Inside_Networks

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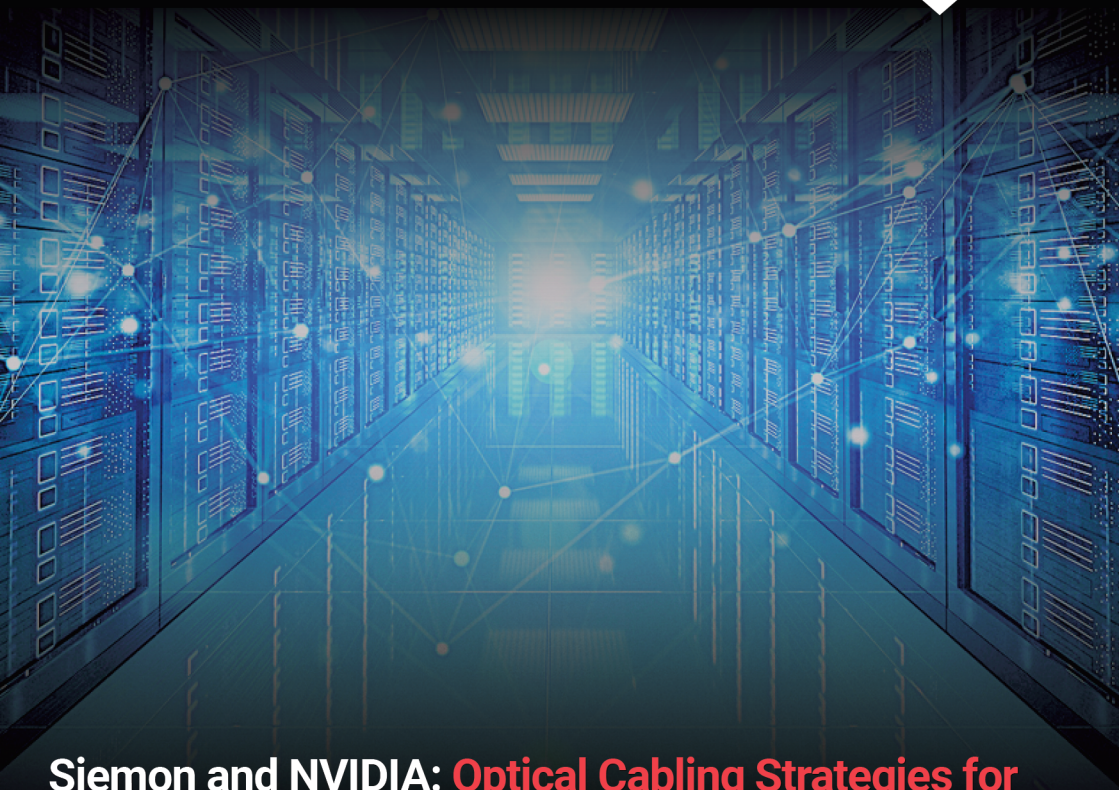

Siemon and NVIDIA: Optical Cabling Strategies for High-Performance 400/800G AI Deployments

As AI workloads and data center demands accelerate, deploying the right optical cabling strategies is critical for scalable, high-performance infrastructure. Watch Siemon and NVIDIA's on-demand TechTalk webinar where industry experts reveal the latest advancements and proven best practices for 400/800G deployments. Discover actionable insights to optimise your network, ensure compliance, and future-proof your AI initiatives.

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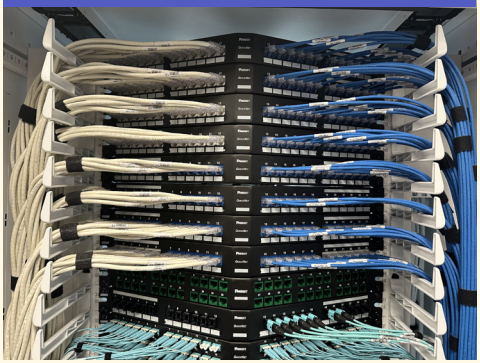

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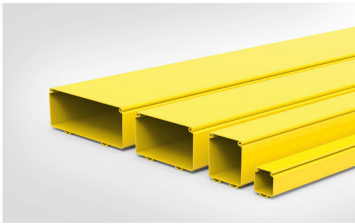

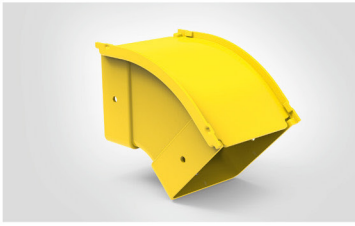

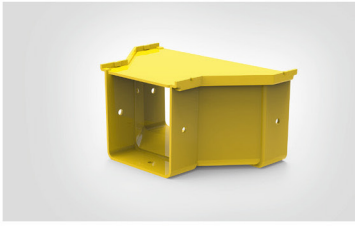

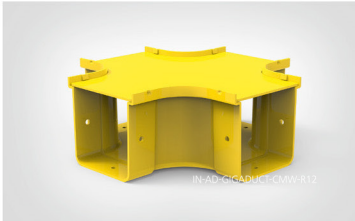

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As another year draws to a close, it's a good time to pause, reflect and set our sights on what lies ahead. If you're anything like me, 2025 will have gone in a flash and plans for 2026 will be well underway. I'd like to extend a special thank you to all our contributors from across the globe, whose expertise and dedication continue to shape Inside_Networks, and to you for choosing us as your trusted source for insight, analysis and commentary.

2025 was defined by the rapid acceleration of AI and the unprecedented rise in compute demand. This is putting immense pressure on existing data centres, as escalating rack power densities drive greater heat output, intensifying the challenges around energy efficiency and sustainability. At the same time, heightened public awareness of data centres' societal impact means the sector is facing more scrutiny than ever. To review the past year and look ahead to what 2026 may bring, this issue's Question Time gathers perspectives from experts across the industry.

We also take a deep dive into the world of copper cabling. Mike Boisseau of Siemon looks at how the real intelligence of modern buildings lies at their edge and why copper cabling systems remain the essential backbone enabling it all. Jonathan Dunbar of Leviton then goes on to outline the key considerations for achieving reliable network performance beyond the 100m limit defined by the standards, and Jan Honig of CommScope explains how it is possible to power data responsibly with 'greener' cables.

When it comes to the industry's unsung heroes, cable management and labelling are certainly amongst them and in this issue we have three fantastic articles on the subject. In the first, Michael Akinla of Panduit explains how effective cable management remains vital for achieving uptime, performance and scalability. He's followed Nick Edwards of HellermannTyton, who looks at optical fibre raceway systems and Jon Barker of CPI, who explains why smart cable management can help to future proof data centres.

Finally, on behalf of the Inside_Networks team I'd like to wish you and yours all the best for 2026!

Rob Shepherd
Editor

STL

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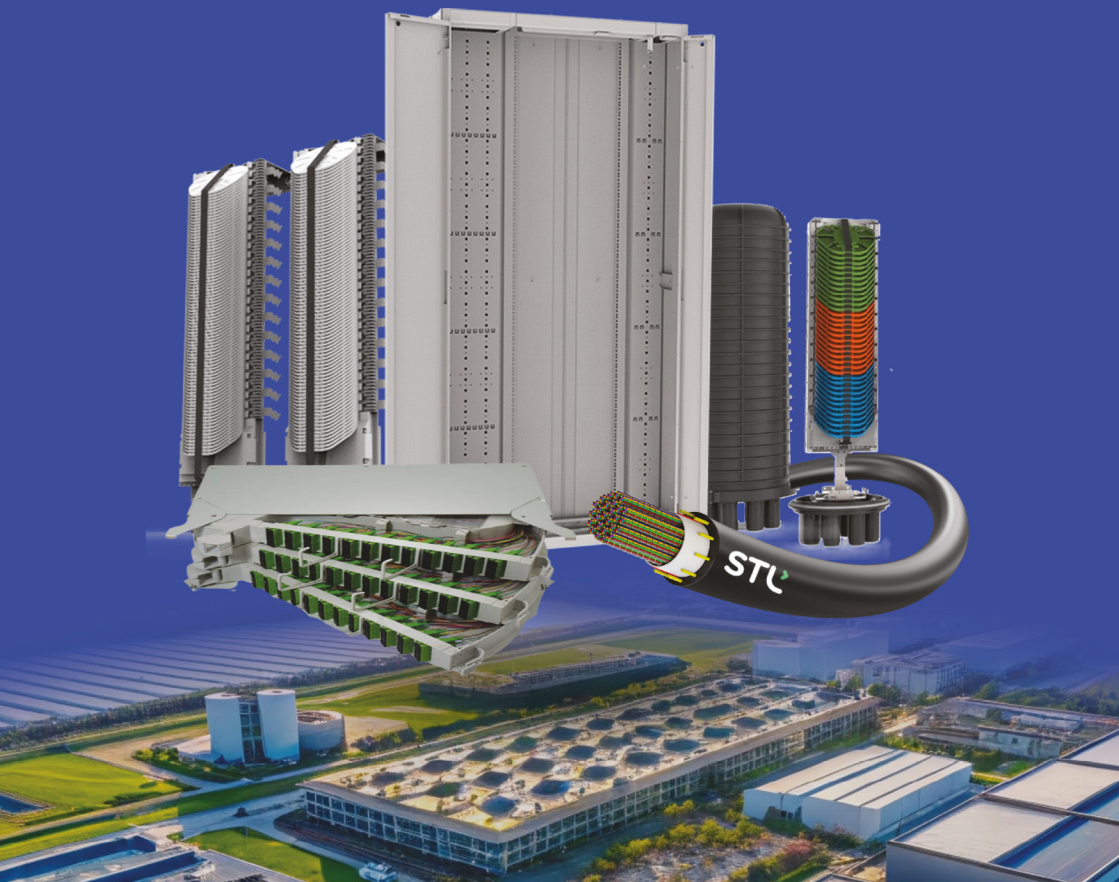


Scotland is in prime position to be a key growth market for data centre developers

Scotland's combination of renewable energy, available land and skilled talent is creating strong interest among developers assessing new large scale data centre projects, according to analysis by Lichfields. The study highlights how Scotland is well placed to capture a significant share of overall UK data centre growth, producing 113 per cent of its electricity consumption from renewables in 2022 and exporting surplus clean power to the grid.


Dan Evans

Lichfields' analysis references a previous site-shortlisting exercise led by Scottish Futures Trust, Crown Estate Scotland and Scottish Enterprise, which identified a range of potential locations including Aberdeen, Dundee, Fife and parts of the Highlands, with the right combination of renewable capacity, land availability and technical expertise.

Dan Evans, associate director at Lichfields, said, 'Scotland has an opportunity to position itself as a genuine alternative to traditional UK data centre clusters. It offers something few regions or countries can match – abundant low carbon energy, space for expansion and a strong engineering base. The combination of renewable generation, cool climate and established technical skills creates ideal conditions for sustainable data centre operations.'

UK's industrial midmarket is struggling to bridge digital skills gap

Research from Forterro has found that skills shortages and sluggish digital transformation are putting the UK's industrial midmarket at risk of falling behind its European peers. 49 per cent of UK manufacturers and wholesalers say the digital skills gap has directly impacted business growth or projects, while 34 per cent admit they lack confidence in finding recruits with the right digital expertise.


Thomas Knorr

The most significant gaps are in AI literacy (42 per cent), cybersecurity (41 per cent) and data analysis (40 per cent). These are precisely the capabilities needed to deliver on the industry's digital transformation goals.

'The digital skills gap is becoming the single biggest barrier to digital transformation in the UK's industrial midmarket,' said Thomas Knorr, vice president cloud transformation at Forterro. 'Most firms recognise the potential of AI and automation for efficiency gains and growth, but many don't have the people or infrastructure to make it work. The risk is a growing divide between businesses that modernise and those left behind.'

Energy agreement brings enhanced renewable transparency to nLighten's French data centre operations

nLighten has entered into a new renewable energy supply agreement covering its data centre locations across France. The innovative three-party arrangement marks a significant shift in how nLighten procures power in the French market.


Francesco Marasco

The arrangement involves Axpo, Switzerland's largest power producer and an independent power producer (IPP). Under the agreement, Axpo provides the standard power supply to nLighten's French facilities, while simultaneously taking responsibility for renewable generation from the IPP's wind portfolio, which is then assigned to nLighten. Unlike traditional supply contracts, the agreement enables nLighten to monitor its renewable energy consumption with exceptional granularity, tracking generation on an hourly basis from specific wind assets.

'This partnership represents an opportunity to fundamentally change how we approach energy procurement in France,' said Francesco Marasco, vice president of energy operations and sustainability at nLighten. 'While France's grid already benefits from significant carbon free nuclear generation, this agreement puts us in the driving seat in terms of knowing exactly where our renewable energy comes from.'

Less than a quarter of organisations are turning AI data into business action

Research from Differentis, in collaboration with 4th-IR and LAC[2], has revealed that despite the sharp acceleration of AI adoption across UK organisations, most leaders remain uncertain about how to scale AI effectively and turn insights into measurable business impact.

72 per cent of organisations admit to using AI for insight generation, but fewer than 25 per cent are converting those insights into measurable business action. 45 per cent of surveyed organisations admit that AI models are delivering outputs that teams don't understand or trust. Alongside this, only 18 per cent have an established feedback loop between AI recommendations and business performance.


Dave King

Dave King, managing director at Differentis, said, 'AI is no longer about proof of concept. It's about proof of understanding. The research shows that while technology is advancing at pace, the challenge now lies with people, confidence and meaning. We've reached a point where most organisations can generate insights, but far fewer know how to trust or act on them. The real opportunity isn't in building faster models, it's in creating the conditions for intelligent adoption.'

