology. Discover more on Stand DC503 at Data Centre World London.

The new InfraPower 2000 Series Z range enterprise level intelligent rack power distribution units (iPDUs) are embedded with dual Gigabit Ethernet LAN IP for redundant network access via IP (no dongles required). With 100 per cent iPDU uptime reporting, IP authentication support is provided via Active Directory (AD) and Lightweight Directory Access Protocol (LDAPv3/LDAPS), as well as utilising the Remote Access Dial-In User Service (RADIUS) protocol and/or local credential database. Monitored and switched iPDU models provide comprehensive remote monitoring and on/off outlet switching functionality.

Z series iPDUs are available in single-phase to three-phase, with new design intelligent meter and lockable/combo IEC outlets. They can be tailored to specific voltage, current and connection needs, providing flexibility to address diverse power distribution requirements within the data centre.

Visit Stand DC503 at DCW for a demo or **CLICK HERE** to learn more.
www.austin-hughes.com

All you need to know



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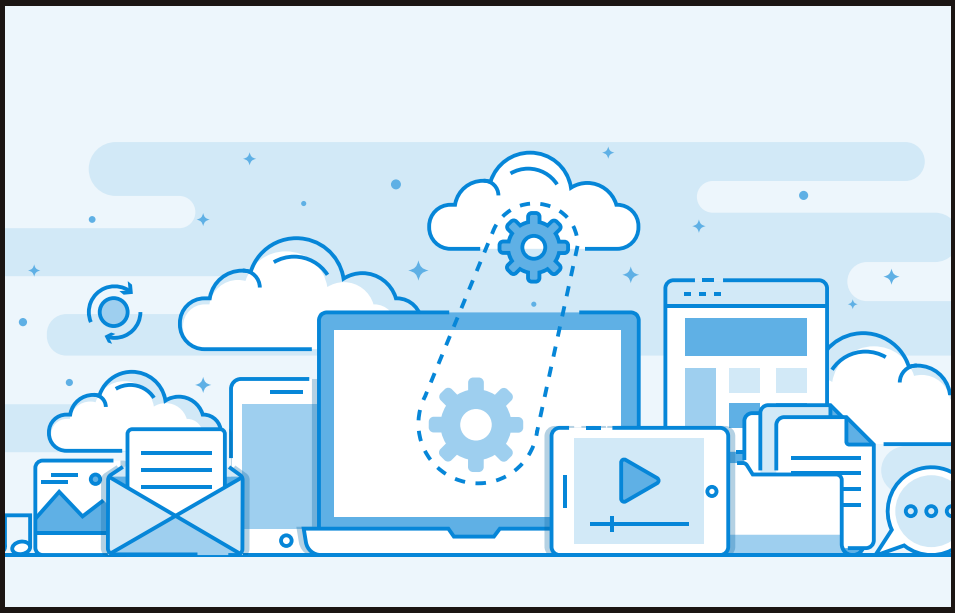
March of progress

Justin Day of Cloud Gateway looks at whether network-as-a-service (NaaS) signals a new era of networking



While many areas of IT, from software deployment to data storage, have transitioned to cloud-based solutions, networking remains among the few functions reliant on outdated, hardware heavy models. These traditional networks often involve equipment that is not only expensive but also challenging to scale and manage. However, a shift is happening – NaaS is emerging as a modern, service-based approach that is designed to simplify network management, reduce operational burdens and reshape the way networks are built, maintained and scaled. So, what exactly is NaaS and why is it gaining momentum?

EXPLORING THE CONCEPT

NaaS represents a cloud-based approach to networking, delivering connectivity and network functionality on a subscription basis. Instead of sinking significant budget into hardware and infrastructure, or relying on in-house teams, businesses can use NaaS providers to access network services through an intuitive and scalable platform.

One of the biggest advantages of NaaS is its operational flexibility. By moving away from capital expenditure (CapEx) intensive infrastructure investments to an operational expenditure (OpEx) model, companies can pay only for the network resources they need and use. This approach is particularly valuable for organisations transitioning to hybrid or cloud only strategies, as NaaS facilitates seamless integration between on-premise and cloud environments. While

the concept is still maturing, it's potential to transform how networks can be designed, implemented and scaled is clear.