89 per cent of businesses adopt AI workloads but fail to manage exposures


Liat Hayun

Research by Tenable, developed in collaboration with the Cloud Security Alliance, has found that 89 per cent of organisations are either running (55 per cent) or piloting (34 per cent) AI workloads. Yet 34 per cent have already experienced an AI-related breach, driven by exploited vulnerabilities, model flaws and insider threats.

The root cause of the breaches stem from foundational security failures, not complex model manipulation. The top causes were exploited software vulnerabilities (21 per cent), AI model flaws (19 per cent) and insider threats (18 per cent). By contrast, organisations reported being most concerned about novel, futuristic risks such as model manipulation (18 per cent) or unauthorised AI models (15 per cent), showing a clear disconnect between real world AI exposures and perceived threats.

'The data shows us that AI breaches are already here,' said Liat Hayun, vice president of product and research at Tenable. 'The real risks come from familiar exposures – identity, misconfigurations and vulnerabilities – not science fiction scenarios. Without addressing these fundamentals, AI environments will remain exposed.'

SMEs urged not to forget about continuity with business resilience

Despite increasing digital risks, many small to medium sized enterprises (SMEs) continue to place their trust in data back-ups as the cornerstone of business continuity. Yet recent cloud outages and cyberattacks have revealed the flaw in this approach, highlighting the urgent need for more robust continuity planning and secure cloud infrastructure.


Mark Appleton

When it comes to a random software failure or oversight, or in the event of a malicious cyber event, the vulnerability of business operations quickly comes on display when continuity strategies solely rely on data back-ups. 'Back-ups are essential, but they're no substitute for a wider continuity plan,' warned Mark Appleton, group lead vendor ecosystem development at Also Group.

He added, 'True resilience means enacting systems in place that can keep your business running, even when something goes wrong. Failover capabilities and automated recovery options are currently separating reactive recovery from proactive continuity. To the businesses still relying on just manual restoration from back-ups during a crisis, you're already many steps behind.'

FDM Group sees 34 per cent jump in returner applications over the past year amid ageism in the workplace

Applications to FDM Group's Returners Programme have surged by over a third in the past year, as senior professionals over 50 increasingly seek to re-enter the workforce. Despite this demand, persistent ageism bias continues to block opportunities for older workers.

Currently, around 750,000 individuals aged 50-64 are either actively seeking work or are inactive but willing to work, according to government data. Senior professionals who had taken career breaks for personal reasons are now looking to re-enter the workforce to regain financial stability and long-term career growth. Tech roles stand out due to their high demand, competitive salaries and opportunities for professional development, while senior professionals increasingly see tech as an industry where their existing skills can be applied effectively.


Rod Flavell

Rod Flavell, CEO at FDM Group, commented, 'The scale of untapped senior talent is detrimental to UK growth, leaving senior professionals with extended spells out of the labour market and skills gaps that are hard to bridge due to rapidly evolving technology and working norms. From what we're seeing in the market, these experienced staff are significantly underutilised, especially during a period where businesses are crying out for skills in fast growing areas such as AI.'

NEWS IN BRIEF

Salute has acquired Northshore, whose technology and proprietary platform, Seastack, is a significant breakthrough in the use of AI and automation to advance data centre sustainability and optimise facility operations. Salute will leverage Seastack's technology and Northshore's sustainability expertise to enhance each stage of Salute's data centre lifecycle services.

EPI has joined the TÜV Nord Group following the successful completion of its acquisition. This marks a significant milestone in EPI's 38-year journey, strengthening its position to serve customers while continuing to operate independently under the EPI brand.

Next generation 6G networks will require up to three times more mid-band spectrum than is typically available today to keep pace with surging demand for data, AI-powered services and advanced digital applications, according to analysis published by the GSMA.

CIQ has opened a new office in the Gulf. With Gartner estimating that global AI spending will reach $1.5tn this year, and at least $126bn of that focused on AI infrastructure software, this move reflects a broader market trend that is offering countless opportunities for forward thinking governments.

True AI readiness starts w

Hi Rob

There's no shortage of noise when it comes to so called AI ready data. Over the past year, you can't attend a conference or read a company blog (including mine) without hearing that phrase. Yet, for all the talk, very few businesses seem to have a clear definition of it. Most assume that if their data is clean and accurate, it's ready for AI. But this alone doesn't make data immediately fit for purpose.

At Semarchy, we recently conducted an AI readiness survey, and the results tell a sobering story. A staggering 98 per cent of businesses told us they had hit serious data quality roadblocks when embarking on AI initiatives. These are not small teething problems, they are significant barriers undermining the trust organisations need before making high stakes, AI driven decisions. In short, it's time to go deeper.

True AI readiness is about more than removing 'garbage' from your inputs. It's about establishing a culture and infrastructure where data is trusted, and where every record, source and transformation is traceable, explainable and compliant. Clean data may help your AI run, but trustworthy data determines whether you can rely on what it tells you.

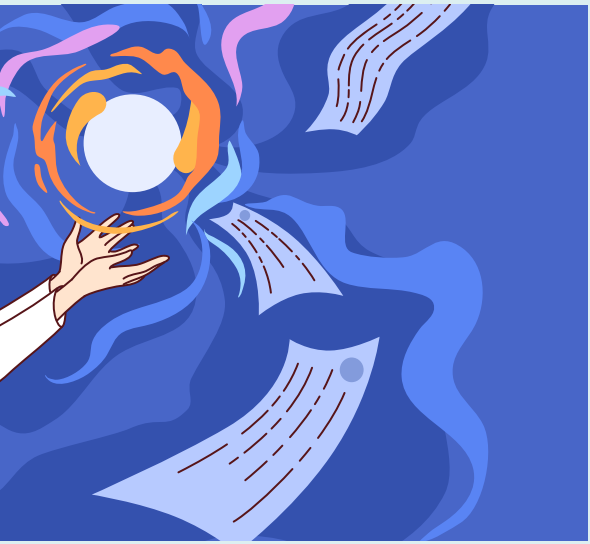
First, let's talk about lineage. In the rush to adopt AI, many teams pull information from multiple systems, often without a clear record of origin. But if you don't know where data has come from, or how it has changed on its way to your AI models, you can't guarantee its integrity. Data lineage is more than a compliance tick box – it's the foundation of accountability.

Next is documentation, semantics and context. For data to be AI ready, it needs not just documentation that explains how and why it exists, but a semantic model that defines the meaning and relationships of its elements.

A well-structured semantic layer provides the context that enables GenAI systems to interpret data more accurately and draw more powerful inferences. Without that shared understanding, teams waste time reconciling ambiguous fields or deciphering outdated definitions. Solid metadata and semantic management, kept consistent and up to date, gives everyone shared understanding across departments.

Then comes traceability and explainability. AI outputs are only as dependable as the data that fuels them. When an algorithm produces an unexpected recommendation, businesses must be able to trace that decision back through the data and processes that produced it. Explainable AI starts with

with trustworthy data



explainable data.

Fitness for use is equally critical. It's not enough that data is accurate – it must be relevant and appropriate for the intended AI task. Data that's perfect for analysis in one use case could introduce bias or skew results in another. Assessing fitness for use forces organisations to think beyond generic quality metrics and focus on how data supports the specific business outcomes AI is meant to achieve.

Finally, privacy by design must be built in, not bolted on after the model is trained. Organisations are rightly cautious about sharing sensitive information, yet this can stifle innovation if properly governed frameworks aren't in place. Embedding data privacy requirements into pipelines and workflows helps balance responsibility with agility.

Modern DataOps practices can turn these principles into daily habits. Automated quality checks, continuous integration pipelines and managed data products all ensure that what flows into an AI system is current, consistent and compliant – and enriched with the right semantic structure.

By embedding semantic models into DataOps workflows, teams can maintain not just data quality but clarity of meaning across systems. Rather than relying on one off cleansing projects, DataOps creates an ongoing feedback loop, keeping data AI ready no matter how the business evolves.

Ultimately, building confidence in AI begins with building confidence in data. Only when it meets these requirements can organisations embrace AI as a trusted partner in decision making, not just an experiment. So, the next time you hear the phrase AI ready data, don't stop at 'clean'. Instead ask if it is documented, traceable, explainable, compliant and relevant? Because that is what separates AI talk from AI results.

Craig Gravina
Semarchy

Editor's comment

AI-ready data sounds straightforward, but it's far more complex than it appears. Craig makes some excellent points about what should be considered but the stand-out for me is data provenance and lineage, which are essential for ensuring transparency, accountability and reliability. Without clear visibility into the sources, transformations and handling of data, biases or errors can easily go unnoticed, undermining the validity of model outcomes.

GigaDuct Fibre Raceway: Made in E
Built for speed. Designed for data c

HellermannTyton's GigaDuct Fibre Raceway System meets the demands of high density, high performance environments. Whether you're a data centre manager, IT decision maker or network engineer, understanding the role of optical fibre raceways and choosing the right one is essential for future proofing your infrastructure.

In today's data driven world, the infrastructure behind our digital experiences is evolving rapidly. From cloud computing to AI workloads, data centres are under pressure to deliver faster, more reliable performance and that starts with how fibre is managed. One often overlooked but critical component is the fibre raceway system – the structured pathway that protects and organises fibre cabling.

Why GigaDuct Fibre Raceway matters more than ever

Fibre optic cabling is the lifeblood of modern data centres. But without proper management it can become a source of risk – from signal degradation and physical damage to costly downtime during maintenance. A well-designed raceway system:

- **Protects cable integrity** by maintaining bend radius and shielding against environmental hazards.
- **Improves airflow and cooling efficiency,** reducing energy costs.
- **Simplifies scalability,** making it easier to add or reroute cables as needs evolve.
- **Supports compliance** with fire safety and installation standards.

As data centres grow in complexity, the need for modular, adaptable and robust raceway systems becomes non-negotiable.

GigaDuct – designed for speed, simplicity and strength

HellermannTyton's GigaDuct Fibre Raceway System stands out for its true tool-free coupler – a major differentiator in a market where many 'tool-free' claims still require some manual adjustment, clips, nuts, bolts or specialist tools. GigaDuct's tool-free coupler enables genuine push and grip assembly, making it the fastest fibre raceway

Britain. centres.

HellermannTyton

system to install on the market today. Its modular design, wide range of transitions, accessories and comprehensive mounting options support custom routing in both overhead and underfloor installations. Key benefits include:

- **Rapid deployment** with no tools required for coupling or creating cable drop off points.
- **Fire retardant materials** that meet stringent safety standards.
- **Compatibility** with other HellermannTyton fibre systems for seamless integration, such as the high-density RapidNet Ultra solution.

Whether you're upgrading an existing facility or building from the ground-up, the GigaDuct Fibre Raceway System offers the flexibility and reliability needed to support mission critical operations.

End-to-end support that goes beyond the product

GigaDuct is backed by HellermannTyton's renowned comprehensive support service that ensures success from planning stage to post-commissioning. HellermannTyton provides:

- **Pre-build site audits and configuration planning.**
- **Person to person GigaDuct design consultation and creation.**
- **Installation training and on-site support.**
- **Lifetime technical support after commissioning.**

Our dynamic, hands-on approach ensures that every deployment is optimised for performance, compliance and long-term scalability.

Sustainability, scalability and speed of supply

GigaDuct is the only fibre raceway system designed and manufactured in the UK, ensuring consistent quality and fast availability. Through HellermanTyton's trusted distribution network, it's available with the fastest lead times in the market, helping projects stay on schedule and within budget.

GigaDuct is produced from flame retardant acrylonitrile butadiene styrene (ABS), selected for its strength, impact resistance and thermal stability. GigaDuct components are certified to meet the UL94 V0 flammability rating, meaning they self-extinguish within 10 seconds without dripping flaming particles, and comply with TIA-942-A standards for telecommunications infrastructure in data centres. Additionally, the system meets EN 50085-2-1 for cable management systems, ensuring European fire performance and installation compliance.

Its modular architecture allows for incremental upgrades without full system overhauls, reducing waste and enabling agile scaling. Clean routing and bend radius control contribute to energy efficient airflow, helping facilities maintain optimal cooling and reduce their carbon footprint.

Ready to upgrade your fibre management?

Whether you're planning a new deployment or optimising an existing set-up, the GigaDuct Fibre Raceway System offers a smarter, safer and more scalable way to manage fibre. With proven performance, unmatched installation speed and lifetime support, it's the choice of professionals who refuse to compromise on service, quality and reliability.

CLICK HERE to contact our team to discuss your requirements, obtain samples and request a demonstration.

CLICK HERE to explore the GigaDuct Fibre Raceway System brochure.

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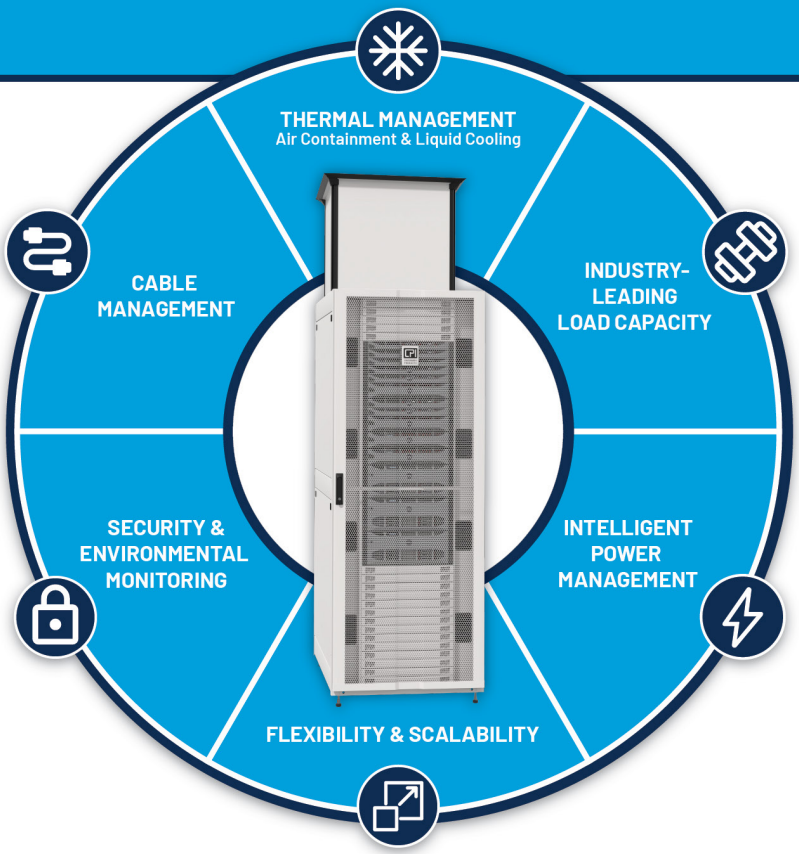

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Onwards and upwards

As 2025 draws to a close, it's a good time to reflect upon the events of the last 12 months. Inside_Networks has assembled a panel of industry experts to pick their highlights and suggest what 2026 might have in store

2025 has once again been defined by the rapid rise and relentless influence of AI, as it reshapes the network infrastructure landscape. This evolution is forcing the data centre industry to confront fundamental questions about how facilities are powered, cooled and designed for the future. The enormous energy appetite of AI has thrust power sourcing and sustainability into sharp focus.

As AI models grow ever more complex, they demand unprecedented levels of computational power, driving a surge in the development and deployment of advanced server and graphics processing unit (GPU) architectures. At the same time, the thermal challenges created by AI workloads are testing the limits of conventional air cooling systems. With rack densities soaring, operators are increasingly turning to liquid cooling technologies that promise superior heat dissipation, higher energy efficiency and greater operational resilience.

With edge, quantum networking, the ongoing skills shortage, microgrids and emerging solutions such as small modular nuclear reactors also making headlines, Inside_Networks has assembled a panel of experts to discuss the highlights of 2025 and predict the big talking points of 2026.

PETER THICKETT

DIRECTOR PRODUCT MANAGEMENT (DATA CENTRES) AT SIEMON

Over the past 12 months we've seen AI-driven workloads and GPU architectures continue to scale rapidly, bringing optical fibre density, loss performance and installation precision to the forefront of network design. Across hyperscale, neocloud and enterprise environments, I'm seeing a stronger focus on flexibility, ensuring that today's infrastructure can evolve for tomorrow's higher speed applications without costly reconfiguration.

In 2026 I expect that shift to become more visible as the first 1.6Tb/s-ready deployments roll-out. These early implementations will push channel design, connector performance and airflow management to new limits, particularly as AI fabrics demand repeatable, high density connectivity at the rack level.

We're seeing growing adoption of Base-16 MPO along with very small form factor (VSFF) connectors. VSFF options deliver higher port density, providing the flexibility of a structured cabling deployment without sacrificing valuable rack space. At the same time, installation quality and lifecycle performance are becoming stronger areas of focus.

Rising density and power requirements are driving a closer link between energy efficiency and sustainability. In the UK, the major investment in AI data centre projects reflects both strategic location and renewable potential.

There's ongoing discussion about whether curtailed wind generation could be better utilised to support future demand. The Nordics remain a preferred destination due to hydropower and natural cooling efficiencies, while markets such as Ireland and Benelux grapple with grid capacity constraints. I think 2026 will bring a sharper focus on regional balance – locating capacity where power and performance can coexist sustainably.

Ultimately, 2026 will be about execution. The industry is shifting from planning to performance, deploying the next wave of high speed networks with an eye on precision, efficiency and environmental responsibility.

Efficiency and flexibility at the design stage, from energy and material use to network topology, will be key to achieving sustainability goals while also future proofing and extending the life of physical layer investments. With Scope 3 reporting placing greater emphasis on supply chain transparency, organisations will look closely at the embodied impact of the materials and components they specify. Across the industry, there's growing emphasis on lifecycle and circular design principles, influencing how networks are built, maintained and upgraded for longevity.

'ULTIMATELY, 2026 WILL BE ABOUT EXECUTION. THE INDUSTRY IS SHIFTING FROM PLANNING TO PERFORMANCE, DEPLOYING THE NEXT WAVE OF HIGH SPEED NETWORKS WITH AN EYE ON PRECISION, EFFICIENCY AND ENVIRONMENTAL RESPONSIBILITY.'

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JAMES HART
CEO AT BCS

The past year has seen rapid change across Europe's enterprise and data centre infrastructure sectors, driven by planning reform, power constraints and tighter sustainability rules.

In the UK, data centres can now opt into the Nationally Significant Infrastructure Project (NSIP) regime, streamlining planning through a clearer Development Consent Order (DCO) route, though grid capacity remains the bigger issue. The government also launched AI Growth Zones, linking permits to available power, which is a key step for AI-driven capacity planning.

Across the European Union (EU), revised Energy Efficiency Directive (EED) rules now mandate key performance indicator (KPI) disclosure for facilities over 1MW, with a broader Data Centre Energy Efficiency Package expected in 2026. France has aligned national law with the EED, while Denmark improved heat reuse economics by scrapping its surplus heat price cap.

Despite record European build-out in 2025, power access remains the ultimate constraint. Meanwhile, hyperscalers are driving clean power procurement, especially in Spain. 2026 will test how effectively Europe's data centre industry can balance expansion with infrastructure and policy limits.

Permitting and certainty will dominate discussion. The UK's NSIP regime and national frameworks in France, Ireland and the Netherlands promise faster planning but real gains will depend on grid access and local authority support. Expect more creative grid strategies, phased energisation, private wires, on-site generation and 24/7 carbon matched power purchase agreements (PPAs), alongside renewed focus on secondary markets where capacity exists.

Embodied carbon and modular construction are rising priorities as clients prepare for EU carbon disclosure rules. Meanwhile, supply chain discipline, securing transformers, switchgear and chillers early, will define delivery timelines.

Finally, community acceptance is emerging as a project risk, with new conditions on biodiversity, design and heat network integration. In short, 2026 will reward developers who secure power, plan sustainably and prove their licence to operate.

'2026 WILL TEST HOW EFFECTIVELY EUROPE'S DATA CENTRE INDUSTRY CAN BALANCE EXPANSION WITH INFRASTRUCTURE AND POLICY LIMITS.'

ANDREW STEVENS
CEO AT RS ADVISORY SERVICES

Progression across the digital infrastructure industry continues but for me it isn't just about technology, it's about people. It's about skills, experience and how we're responding to a challenge many of us saw coming a decade ago.

10 years ago, I said the industry's biggest risk wasn't technology, it was talent. Even then cracks in recruitment were showing and now they're impossible to ignore. But we've made things harder for ourselves, with job cuts in the name of 'AI efficiency'. The irony is hard to miss – AI still needs infrastructure and infrastructure still needs people.

With demand for data centre services set to triple by 2030, the need for skilled talent isn't going away. Competition for the right people has never been tougher.

The skills shortage spans every level of expertise, from mechanical and thermal engineering to electrical specialists for efficient power distribution. While not everyone needs to be an AI developer, a fundamental understanding of AI and machine learning is essential for most operational roles. This AI-fuelled acceleration means teams need to evolve faster and success will rely on people who are curious, adaptable, and open to ongoing learning and constant change.

The industry would benefit from embedding a long-term commitment to making a generational change in how we attract new talent. Initiatives such as the University Technical College's (UTC) Digital Futures programme are exactly what's needed. Short-term fixes just don't work. We need to learn from past mistakes, as the skills landscape is changing faster than ever and practical, hands-on skills will be in higher demand than ever before.

Apprenticeships are one of 2025's most positive shifts. Structured pathways from entry Level 2 to degree and master's equivalents (Level 6-7) are finally being embraced. They're a win-win – an earn while you learn, debt free route for individuals, and a way for employers to build future ready talent while addressing gaps in ageing teams. Together with industry led education initiatives, they represent the joined-up thinking that can secure workforces for the long-term.

A focus for 2026 will be connecting the right future ready talent to evolving opportunities. The talent exists and we just need to change how we find, educate and nurture it.

'10 YEARS AGO, I SAID THE INDUSTRY'S BIGGEST RISK WASN'T TECHNOLOGY, IT WAS TALENT. EVEN THEN CRACKS IN RECRUITMENT WERE SHOWING AND NOW THEY'RE IMPOSSIBLE TO IGNORE.'

ED BISSELL

SALES DIRECTOR AT STELLIUM DATACENTERS

2025 has seen significant growth and ongoing transformation of data centre optical fibre network infrastructure in the UK. This will continue unabated next year.

High speed fibre connectivity is critical in addressing the acceleration in demand from the enterprise, research/academe and public sectors for high performance computing and, as part of this, AI. This is underscored further by the continuing shift by enterprise users towards hybrid and multi-cloud cloud solutions.

The UK government's desire to scale data centre capacity nationwide was evidenced in 2025 by the first AI Growth Zone announcements. This included Wales and northeastern England, where Stellium is located and which will be the location of a major facility planned in Blythe, Northumbria.

Additionally, there has been a continuing trend towards regional data centre locations, away from London and southeast, to areas where grid power is more abundant. This trend is being reinforced by a rise in edge computing and so-called edge data centres for bringing compute closer to end users to reduce latency.

There is going to be a laser focus in 2026 on where data lives and resides, both in the world of data centres and networking. Digital sovereignty requires that the nation retains control, security and resilience over the digital infrastructure that underpins the economy and public services. As networks become more cloud distributed, data driven and dependent on foreign technology providers, the UK must safeguard its ability to manage and protect its own digital assets.

These factors point to the need for upgraded and secure network infrastructure, in all the right places, to handle increasing bandwidth requirements. Modern data centres need to be in proximity to abundant and diverse carrier fibre connectivity, as quickly and cost effectively as possible. Initiatives such as those by Neos Networks with Network Rail to leverage our railways for new fibre routes is a good example of what's to come.

Finally, on the subject of subsea cables connecting the UK to Europe and US, we should expect to see increased security measures. This is evidenced by the latest Russian spy ship incursion into UK waters in November.

'AS NETWORKS BECOME MORE CLOUD DISTRIBUTED, DATA DRIVEN AND DEPENDENT ON FOREIGN TECHNOLOGY PROVIDERS, THE UK MUST SAFEGUARD ITS ABILITY TO MANAGE AND PROTECT ITS OWN DIGITAL ASSETS.'

Announcing Our Latest White Paper:

Meshing in AI and Hyperscale Data Centers

Explore the fundamentals of mesh network architectures and look ahead to the coming 3-to-5 years. Understand how meshing delivers the bandwidth, predictability, and resilience needed to meet the evolving demands of high-performance AI data center environments.

For data center professionals driving long-term growth across 400G, 800G, and 1.6T architectures. Gain essential insights into scalable network design for AI workloads.

Read the white paper:
Meshing in AI and Hyperscale Data Centers

MARK ACTON

HEAD OF TECHNICAL DUE DILIGENCE AT FUTURE-TECH

The most significant events during 2025 have been related to the boom in the sector related to AI infrastructure deployments. The level of investment in this area has risen steadily over the last 12 months, with significantly less activity in the early part of the year rising sharply to the current peak.

This has been driven by large scale AI GPU based infrastructure deployment plans. This is in addition to a desire to achieve first mover advantage, as well as there being a sharp rise in the preference for both sovereign AI and sovereign cloud.

This has all combined to result in a change of focus in terms of site selection criteria. Previously, the availability of power was the was the key criteria for data centre site selection, but the capacity available could be progressively developed over time. During 2025 this has changed to immediate requirements for power. Power now is the mantra, rather than confirmed power in the future.

As a result, site selection has evolved to highlight those sites that have significant power capacity immediately available with the capacity requirements increasing to 50MVA or more. This has led to an interest in former industrial locations with existing under-utilised power infrastructure already available.

The interest in immediate power availability has also been exacerbated by the concern shown by grid operators in multiple countries about the amount of power being demanded by data centre operators. This is alongside their concerns about both the generation capacity and the ability of the transmission network to cope with the additional loads and demands predicted. Many European countries are now evaluating their provisioning process and investment plans based on predicted future data centre demand.

This is likely to continue to be the case well into 2026. The immediacy of large capacity power availability will be the driver for significant elements of both investment and growth within the data centre sector for the next few months.

‘PREVIOUSLY, THE AVAILABILITY OF POWER WAS THE WAS THE KEY CRITERIA FOR DATA CENTRE SITE SELECTION, BUT THE CAPACITY AVAILABLE COULD BE PROGRESSIVELY DEVELOPED OVER TIME. DURING 2025 THIS HAS CHANGED TO IMMEDIATE REQUIREMENTS FOR POWER. POWER NOW IS THE MANTRA, RATHER THAN CONFIRMED POWER IN THE FUTURE.’

TOM BOSWELL

HEAD OF PRE-SALES FOR EUROPE AT STL - STERLITE TECHNOLOGIES

The last 12 months has seen a rapid shift towards the use of AI, with a multifold increase in associated processing workloads. This has resulted in the rise of huge hyperscale data centres housing thousands of racks and hundreds of thousands of servers. We've seen thought leaders, global CEOs and even presidents and prime ministers discuss the importance of investing in AI. Hyperscale data centres are here now, and they will only get bigger and more numerous as we move through 2026.