GAINING GROUND

The increasing adoption of NaaS is partly fuelled by a shortage of skilled networking professionals. Managing traditional networks requires specialised expertise, which is becoming harder to find as digital environments grow more complex. By simplifying operations and offering user-friendly interfaces, NaaS empowers broader IT teams such as DevOps to configure and manage networks without needing extensive networking knowledge.

This rise of NaaS also aligns with evolving expectations of as-a-service models. Much like software-as-a-service (SaaS) and infrastructure-as-a-service (IaaS), organisations now demand more from their network solutions – expecting automation, agility, enhanced security and real time visibility. NaaS meets these demands, offering a robust yet simplified network solution that eliminates much of the complexity associated with traditional set-ups.

MOVE WITH THE TIMES

Traditional network management is often resource intensive, costly and inflexible. NaaS flips this model on its head, allowing organisations to dynamically scale their network capacity and services in response to shifting demands. Whether adapting to fluctuating workloads, evolving digital priorities or hybrid working models, NaaS provides businesses with the agility to pivot their networks as needed.

By adopting an OpEx model, organisations avoid the long-term

> 'NaaS is often misunderstood. A common myth is that it offers an instant one-click set-up, like ordering products online with Amazon. In reality, effective NaaS solutions go far beyond basic connectivity, providing advanced analytics, visibility and reporting capabilities to meet specific business needs.'

commitment of owning hardware, instead paying for services based on their usage. This not only reduces waste but also allows companies to allocate resources more efficiently, ensuring budgets are directed where they're needed most. Additionally, many NaaS providers include advanced features such as built-in monitoring, proactive threat detection and automated updates. This proactive approach helps minimise risk, reduce downtime and enhance business continuity, enabling companies to focus on growth without running into unexpected network issues or costly hardware investments.

NaaS also enables businesses to quickly respond to industry changes or unforeseen challenges such as sudden spikes in traffic, regulatory shifts or new technology requirements. Its scalability allows organisations to test new innovations,

onboard applications or expand to new locations without being constrained by existing infrastructure. This flexibility allows them to remain competitive and capitalise on opportunities as they arise. For industries reliant on agility, such as healthcare or finance, NaaS provides a pathway to future proof operations without overextending resources.

ADDRESSING MISCONCEPTIONS

Despite its advantages, NaaS is often misunderstood. A common myth is that it offers an instant one-click set-up, like ordering products online with Amazon. In reality, effective NaaS solutions go far beyond basic connectivity, providing advanced analytics, visibility and reporting capabilities to meet specific business needs. Companies evaluating NaaS must consider these wider capabilities to truly understand the value of a well-designed solution.

Another misconception is that NaaS requires little to no expertise. While it simplifies many aspects of network management, adopting NaaS still requires a strategic approach. Lessons from rushed cloud transformations have shown that inadequate preparation can lead to unforeseen costs and challenges. Similarly, businesses should approach NaaS incrementally, beginning with low priority workloads and expanding over time to avoid disruption and optimise the transition.

STRATEGIC DIRECTION

NaaS offers an opportunity to rethink networking in a way that aligns with the demands of a modern digital landscape – but success depends on a strategic approach. Organisations should start by evaluating their existing network

infrastructure, identifying challenges and ensuring that the adoption of NaaS is in line with their broader IT strategies.

Equally, NaaS providers must also continue to refine their offerings to make networks as intuitive as possible. With the right NaaS solutions in place, network management could soon move from a highly specialised field to one accessible by a broader IT audience, enabling organisations to meet demands with more confidence and agility.

MORE THAN MEETS THE EYE

NaaS is more than just a technological advancement, it represents a strategic shift in how networks are managed. By addressing challenges like cost, complexity and scalability, NaaS offers businesses the tools to operate with greater agility and resilience in an ever-changing digital landscape. For those ready to embrace this model, the benefits are significant – improved efficiency, enhanced visibility and a more responsive network infrastructure. With NaaS, organisations can focus on innovation and growth while maintaining a robust foundation for their digital operations. As this model continues to gain traction, it's poised to redefine the role of networking for modern organisations. ■

JUSTIN DAY

Justin Day is CEO and co-founder at Cloud Gateway. He has over 20 years' experience in IT, working almost exclusively in networks and security, and has extensive knowledge in cloud computing, the delivery of complex IT programmes and overhauling network architectures to streamline existing infrastructures to deliver significant benefits.

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