The use of the GPU, with its unmatched parallel processing capability, as the principal compute processor within the data centre, in conjunction with a spine and leaf network design, has necessitated the evolution of data centre architecture. It has also led to a very rapid and significant increase in optical fibre density per rack.

The spine and leaf architecture offers low and predictable latency, which is critical for the quality of service offered by hyperscale data centre operators. Capacity can easily be added by inserting more leaf switches for additional endpoints or more spine switches for increased bandwidth without costly re-architecting.

Resilience is improved by the mesh connection between the leaf and spine layers – every leaf switch is directly connected to every spine switch. This provides built-in redundancy and high availability. Overall, this network design requires more fibre cabling and a very high number of fibre connections per rack because of the high server density and the use of high speed (100Gb/s, 400Gb/s and 800Gb/s) optical devices.

The wholesale adoption of optical fibre technology within the data centre is happening now. Fibre infrastructure elements are getting smaller, with more fibres per given unit area, and optical budgets are becoming tighter.

Moving forward, expect the demand for high fibre count cable and associated connectivity to dramatically increase for hyperscale data centres. But with manufacturers currently nearing maximum production capacity, the timely supply of structured cabling infrastructure is likely to become a rate determining step in the build-out of hyperscale data centres. As such, hyperscale customers will be actively seeking guaranteed supply for 2026 and the years beyond.

'WITH MANUFACTURERS CURRENTLY NEARING MAXIMUM PRODUCTION CAPACITY, THE TIMELY SUPPLY OF STRUCTURED CABLING INFRASTRUCTURE IS LIKELY TO BECOME A RATE DETERMINING STEP IN THE BUILD-OUT OF HYPERSCALE DATA CENTRES.'

NICK TAYLOR
TECHNICAL DIRECTOR AT NETWORKS CENTRE

There has been a dramatic divergence between the steadfast stability of the enterprise office and the explosive, technology driven evolution of the data centre. While the enterprise office remains consistent, the data centre sector is undergoing a profound transformation driven by the rise of AI.

In the enterprise office space, there has been minimal change in passive network infrastructure – traditional network cabling, racks and containment have remained largely consistent, an operational stability highly likely to continue through 2026. This environment contrasts sharply with the frantic pace of data centre innovation.

The most significant event defining the data centre sector is the investment and deployment driven by hyperscalers and AI workloads. AI is fuelling unprecedented demand for compute capacity, projected to significantly increase data centre electricity consumption globally. Hyperscalers are increasing their percentage of overall data centre capacity, leading to a huge demand for power and cooling.

While deployments using air cooling with aisle containment will continue to increase in number, their percentage of new deployments will drop as liquid cooling technologies such as rear door heat exchangers (RDHx), direct to chip and immersion technologies all gain market share. Except for immersion liquid cooling, IT equipment still requires supplementary air cooling, leading to complex design challenges for best spatial layout, especially for supporting overhead pipework alongside existing dense infrastructure like power busbars and network cabling.

In terms of networking within the hyperscale and AI space, there is a continued demand for multimode and singlemode parallel optic transceivers. Furthermore, there is an expected increase in market share for VSFF connectors as more structured cabling is utilised in high density AI deployments.

The key talking points in 2026 will be:

• Sustainability and energy management. The exponential growth of AI-driven power consumption will keep sustainable data centre operation at the forefront, including calls for increased use of renewable energy procurement and better management of data centre load.

• Widespread liquid cooling adoption. The challenges of deploying hybrid cooling solutions will dominate infrastructure discussions.

• Standardisation and density in AI networking. The move from custom point to point connections to more structured cabling using VSFF connectors in AI clusters will necessitate greater standardisation to support ever-increasing bandwidth and density requirements.

‘THERE HAS BEEN A DRAMATIC DIVERGENCE BETWEEN THE STEADFAST STABILITY OF THE ENTERPRISE OFFICE AND THE EXPLOSIVE, TECHNOLOGY DRIVEN EVOLUTION OF THE DATA CENTRE.’

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Staying power

Mike Boisseau of Siemon looks at how the real intelligence of modern buildings lies at the edge and why copper cabling systems remain the essential backbone enabling it all

As smart buildings evolve into intelligent platforms for data, automation and sustainability, the spotlight often falls on software, analytics and optical fibre backbones. These elements are undoubtedly critical, but they only tell part of the story. The real intelligence of a building resides at its edge – in the connected devices that enable spaces to sense, respond and adapt in real-time. And at that edge, copper remains the indispensable foundation.

MORE OPPORTUNITIES

For years, many in our industry have speculated about the demise of copper. We heard it when wireless started to take off and we heard it again as fibre extended deeper into networks. Two decades later, copper is not only still here, it's also thriving. The simple reason is that as the number and diversity of connected devices grow, so too do the opportunities for copper infrastructure.

In traditional office environments, copper connectivity was largely concentrated at the desk. But in modern smart buildings, the conversation has shifted dramatically. Today, we're deploying to sensors, cameras, access control points, lighting fixtures, wireless access points and environmental systems – all of which require both power and data. Every new application at the edge represents another potential copper connection.

This is where copper shines. It is a well understood, reliable medium that delivers both performance and power. A single cable run from a power over Ethernet (PoE) enabled switch can cost effectively deliver data and power to a device without the need for media converters or separate electrical infrastructure. It's robust, adaptable to indoor and outdoor spaces, and remains a practical and scalable solution across commercial, industrial and campus environments.

SMART BUILDING ECOSYSTEM

The diversity of applications driving copper demand today is striking. Security and access control are obvious examples – surveillance cameras, card readers and occupancy sensors all rely on copper networks. Lighting systems are another major area, encompassing not just luminaires but also occupancy and motion sensors that support energy efficiency strategies. Environmental systems including temperature, humidity and air quality sensors are increasingly deployed throughout buildings to support healthier and more sustainable environments.

And then there's wireless, which remains the anchor application

for copper in smart buildings. With the rise of Wi-Fi 6, followed quickly by Wi-Fi 6E and now Wi-Fi 7, high performance cabling to support dense wireless access point deployments is essential. Category 6A shielded cabling has become the de facto standard for delivering 10Gb/s speeds and reliable PoE to these devices. Shielded systems offer superior performance and protection against interference, making them particularly well suited to modern, device dense smart building environments where reliability and uptime are critical.

Copper, at its core, has always been about connecting people. That hasn't changed – what's changed is how and where people connect. We're no longer tethered to a single port at a desk. Instead, connectivity follows us through buildings, enabling seamless experiences in offices, hospitals, campuses and public spaces. From an infrastructure perspective, this is an enormous shift. The network is no longer concentrated in fixed work areas. It's everywhere.

TODAY AND TOMORROW

This evolution requires us to think differently about network design. The days of simply 'following the standard' and calling it done are over. Device density is increasing, power levels are rising and applications are diversifying. These dynamics are pushing copper networks beyond their traditional limits and driving demand for more engineered, application specific solutions.

We're seeing growing interest in extending copper reach beyond 100m in certain environments. This isn't a one size fits all scenario, it requires a detailed understanding of the building, its environmental characteristics and the applications being supported. In some cases this might involve larger gauge cables, shielded systems or specific installation techniques to achieve the necessary performance. It's about designing with intent, not just for today's applications but for what might come five, 10 or even 20 years down the line.

‘Looking 5-10 years ahead, copper won’t be fading into the background – quite the opposite. While fibre will continue to dominate backbones, copper will remain critical at the edge.’

And that long-term view matters. Smart buildings are designed to last decades, so the cabling infrastructure should too. Decisions made during the design phase have lasting implications for energy efficiency, operational flexibility and future scalability. Adding extra headroom in performance, and optimising flexibility and scalability to allow for future changes, can make a meaningful difference over the life of a building.

IN THE ZONE

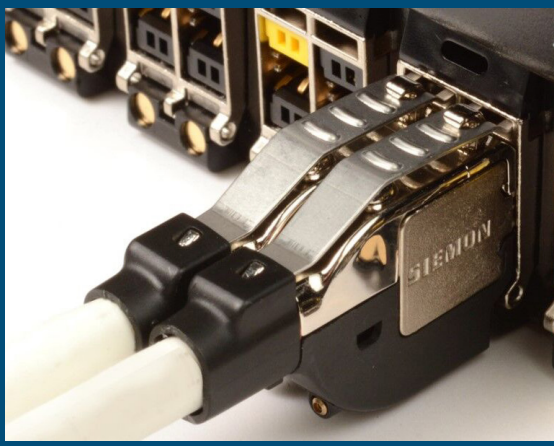
One design strategy that has become increasingly important is zone cabling. Rather than pulling every cable as a home run back to the telecommunications room, zone cabling involves installing intermediate consolidation points that make it easier to reconfigure networks as buildings evolve.

This approach offers significant advantages. From a practical perspective, it allows for easier moves, adds and changes (MACs) when devices are relocated or new applications added. From a sustainability standpoint, it avoids overfilling trays and conduits with redundant cable, helping to keep infrastructure cleaner and more manageable. And strategically, it provides the flexibility that smart buildings need to adapt over time without costly rip and replace projects.

Zone cabling is one of the most effective ways to future proof smart building infrastructure. It provides the flexibility to support unknown future applications while maintaining efficiency and sustainability – both of which are increasingly critical to building operations.

INTELLIGENT OPERATION

Copper infrastructure plays a direct role in supporting energy efficiency and intelligent building operation. When every light, sensor and environmental control is



connected, it becomes possible to manage spaces dynamically.

Consider a scenario where one wing of a building is unoccupied for the day. With the right networked systems in place lighting can be switched off, heating, ventilation and air conditioning (HVAC) can be reduced, and shades can be automatically lowered – all controlled in real-time through data. These types of intelligent adjustments are only possible when the edge is connected. And copper is the backbone of that connectivity.

As AI becomes more integrated into building operations, this will only

accelerate. AI will enable facilities teams to move from manual oversight to automated, data driven decision making. Copper infrastructure ensures that data and power reach every device that makes this intelligence possible.

FURTHER AHEAD

Looking 5-10 years into the future, copper won't be fading into the background – quite the opposite. While fibre will continue to dominate backbones, copper will remain critical at the edge. Today, most smart buildings still operate with a degree of siloing with fire and safety systems, building management and energy management often controlled separately. Over time, we'll see these systems converge on to shared Ethernet platforms, unlocking new levels of integration and intelligence.

RJ-45 will continue to be the universal connector for smart buildings for the foreseeable future, thanks to its ubiquity and interoperability. But we may also see new developments, whether it's Single Pair Ethernet gaining traction beyond industrial environments or new copper connector formats emerging to support future applications.

And let's not forget there is still plenty of headroom left in existing technologies. Category 6A supports 10 Gigabit Ethernet applications, which is more than enough for smart building devices today and for the foreseeable future. On the PoE side, many devices still operate well below the power capabilities of Type 3 and Type 4 PoE, meaning copper infrastructure is far from reaching its limits.

ENDURING RELEVANCE

For more than 20 years, people have predicted the decline of copper. Yet here we are with copper playing a bigger role than ever in enabling intelligent, responsive and sustainable buildings. Its combination of power delivery, performance, cost efficiency and reliability makes it uniquely suited to the device layer of smart buildings. As we design for a future where buildings are fully digitalised platforms, copper will remain at the centre, quietly powering the edge, connecting people and ensuring that smart buildings can adapt, scale and thrive for years to come. ■

MIKE BOISSEAU

Mike Boisseau is director of product management at Siemon, focused on the company's smart building solutions. Based in Siemon's headquarters in Connecticut, he has been with Siemon for 19 years, helping customers create intelligent, connected and sustainable buildings.

Reaching the outer limits

Jonathan Dunbar of Leviton explains key considerations for achieving reliable network performance beyond the limit defined by the standards

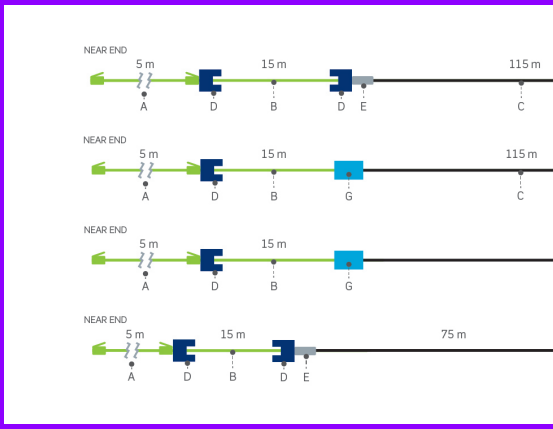
The ISO/IEC and TIA standards bodies have long established common design principles for copper structured cabling systems. One of the foundational principles is the maximum horizontal cabling channel must not exceed 100m. This defined channel length has enabled active equipment manufacturers to design transmission systems based on a known worst case performance scenario. As a result, it ensures predictable electrical performance of the transmission media and allows for interoperability and interchangeability of standard components within the channel.

ONE FOR ALL

The rise of the IoT has led to a dramatic increase in the number of devices requiring network connectivity. Modern building designs now frequently incorporate occupancy sensors, smart thermostats and air quality monitors, which are often located over 100m away from the telecommunications room.

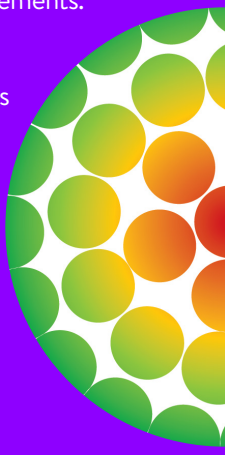
Additionally, IP security cameras and Wi-Fi access points are often installed in outdoor areas where access to AC power is limited or unavailable. This surge in connected devices, combined with the growing scale of enterprise environments both indoors and outdoors, means that networks increasingly need to extend beyond traditional limits.

Through careful planning and design, utilising newly emergent extended distance cabling solutions, it is now possible to unlock connectivity beyond the 100m threshold. This allows a network design to support more devices without the need for additional telecom rooms and allows it to meet evolving business requirements.



DEFINING MOMENT

The ISO/IEC and TIA standards define the maximum length for a permanent link (PL) as 90m and the maximum channel length as 100m, which includes up to four connectors and up to 10m of patch cords. Any channel that exceeds these limits is referred to as an extended distance channel. To enable



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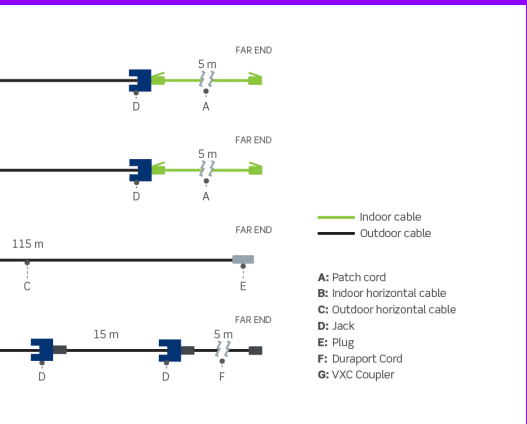
network designs that incorporate channels longer than 100m, some copper structured cabling manufacturers are now offering



solutions that are specifically designed to deliver data and power over longer lengths.

Developing cabling that performs beyond the outer limits of the standards requires an intricate understanding of the complex interactions between cabling, devices and the environment. It requires thousands of hours of testing and modelling to accurately characterise the intricate matrix of application data rates, power levels and the distances over which they can operate effectively in real world conditions.

MYTH BUSTING

It's a common misconception that simply increasing the amount of copper in a data networking cable will extend its performance range. This is not necessarily true.

The interactions between Ethernet protocols, the twisted copper pairs within the cable and the operating environment are far more complex than just the insertion losses within the conductors. In fact, well designed 23AWG extended distance copper cables can significantly outperform larger 22AWG or 21AWG products.

When deploying extended distance solutions, it becomes even more critical to carefully evaluate the cabling you choose. These solutions must be specified for real world operating temperatures, support all required channel topologies within the network and be extensively tested with a full application warranty provided by the manufacturer. Since extended distance channels fall outside the scope of existing standards, the assurance of application performance must come directly from the manufacturer.

CLIMATE ACTION

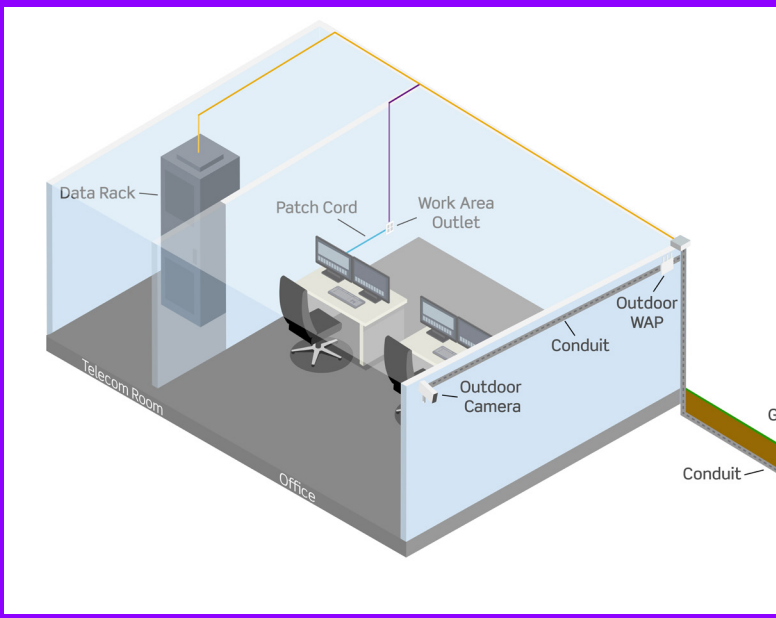
Temperature plays a significant role in the performance of extended distance cabling. Both power over Ethernet (PoE) and Ethernet protocol performance are highly sensitive to temperature variations. Elevated temperatures and fluctuations can significantly reduce the reliable operating distance of Ethernet systems.

As the temperature increases, DC resistance also rises, decreasing the maximum length over which PoE can be supported. Additionally, as temperature changes, equalisation within the Ethernet active gear will recalibrate in response – if

‘Let’s be clear, long patch cords won’t cut it! Extended distance solutions should be thoughtfully designed and properly integrated – not improvised.’

the change in signal to noise ratio through this process cannot be overcome, packets will drop and there is the potential to lose link.

This sensitivity to temperature makes it essential to ensure that extended distance solutions are specified to cover the full range of expected operating temperatures. Key factors in determining this range include the worst case ambient air temperature within the installation environment, the heating effect from PoE, temperature elevation due to cable bundling, airflow within containment systems and any other installation conditions that may contribute to temperature increases within the cabling infrastructure.



PROTECT AND SURVIVE

Another important design consideration for extended distance networks is surge protection, particularly for channels that provide connectivity to outdoor devices – most commonly IP security cameras and wireless access points. In some regions, local authorities mandate the use of surge protectors for outdoor connections. However, even where not required by regulation, their inclusion is considered best practice in robust network design.

Outdoor links, especially those that are long, are highly susceptible to induced currents from lightning strikes. These surges can travel in both directions along a conductor, posing risks to both equipment and personnel. To mitigate these risks, primary surge protectors are typically installed indoors to safeguard people and equipment from shock and fire hazards. Secondly, surge protectors, usually located outdoors, protect the devices at the far end of the link.

Surge protectors vary in design and technology, but all introduce additional DC resistance into the channel, which can impact electrical transmission performance. This increase in resistance reduces the maximum achievable distance for extended cabling solutions and must

be carefully factored into channel length calculations during the design phase.

PERFORMANCE ART

When extending cabling beyond 100m, it is crucial to ensure that the system deployed is specifically engineered to perform reliably within the network. Modern buildings often require networks to span a wide variety of spaces – typically through multiple connection or consolidation points – each with different expectations for flexibility and the ability to reconfigure. As a result, a single network design may incorporate multiple topologies, making configuration flexibility of an extended distance system a key consideration in contemporary network planning.

Let's be clear, long patch cords won't cut it! Extended distance solutions should be thoughtfully designed and properly integrated – not improvised. Incorporating extended distance channels into network designs introduces additional complexity, particularly the need to thoroughly review detailed performance data provided by the system manufacturer. This data should always include a comprehensive matrix outlining application and PoE performance against distance.

Once this matrix is understood and the system is implemented, the performance characteristics of each extended distance link must be carefully documented for future reference. These links operate outside the boundaries of established standards and effectively deliver custom performance, making accurate documentation essential.

ONE STEP FURTHER

It is now possible to achieve reliable network performance beyond the 100m limit defined by the standards. However, when extending beyond these limits, it is critical to ensure that the system operates within the required operating temperature range, supports the intended network channel configurations and is backed by a robust application warranty from the manufacturer. When implemented with care, extended distance systems can significantly reduce infrastructure costs and enhance sustainability by minimising the number of telecommunications rooms required in the overall design – ultimately enabling more efficient, scalable and future ready network architectures.■

JONATHAN DUNBAR

Jonathan Dunbar is a senior product manager at Leviton. With over 32 years of experience in the telecommunications industry, he has held senior technical, business and product management roles, consistently driving innovation and delivering market leading solutions. Dunbar works closely with global customers to understand their unique requirements and develop tailored solutions.

Excel Networking Solutions

Excel Networking Solutions' robust high performance copper cabling systems are designed to support diverse networking needs, with sustainability at the core. The Excel 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. These systems ensure exceptional transmission quality and adhere to industry standards, catering to environments from residential installations to data centres.

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. Backed by a 25-year warranty, Excel's copper cabling underscores a commitment to quality and innovation in structured cabling.

CLICK HERE to see the full portfolio of Excel's copper cabling products or call our sales team on 0121 326 7557.
www.excel-networking.com

HellermannTyton

HellermannTyton offers a complete copper system as part of its LAN product range. The Category 6A solution includes the Cat6A jack, patch panels, cable and patch leads. The Cat6A jack is designed to be toolless and does not require any specialist termination tools, while the Cat6A panels come in both flat and flat angled versions.

The field termination plugs are used to create modular plug terminated links (MPTL) on-site for direct connection to fixed location devices. Like the Cat6A HTC jack, the MTPL is a toolless product, providing engineers with a quick, flexible on-site solution. Along with the Category 6A products, HellermannTyton also has a range of Category 6 panels and outlets, along with a selection of LC and Euro modules, faceplates and backboxes.

Products from HellermannTyton are supplied in plastic free packaging where possible, so the company can do its bit for the environment and the planet.

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

Siemon

Siemon's Smart Building COMPLETE is a unified connectivity and cabling solution engineered to power and connect the critical technologies shaping modern workplaces. Smart Building COMPLETE gives building owners and operators a complete, proven framework to design, build and operate smarter, more efficient building and campus environments.

Smart Building COMPLETE has PowerGUARD+ technology, which provides customers with best in class extended reach up to 200m. This reduces the cost and complexity of deployment by helping to eliminate the need for telecommunications space and associated equipment, power, cooling and maintenance.

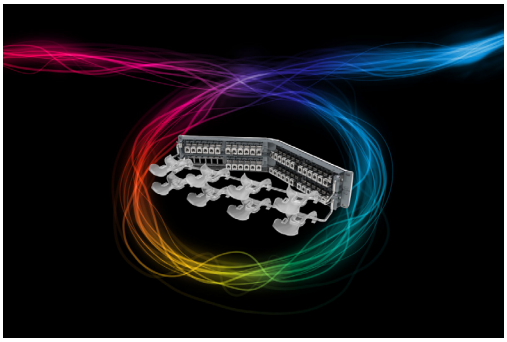
PowerGUARD® + TECHNOLOGY

Designed to mitigate harmful heat rise and maintain performance at operating temperatures up to 75°C, Siemon's patented, third-party verified connectivity and cabling ensure maximum reliability for a smart building's foundation, with seamless delivery of power and data to connected devices. The Cabling Reach Calculator helps customers determine the right cable type, based on specific real world installation conditions and for the distance required to power and connect each end device.

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

CommScope

CommScope's GigaSHIELD X10D Category 6A shielded platform supports the next generation of high speed copper networks. As an addition to the SYSTIMAX 2.0 portfolio, the platform offers F/UTP, F/FTP and S/FTP cables and patch cords. Installation and monitoring solutions particularly suited for light industrial and high security environments can benefit from this technology.



Eco-friendly design reduces single use plastics and leverages a modular architecture to reduce the number of network components, as well as the resources needed to produce, distribute and support them. This extended lifecycle delays the need for upgrades and reduces the network's carbon footprint.

A full range of industry leading support options are also available, including CommScope's comprehensive 25-year product and application warranty and SYSTIMAX Assurance program, which includes design assistance and more.

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

Emission control

Jan Honig of CommScope explains how it is possible to power data responsibly with 'greener' cables

As development of new AI platforms and solutions continues, the energy demands placed on data centres increases. Goldman Sachs Research found that the global power required from data centres will grow by as much as 165 per cent by the end of the decade. Concurrently, network providers are being pressured with the environmental impact caused by this unprecedented demand for power, forcing them to rethink how emissions can be reduced at every stage of their operations. For data centre operators, innovating cabling infrastructure can form part of solution to reduce their carbon footprint.

ENVIRONMENTAL COST

It is no secret that data centres are incredibly energy intensive. The emissions contributed by them are caused by the thousands of servers and IT devices that run on electricity, generated primarily by fossil fuels such as coal, natural gas and oil. Subsequently, these fossil fuels release significant amounts of carbon dioxide and other greenhouse gases into the atmosphere.

Adding to the issue, data centres use a lot of water. A medium sized data centre can consume up to roughly 110 million gallons of water per year for cooling purposes – the equivalent to the annual water usage of approximately 1,000 households.

To illustrate the emissions created by data centres, it was found that a new £10bn UK data centre planned in Lincolnshire is projected to release five times the carbon dioxide of Birmingham Airport, including take-offs and landings. As data centres are needed to train AI models and run AI searches, data centre providers need to look for ways to reduce their carbon footprint.

THINK AGAIN

Although cabling may not be the biggest contributor to greenhouse gas emissions, it can play a big role in reshaping the efficiency and environmental footprint of data centres. As AI models are requiring vast interconnectivity between graphics processing unit (GPU) clusters, the complexity of cabling systems is rapidly increasing. However, by integrating lifecycle assessments and eco-design principles into cabling infrastructure, data centre operators can reduce waste and

'Although cabling may not be the biggest contributor to greenhouse gas emissions, it can play a big role in reshaping the efficiency and environmental footprint of data centres.'

improve overall operational efficiency, while contributing towards long-term decarbonisation goals.

In AI-driven data centres, cabling systems need to support high density, low latency architectures. Large scale AI models are powered by GPU servers which require extensive interconnectivity across racks and rows. These servers often house fewer units per rack due to power and heat constraints, resulting in an increase in inter-rack cabling. Each GPU must connect to switches, storage and management systems that are often over 400Gb/s or 800Gb/s links that exceed the capabilities of conventional copper connections such as direct attach cables (DACs), active electrical cables (AECs) or active copper cable (ACCs).

SEE THE LIGHT

Recognising this demand, data centre operators are turning to advanced optical fibre solutions such as rollable ribbon fibre. This is because these cables can house up to six 3,456-fibre bundles in a single four inch duct – doubling the capacity of traditional configurations while simplifying installation and splicing. Through bonding fibres together in a loose web, it allows

‘By integrating LCAs and eco-design principles into cabling infrastructure, data centre operators can reduce waste and improve overall operational efficiency, while contributing towards long-term decarbonisation goals.’

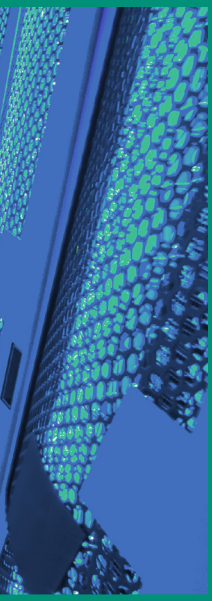
them to be rolled into a compact cylinder where the fibres can flex with a degree of independence to one another, making much better use of space when compared to flat ribbons.

The builders of data centres are also reliant on the ability to provide processing and storage capabilities. To build more efficient and resilient structures, operators need to pick the right optical transceivers and fibre for their AI clusters. For short distance cluster links, the primary optics cost is the transceiver. Transceivers using parallel fibre reduce the need for optical multiplexers and demultiplexers use for wavelength division (WDM), which saves both cost and power consumption.

THE CYCLE OF LIFE

Shifting towards sustainable cabling design is driven by the recognition that every material choice and design decision can have consequences to the environment. Network cable providers, both fibre and copper need to proactively conduct comprehensive lifecycle assessments (LCAs) and Environmental Product Declarations (EPDs) to quantify the environmental effects of cabling.

An LCA is a method for quantifying



the effects of a product throughout its entire lifecycle – from extraction of the raw materials used to make the cable through to the end of its usable life. Companies can then report the environmental effects measured though a lifecycle assessment in a standardised and verified way by using EPDs, which include a detailed report on a product's environmental effects. By doing so, cables are used optimally – ensuring that its impact is reduced as much as possible.

TOMORROW'S WORLD

Ultimately, increasing the number of data centres is not just about meeting the technical demands of AI, but also about building infrastructures that are efficient and aligned with sustainability. Doing so supports innovation with less of a cost to the environment. Cabling systems, although usually hidden behind walls and under floors, are just as important in reducing overall emissions. By adopting lifecycle thinking and ensuring that cabling systems are optimised, operators can play their part in contributing towards a greener tomorrow. ■

JAN HONIG

Jan Honig is vice president sales data centre solutions for Europe at CommScope. Over the last seven years, together with his Benelux team, Honig has been responsible for all sales activities at client, business partner and consultant levels in the enterprise business.

Subzero Engineering strengthens global reach with new Vietnam facility

Subzero Engineering has opened a major new facility in Ho Chi Minh City. Serving as a central hub for Subzero's Asia-Pacific (APAC) operations, the facility represents a significant step in the company's strategic global expansion and underscores its long-term commitment to the region.

The Ho Chi Minh City facility will function as a centre of excellence supporting the company's global application engineering teams. The site will house manufacturing, design, research and development operations, and produce Subzero's suite of solutions, including hot and cold aisle containment systems, aisle frames, modular enclosures and airflow management technologies.

'This new facility is a strategic cornerstone in Subzero's global vision,' said Shane Kilfoil, president of Subzero Engineering. 'By establishing a centre of excellence in Vietnam, we're embedding agility, resilience and sustainability into the core of our operations.'

WatchGuard appoints Joe Smolarski as CEO to lead a new chapter in cybersecurity innovation


Joe Smolarski

WatchGuard Technologies has appointed Joe Smolarski as chief executive officer (CEO). Vats Srivatsan, who had been named interim CEO since May 2025, will continue to serve as a member of WatchGuard's board of directors.

Smolarski brings more than 25 years of leadership experience across technology, operations and strategy. Most recently, he helped drive a tenfold revenue increase and multi-billion dollar valuation growth for Kaseya by uniting teams, technologies and partners around a single, customer first platform vision.

'WatchGuard has an incredible foundation, a world class technology platform and a reputation for trust and performance that stands out in the market,' said Smolarski. 'I'm excited to build on the company's strong trajectory and make WatchGuard the cybersecurity vendor synonymous with the managed service provider (MSP) community.'

AVK and Rolls-Royce accelerate innovation and boost supply chain resilience with new capacity agreement


L-R Vittorio Pierangeli and Ben Pritchard

AVK and the Rolls-Royce division Power Systems have announced a new multi-year capacity framework as an addition to their established system integrator agreement. The partnership capacity framework focuses on increasing industrial capacity for genset orders whilst accelerating joint innovation across the data centre and critical power markets.

It also formalises a five year capacity partnership between Rolls-Royce Power Solutions and AVK, with Rolls-Royce increasing supply and AVK committing to order volume. A parallel six year master framework designates AVK as the exclusive system integrator for mtu generator sets across the UK and Ireland until 2031.

Vittorio Pierangeli, senior vice president power generation at Rolls Royce, said, 'This agreement reflects the commitment from both parties to continue our collaboration and support the rapidly growing European data centre market. With this in place, we look forward to working closely together in the coming years.'

Ben Pritchard, CEO of AVK, added, 'Driving growth in innovative solutions on an international scale, our joint projects can be seen succeeding across Europe. We're excited for this to develop even further.'

CHANNEL UPDATE IN BRIEF

ZutaCore has announced a strategic collaboration with Egil Wings. Egil Wings brings deep expertise in microgrids, sustainable energy systems, biofuels and green hydrogen, enabling the sustainable development of AI data centres across North America, Canada, Asia, Europe and other regions.

Matt Plose as joined CSL Group as chief financial officer (CFO). He brings a wealth of experience across numerous sectors, with a strong background and expertise in data and technology businesses, previously operating at an executive level in private equity backed businesses, as well as senior leadership roles in large multinational organisations.

OVHcloud is strengthening its presence in Germany with the deployment of a 3-AZ region in Berlin. Following France and Italy, this third European 3-AZ cloud region consolidates OVHcloud's foothold on the continent.

MLL has been awarded Fortinet Advanced Partner status in recognition of the company's ongoing commitment, expertise and growing success in deploying Fortinet cybersecurity solutions in the UK public sector. This includes local authorities, emergency services, housing associations and education.

Quick clicks

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

The IDC Data and AI Impact Report: The Trust Imperative, commissioned by **SAS,** found that IT and business leaders across the UK report having greater trust in generative AI than any other form of AI.
To find out more **CLICK HERE.**

Fast Transmission Needs Fast LAN is a blog by **R&M.**
CLICK HERE to read it.

Kao Data has produced a strategic report charting a clear path to accelerate the UK's AI ambitions in support of the UK government's AI Opportunities Action Plan.
To obtain a copy **CLICK HERE.**

Sustainable AI For A Greener Tomorrow is a white paper by **NTT Data** that looks at how to build AI sustainability metrics into standardised best practices for measurable impact.
CLICK HERE to download a copy.

Building A More Sustainable Digital Future is a blog by John Siemon of Siemon.
CLICK HERE to read it.

From Concern To Confidence: How Telcos Can Embrace AI Without Leaving People Behind is a report from **Colt Technology Services** that explores telecoms employee sentiment around AI in the workplace.
To obtain a copy **CLICK HERE.**

Turner & Townsend has published its Data Centre Construction Cost Index 2025-2026, which amongst other things claims that 83 per cent of industry experts do not believe supply chains are well equipped to deliver the advanced cooling technology required for AI data centres.
CLICK HERE to download a copy.

What the heck is the cl

In this month's Knowledge Bank, where tech is demystified, Carrie Goetz explains the history of the cloud and how it has evolved

Often, the cloud conjures up a mental image of vagueness – sometimes intentionally. Cloud gets even more confusing when we hear the terms multi-cloud, hybrid cloud and anything else cloud. In short, the cloud is a group of computing resources a provider makes available for rapid use as a service. I know that doesn't clear things up much, so let's break things down a bit.

SCRATCHING THE SURFACE

To have an application available on the internet, you need the server hardware, networking communications, security, power, cooling and, of course, the application. The key to understanding the cloud is figuring out who owns each part of the hardware and software. The functionality of the software could be part of the cloud services, for instance, disaster recovery as a service (DRaaS).

The beginnings of cloud computing emerged as companies tried to grapple with what to do with resources during non-use times. Amazon is one of the early pioneers of today's cloud technologies, so to understand the 'why cloud?' question, let's examine its model.

During holidays like Christmas, Mother's Day, Father's Day etc, it processes a lot of orders. Amazon reportedly gains about a third of its entire sales income during the holidays. To make those sales possible, the data centres need lots of resources, including communications lines, hardware, software and supporting infrastructure. The problem is that providers don't allow you to use those resources for a small period of time. What's Amazon supposed to do with all that capacity when it isn't having large amounts of consumption? It's rather like buying a car when you only need to drive it for two weeks on vacation.

DRIVE TIME

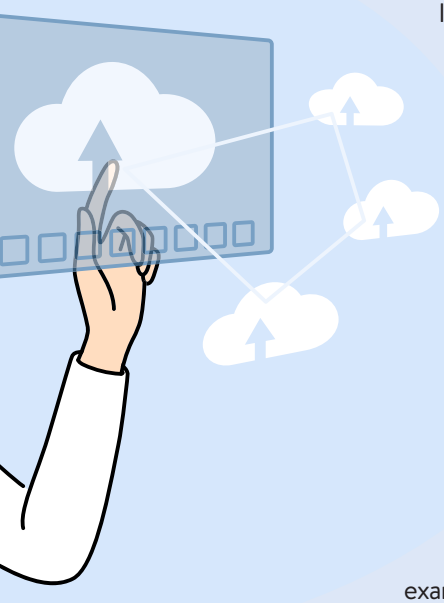
One of the early adopters of cloud spare capacity was NASCAR. NASCAR has a service where you can sit in the 'driver's seat' of a car and watch the race virtually from the same vantage point as the driver. If that driver leaves the race, you can then take a virtual seat in another car and stream from that viewpoint.

There is also a flurry of ticket sales and other race related activities that are needed solely during racing season. What

oud anyway?

is NASCAR supposed to do with all the equipment when racing season is over? If only NASCAR could lease that capacity during racing season and give it back at season's end. Cloud was the answer.

When cloud computing first originated, the single most significant advantage was that at the end of your need, your bill would return to zero. In our example, NASCAR could use whatever computing it needed during racing season and then give it back at the end. There was no need for it to own facilities, hardware or software for in-car activities.



SERVICE PROVIDER

Today, cloud computing can support an entire company all year round. Some companies choose cloud only, while others prefer the cloud for some efforts and not others. Some companies build out their own clouds. Most companies use some type of cloud services, even if it is an application as a service.

Salesforce is a good example. Companies use Salesforce by license (as a service) and may have local databases for information, creating a hybrid cloud environment that utilises a cloud application and local data storage. There are many examples of how hybrid cloud computing can be implemented.

Multi-cloud is the use of multiple cloud providers, as the name suggests. There are different schools of thought for multi-provider cloud applications. Some cloud procurement decisions are driven by the preferred host for an application, while others may be location driven. Personally identifiable information must reside in country in most cases. In some cases, the cloud provider decision is based purely on economics.

Cloud costs vary greatly. The cost of setting up, getting into the cloud, moving data around and pulling data out must all be considered. When setting-up cloud-based hardware and servers, the costs change with the configurations. The varieties and possibilities seem endless. The more cloud providers are involved, the more complex the solution(s).

CENTRE OF ATTENTION

Whether a company uses cloud for application delivery, a web server or its entire IT stack, cloud plays a part in many data strategies. However, it's safe to say that the cloud is essentially a data centre. ■

Peak performance

As data centres and enterprise networks expand at unprecedented rates, Michael Akinla of Panduit explains how effective cable management remains vital for achieving uptime, performance and scalability

Cable management is a technical discipline which ensures that data, power and control cables operate reliably, efficiently and safely. As Panduit and others have long emphasised, structured and optimised cable management systems underpin the physical and operational resilience of every modern IT environment.

GROWING COMPLEXITY

Modern data centres are no longer static rooms filled with racks and servers – they are dynamic ecosystems. Each rack may contain dozens of switches, hundreds of patch cords and miles of optical fibre and copper cabling. Consolidation and virtualisation have increased cable density, while high speed transmission amplifies the sensitivity of physical media to bend radii, signal interference and temperature fluctuations.

The rise of high density switching and modular network designs has forced organisations to rethink how cabling is routed, labelled and maintained. Inadequate management can quickly lead to airflow constriction, signal degradation or even equipment downtime, all of which translate into actual operational costs. To meet these new challenges, systems must combine space efficiency, accessibility and protection, while allowing scalability as the network evolves.

SPACE RACE

One of the foremost challenges in cable management is space utilisation. Floorspace within a data centre is expensive and every square metre must deliver value. High capacity and space saving systems, such as vertical and horizontal cable managers and open frame racks, are engineered to maximise capacity and minimise footprint.

Design approaches like vertical patching and enhanced vertical cable managers allow dense routing of cables without compromising accessibility or airflow. EIA 0RU mounting systems – mounting equipment or patching hardware directly within the cable manager – free-up valuable rack space for active equipment, which is an advantage in high density switch and server applications. Optimised routing and compact layouts have been shown to reduce floorspace utilisation by up to 35 per cent, while simultaneously improving cooling efficiency and equipment serviceability.

SMOOTH OPERATOR

The modern enterprise operates on constant adjustment, while moves, adds and changes (MACs) are routine as

infrastructure scales to meet business demands. A well designed cable management system enables these operations without disrupting service or risking cable damage.

Features like dual hinged doors, snap-on retainers and modular rack configurations provide rapid access while maintaining uniformity. Finger aligned routing guides ensure each cable follows a structured path, preserving bend radii and signal integrity during adjustments.

Furthermore, horizontal managers and pass-through systems allow front to rear cabling to support evolving equipment layouts. This modularity ensures that infrastructure can grow systematically, from small enterprise closets to hyperscale data centres, without costly redesigns or reterminations.

CLIMATE CONTROL

Efficient cooling is one of the most expensive and critical functions in a data centre. Poor cable management can restrict airflow, create hotspots and force heating, ventilation and air conditioning (HVAC) systems to work harder. Modern management systems integrate thermal features such as open design racks, airflow optimised cabinets and segregated routing paths that minimise air mixing in hot and cold aisles.

Vertical managers with closed side panels further enhance air containment strategies, channelling airflow effectively through server intakes, while preventing recirculation. This synergy between cable management and environmental control significantly improves Power Usage Effectiveness (PUE), a key performance metric in sustainable data centre operations.

STRESS RELIEF

Cable management directly affects signal quality, equipment longevity and safety compliance. Proper bend radius control, strain relief and segregation of copper and fibre cables prevent physical stress that can degrade signal performance.

Systems featuring integral bend radius management and retention spools ensure that Category 6A and fibre cabling operate within engineered specifications. Moreover, adherence to standards such as TIA-606 for labelling and identification helps technicians quickly locate and service

'Systematic cable management has emerged as a cornerstone of operational excellence. It unites engineering precision with organisational discipline, ensuring that every watt of power and every bit of data moves efficiently, safely and sustainably.'

cables, minimising downtime. Many racks and managers now include printed rack unit identification and structured grounding options, simplifying compliance and maintenance while maintaining network integrity.

Addressing temperature fluctuations, vibration and electromagnetic interference requires robust materials. Nylon based tie mounts, heat resistant polymers and anti-corrosive coatings ensure longevity and safety. Products such as hook and loop ties are becoming increasingly preferred over traditional plastic ties because they can be reopened and resealed hundreds of times, preventing damage to cable jackets and allowing quick reconfiguration. These are particularly valuable in high density fibre installations where gentle handling preserves optical performance.

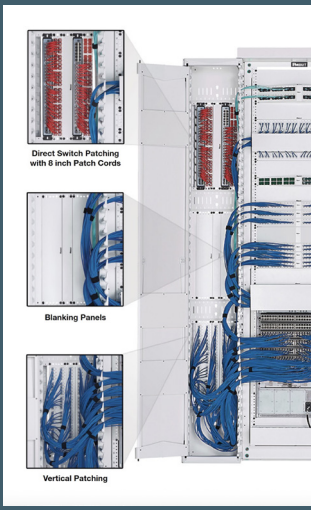
BUILT TO LAST

Materials that are engineered for wear resistance and reusability reduce waste, enhance sustainability and lower total cost of ownership (TCO) across the lifecycle of a network infrastructure. A systematic approach to cable routing is fundamental to both performance and appearance. Properly organised cables, separated by type, function and pathway, reduce crosstalk, ease troubleshooting and present a professional visual standard that reflects operational discipline.

Colour coded hook and loop ties allow for easy traceability and identification of circuits or network segments. This not only speeds-up diagnostics but also supports documentation and compliance audits. Structured cable pathways also enhance redundancy and fault isolation, ensuring that a single cable failure or accidental disconnection does not cascade into a larger network disruption.

LOOKING AHEAD

As technologies evolve beyond 400 Gigabit Ethernet, with AI-driven compute clusters and IoT-enabled facilities, cable infrastructure must anticipate future density and power demands. A scalable cable management architecture allows seamless upgrades without compromising performance. Key enablers include:

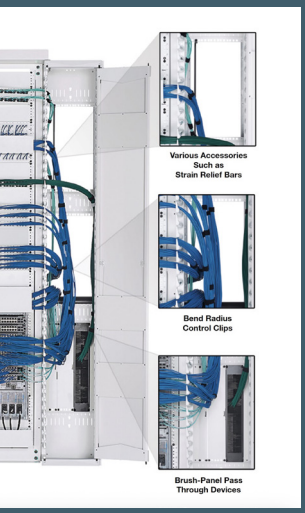


- Modular rack systems that accommodate both copper and fibre interconnects.
- Front to rear cable pathways designed for future high speed links.
- Integrated power and data segregation, preventing interference in mixed environments.
- Flexible mounting options that adapt to new switch form factors or converged

infrastructure.

Environmental considerations are increasingly central to infrastructure design. Sustainable cable management practices highlight reusability, waste reduction and optimised airflow, which together reduce operational energy consumption.

Cable management is also about people – the engineers, technicians and operators who interact daily with complex systems. An effective solution must prioritise ergonomics and safety. Features such as push to close doors, clear labelling and easy front and rear access minimise physical strain and reduce the likelihood of error. Moreover, well routed cables eliminate trip hazards, reduce static build-up and ensure compliance with occupational safety standards. Over time, these small design considerations significantly impact productivity and system uptime.



BIGGER PICTURE

Cable management does not exist in isolation. It must integrate seamlessly with racks, patch panels, power distribution units (PDUs) and network hardware. Systems engineered with holistic compatibility ensure consistent alignment of mounting standards, ventilation design and grounding.

For instance, vertical cable managers that mount directly to 4-post racks or integrate with modular patch panels streamline installation and reduce the need for adaptors. Such end to end integration delivers both structural integrity and operational simplicity.

ENGINEERING THE INVISIBLE

Systematic cable management has emerged as a cornerstone of operational excellence. It unites engineering precision with organisational discipline, ensuring that every watt of power and every bit of data moves efficiently, safely and sustainably. It isn't merely about tidiness, it's about enabling network reliability, serviceability and scalability. By combining innovations in space optimisation, airflow control, modular design and material science, modern systems empower data centres to operate at peak performance while minimising TCO. ■

MICHAEL AKINLA

Michael Akinla is business manager central Europe north at Panduit. He brings over 20 years' experience in the deployment of Panduit's most complex solutions and has extensive experience in working with several large global accounts to bring about significant improvements in terms of higher bandwidth deployments, reduced PUE ratings and lower TCO.

Mellow yellow

Nick Edwards of HellermannTyton takes a look at optical fibre raceway systems – the brightest things you never notice

In the race to deliver faster, more reliable digital services, data centres are evolving at breakneck speed. From hyperscale deployments to edge computing, the pressure to scale, optimise and future proof infrastructure has never been greater. While servers, cooling systems and power distribution often steal the spotlight, one critical component keeps everything running – fibre raceway systems. Yes, they're bright yellow. Yes, they're hard to miss. And yet their role in enabling performance, uptime and scalability is often overlooked. As facilities grow in complexity and density, these high-vis heroes are emerging as the backbone of operational success.

PERFORMANCE AND RELIABILITY

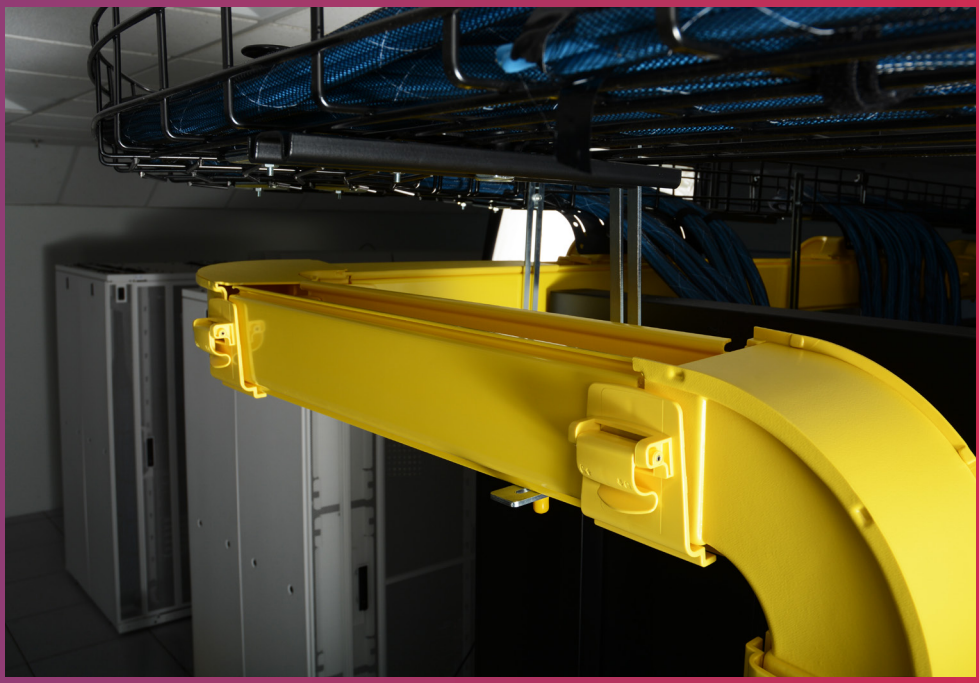
Fibre raceway systems are structured pathways that guide and protect fibre cabling throughout a data centre. Though physically unobtrusive, they play a vital role in maintaining the integrity of high speed data transmission. Fibre cables connect racks, rooms and even continents, enabling the digital services we rely on every day. But without proper management, these delicate cables are vulnerable to damage, signal degradation and service interruptions.

Downtime in UK data centres is estimated to cost £3,000-£5,000 per minute. While cyberattacks and power outages grab headlines, infrastructure mismanagement and human error are frequent culprits. Fibre raceway systems help mitigate these risks by providing a structured, protective environment for cabling – like a safety vest for your network.

Beyond protection, raceways contribute to operational efficiency. By segregating fibre from other services and organising cables into defined routes, they simplify maintenance, accelerate troubleshooting and reduce the likelihood of human error. Technicians can quickly identify and access specific connections without navigating tangled or congested pathways, improving mean time to repair (MTTR) and reducing service disruption.

COST EFFECTIVE

Cable management also plays a subtle but important role in thermal performance. Clean cable routing improves airflow, helping cooling systems operate more efficiently and reducing energy consumption. According to the Carbon Trust, optimised airflow can reduce cooling



energy use by up to 30 per cent in UK data centres – a significant saving in both cost and carbon footprint.

In high density environments, where every watt and cubic metre of airflow counts, raceway systems can support better thermal dynamics. By preventing cable clutter and allowing air to circulate freely, they help maintain optimal operating temperatures and reduce the strain on cooling infrastructure.

MITIGATING RISK

As data centres scale to meet rising demand, fibre density is increasing dramatically. High capacity environments now feature thousands of fibre connections within compact footprints, creating new challenges for cable management. Without a structured approach, the risk of congestion, signal interference and physical strain on cables escalates.

Fibre raceway systems offer a solution by enabling precise routing strategies tailored to the facility's layout. Whether deployed overhead, underfloor or vertically between racks, raceways provide the flexibility to manage complex cable paths while maintaining accessibility. Modular fittings and adjustable components allow for custom configurations that suit specific rack arrangements and service zones.

One critical design consideration is bend radius control. Fibre cables are sensitive to

'Fibre raceway systems are structured pathways that guide and protect fibre cabling throughout a data centre. Though physically unobtrusive, they play a vital role in maintaining the integrity of high speed data transmission.'

sharp bends, which can impair signal quality or cause breakage. Raceway systems are engineered to maintain standards compliant bend radii throughout the network, preserving performance and extending cable lifespan. This is especially important in high density deployments, where space constraints can tempt shortcuts that compromise cable integrity.

PHYSICAL FITNESS

Scalability is a defining characteristic of successful data centre design and it starts with the physical infrastructure. Modular fibre raceway systems are built with scalability in mind, using interchangeable components that can be expanded, reconfigured or relocated as needs evolve. This modularity offers several advantages:

- Reduced downtime during upgrades. New pathways can be added alongside existing ones without dismantling the entire system.
- Cost efficiency. Reusable components and simplified installation processes lower labour costs and minimise waste.
- Adaptability. In hybrid environments, where legacy systems coexist with next generation technologies, modular raceways provide the flexibility needed to bridge the gap.

The European Data Centre Association (EUDCA) forecasts that infrastructure investment in European data centres will

exceed €100bn by 2030, with colocation facilities contributing significantly. Modular and scalable raceway systems support phased deployments, allowing facilities to start with a core layout and expand incrementally as demand grows. This flexibility is particularly valuable in colocation or edge environments where space and budgets may be constrained but where continuous growth is expected.

CLEAR THINKING

Unstructured cabling is more than an aesthetic issue – it's a threat to operational resilience. Tangled cables, unclear routing and overcrowded pathways increase the risk of outages, complicate fault resolution and slow down routine maintenance. In high availability environments, these delays can translate into real financial and reputational costs.

By defining routes, separating services and maintaining organisation, raceways enable technicians to work efficiently and confidently. Faults can be isolated and resolved quickly, reducing MTTR and improving overall uptime. Structured raceways also reduce human error. With clear pathways and labelled segments, the likelihood of accidental disconnections or mispatching is significantly lower. This is especially important during upgrades or reconfigurations, when multiple teams may be working simultaneously.

Moreover, structured cabling reflects a proactive approach to infrastructure management. It signals a commitment to reliability, safety and long-term performance – values that are increasingly important as data centres become mission critical assets for businesses and governments alike.

FROM CHAOS TO CLARITY

As fibre density increases and infrastructure becomes more complex, the need for structured, scalable and efficient cable management is no longer optional. Fibre raceways are strategic assets that underpin the success of digital infrastructure and while they may be bright yellow and impossible to miss, they remain an unsung hero. They keep everything connected, protected and ready for what's next. ■

NICK EDWARDS

Nick Edwards is product marketing manager LAN connectivity at HellermannTyton. With 20 years of industry experience, Edwards drives development and support across the LAN portfolio. He also leads the HellermannTyton Academy within LAN, training engineers, consultants and end users nationwide.

Cable Management Warehouse (CMW)

In the dynamic world of data communication, ensuring the optimal performance and protection of your optical fibre cables is paramount. HellermanTyton's GigaDuct is the ultimate solution – designed to revolutionise how you manage and safeguard your critical infrastructure.

www.cmwltd.co.uk

GigaDuct fibre raceway is a robust, scalable cable management system engineered specifically for organising and protecting fibre cables in the data centre environment. It provides a dedicated pathway that prevents cable congestion, minimises physical stress on fibres and facilitates efficient cable management.

With GigaDuct, you can build an organised, high performance cable environment backed by CMW's specialist design support. As the only UK distributor currently holding stock, CMW ensures faster availability and expert guidance at every stage of your project.

Get in touch with our GigaDuct product specialist, Dave Dann, on 01284 848030 or **CLICK HERE** to visit the CMW website.
www.cmwltd.co.uk

Panduit

The FlexCore optical distribution frame (ODF) from Panduit offers a versatile and secure front access cabling system that also provides improved protection for critical optical fibre connections.

Utilising innovative cable management and simple, intuitive cable routing, the FlexCore ODF simplifies and reduces time for moves, adds and changes. With standard locking doors and optional locks on each enclosure, the FlexCore ODF solution enables multi-tiered security – an important addition for multiple client access.

The system manages up to 3,168 fibres per frame and provides multiple configurations using just three modular building blocks. This flexibility allows for design customisation and scalability, while optimising both product availability and system density. Compared to typical data centre cabinets, the FlexCore ODF can reduce floorspace in a data centre by 50 per cent. In addition, with side panels and doors with locks, the FlexCore ODF solution allows the system to be completely enclosed and secure.

CLICK HERE for more information on the FlexCore ODF.
www.panduit.com

Excel Networking Solutions

Save time and enhance organisation with Excel Networking Solutions' bespoke laser engraved labelling service

Excel provides a tailored laser engraved labelling service designed for patch panels, racks, GOPs, outlets and more. Labels can be supplied as pre-printed sheets or pre-affixed to products before delivery, streamlining the installation process. This service eliminates the need for on-site labelling, saving significant time during installation and helping reduce project costs.

Excel's labelling solution stands out for its exceptional quality and durability. Using fade resistant acrylic sheets and precise laser engraving, it ensures labels remain legible over time, contributing to long-term cable management efficiency and professional presentation.

With a made to measure approach, Excel offers a wide array of customisation options. From destination locations and equipment identifiers to company logos and QR codes, labels can be crafted to suit specific project needs.

CLICK HERE to discover how Excel's bespoke labelling service can enhance your next project. Contact us today on 0121 326 7557 or **CLICK HERE** to send an email for more information.

www.excel-networking.com

Patch Solutions

In the fast-moving world of data communication, consistently high performance isn't just advantageous, it's essential. As network demands grow, so does the need for infrastructure that can protect and support the delicate but critical backbone of connectivity – optical fibre.

HellermannTyton's GigaDuct system has been engineered with this need in mind. Purpose built to streamline fibre routing while shielding cables from physical damage, it offers a smarter, more reliable way to manage modern installations.

The new tool-free coupler is a key component of the GigaDuct System. It eliminates the need for drilling or specialised tools, dramatically reducing installation time and labour costs while minimising disruption in active data centres. This allows installers to deliver faster deployments, cleaner installations (no debris from drilling) and reduces the risk of errors.

Get in touch with Patch Solutions, reseller for the HellermannTyton GigaDuct system, today on 01296 934360 or **CLICK HERE** to send an email.

www.patchsolutions.com

Brother

Clear, reliable labelling isn't just a good idea – it's a mark of a smart professional. Brother's P-Touch E-series label printer range includes the PT-E560 and PT-E310 devices, which are designed to arm electricians and network installers with the right tool to save time and produce clear, durable and compliant labels.

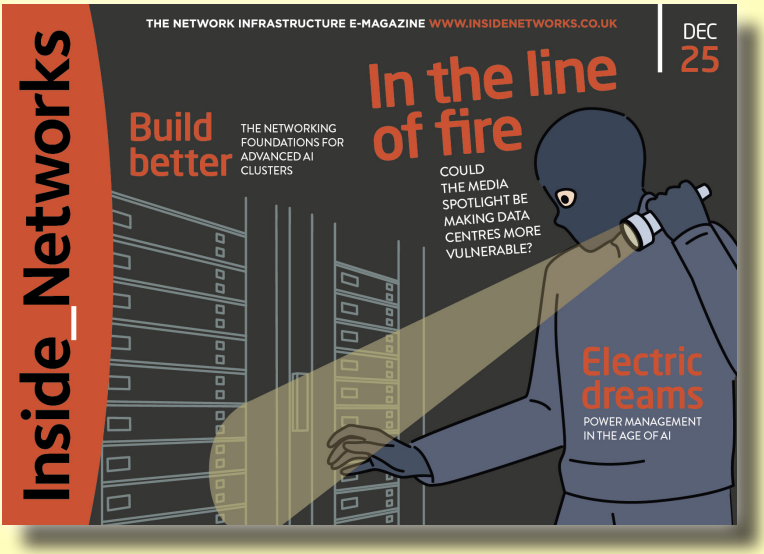
They both come with Pro TZe tapes with improved specifications and have a rechargeable Li-ion battery, as well as Bluetooth and USB-C connectivity which enable use with the Brother Pro Label Tool app and P-touch Editor software via PC or Mac. The E-Series models are designed to help electricians and network installers label racks and cabinets, port ID, patch panels, equipment, telecoms outlets and copper and fibre optic cables.

To find out more about Brother's range of professional labelling devices **CLICK HERE.**

www.brother.co.uk

MISSED AN ISSUE?

CLICK ON THE COVER TO READ MORE



Building the backbone

Jon Barker of Chatsworth Products (CPI) explains why smart cable management can help to future proof data centres

In today's hyperconnected world, the strength and resilience of a network begins with its foundation – cabling infrastructure. For decades, cable management was seen as a routine maintenance task, something to tidy up after installation. That perception has changed.

PHYSICAL FITNESS

Effective cable management is a strategic discipline that underpins performance, reliability and scalability. As AI transforms the digital landscape, it is also redefining how data centres are designed, powered and cooled. Managing the physical layer – the cables, pathways and connections that make AI possible – has become a critical factor in ensuring operational success.

AI workloads are reshaping the physical and operational dynamics of data centres. Large language models, generative AI systems and advanced analytics require vast computational power, often concentrated in graphics processing unit (GPU) clusters connected by high speed optical fibre or InfiniBand networks.

NEAT AND TIDY

A typical AI rack can now draw more than 80-100kW, compared with 10-20kW in traditional set-ups. These systems also rely on ultra-low latency interconnects to move massive datasets between nodes in real time. The result is an environment with unprecedented demands on power, cooling and connectivity, as well as how cables are organised and maintained.

In poorly managed environments, cables quickly become a hidden source of inefficiency. Tangled wiring obstructs airflow, forcing cooling systems to work harder and consume more energy. Heavy bundles put strain on connectors, leading to intermittent faults. When technicians can't trace or access cables quickly, downtime and costs rise. For AI-driven facilities operating at full capacity, such inefficiencies directly impact performance and energy efficiency.

STRATEGIC VALUE

In this context, cable management is far more than an aesthetic concern – it's an operational strategy. Properly planned and

executed, it ensures that power and data pathways remain efficient, accessible and adaptable. Key benefits include:

- Improving cooling and airflow. Structured pathways prevent blockages and stabilise rack temperatures.
- Accelerating maintenance and upgrades. Organised and labelled cabling reduces troubleshooting time and downtime.
- Enhancing signal integrity. Proper bend radii protects high speed connections from damage.
- Increasing operational safety. Secure routing reduces tripping hazards and mechanical strain.
- Reducing total cost of ownership. Well managed cables last longer and reduce unplanned outages.

It is therefore clear that in fast growing AI environments, where upgrades and reconfigurations are frequent, organised cabling directly supports scalability and uptime.

THAT WAS THEN

The shift from legacy to next generation cable management marks a fundamental evolution in how data centres are designed and maintained. Traditional cabling systems were often built reactively, tailored to individual projects without long-term scalability in mind. This approach led to inconsistent layouts, limited capacity and frequent congestion as facilities expanded.

Power was distributed through heavy, floor mounted power distribution units (PDUs) with thick cabling, while copper based networking dominated. Cooling considerations were minimal and tangled cables often restricted airflow and increased energy costs. Maintenance was manual, requiring technicians to trace cables by hand and rely on inconsistent documentation – a process that was both time consuming and error prone.

THIS IS NOW

By contrast, next generation, AI-ready cable management embraces a proactive, modular and scalable philosophy. Modern systems are built to accommodate growth from the start, using overhead busbars

‘As AI drives exponential growth in compute power and data traffic, the infrastructure that supports it must evolve just as quickly. Transitioning from legacy systems to next generation, AI-ready cable management ensures the physical layer remains strong, flexible and efficient.’

and modular power harnesses that reduce clutter and simplify expansion. Fibre optic rich connectivity supports ultra-high bandwidths, while pathways are engineered for liquid cooling and optimised airflow.

Many new data centres now integrate cable management with digital tools such as RFID tagging, automated mapping and data centre infrastructure management (DCIM) platforms, providing real time visibility into connectivity, capacity and performance. The result is a cable ecosystem that’s not only organised but intelligent – improving efficiency, simplifying maintenance and enabling rapid scaling to meet the increasing demands of AI workloads.

CAPACITY AND GROWTH

Even the most advanced hardware depends on thoughtful infrastructure planning. Building room for growth is critical, as AI clusters can expand rapidly. A common best practice is to design for a 50 per cent cable fill rate, leaving adequate space for future additions. Many installations start at only 20 per cent utilisation but quickly approach capacity as GPUs, servers and network switches are added.

Manufacturers and system designers now offer digital fill calculators and modular pathway solutions to make these estimates more precise. Designing with expansion in mind not only prevents overcrowding but also ensures proper airflow and easier maintenance throughout the system’s lifecycle.

SETTING STANDARDS

Establishing clear cable management standards helps maintain quality and reliability across multiple facilities. Consistency allows teams to deploy, scale and service equipment with confidence. Three steps form the foundation of an effective program:

- Define and document cable routes. Establish dedicated pathways and separation between power and data to reduce interference and confusion.
- Label and organise systematically. Implement a standardised labelling system that simplifies tracing and troubleshooting.
- Train staff and plan for sustainability. Equip technicians with the knowledge to maintain standards and adapt them as infrastructure evolves.

Attention to physical handling is equally important. Cables should be properly supported, loosely bundled and guided along wide radius turns to avoid damage. Using reusable straps, spools and structured supports keeps installations orderly without sacrificing flexibility.

Next generation data centres are moving beyond passive organisation toward intelligent cable management. Integration with DCIM systems allows operators to visualise cabling in real time, track changes automatically and even predict potential issues. Some facilities are adopting AI-assisted digital twins to simulate airflow, identify hot spots and optimise routing. These innovations align perfectly with the needs of AI-driven operations, where downtime is costly and agility is essential.

SUPPORT STRUCTURE

As AI drives exponential growth in compute power and data traffic, the infrastructure that supports it must evolve just as quickly. Transitioning from legacy systems to next generation, AI-ready cable management ensures the physical layer remains strong, flexible and efficient. It reduces risk, supports scalability and enhances sustainability – all while preparing facilities for the next wave of technological advancement. In the end, smart cable management is the invisible architecture that keeps the intelligent world running. ■

JON BARKER

Jon Barker is CPI's technical manager for Europe. He has over 25 years' experience in the engineering industry, with over 17 years specialising in data centre infrastructure. Barker serves as a technical contact, accountable for resolving pre- and post-sales technical support questions and issues. He also provides support to CPI's sales team by delivering product and technology based presentations to customers, channel partners and industry event audiences.

Event horizon

Platform UK 2026 will take place on 25th February, bringing together industry leaders, innovators and experts from across the digital infrastructure landscape. Inside_Networks caught up with Nicola Hayes to get the lowdown on the key themes driving the content agenda and what delegates can look forward to

IN: What was the reason for creating Platform Markets Group and how did you get involved with its formation?

NH: Platform Markets Group was founded four years ago by three people with several decades worth of experience in the data centre sector – myself, Philip Low and Gregory Gerot. Philip and I founded Broadgroup, the company responsible for the DataCloud series of events, and Gregory ran Broadgroup as managing director for over 15 years.

After Broadgroup was sold, and with the above mentioned experience behind us, we started discussions as to what we could create next. We didn't want to replicate what other companies were already offering to the market and spent a considerable amount of time speaking to industry contacts, the investment community and operators to identify areas we felt we could create a valuable proposition for.

As I was at the time heavily involved in higher education, as well as running my own strategic consultancy, it was determined that I would initially come on board as non-executive director to help with the direction and strategy of the company in its infancy, while Philip and Gregory would run the company from a functional perspective. As the company has grown beyond our expectations over the past few years, I have this year taken on the role

of chief marketing officer (CMO) and am fully involved in the day to day operations, including adding new services to our portfolio whilst remaining loyal to our content first approach.

IN: What gap or opportunity in the data centre sector were you aiming to address when Platform Markets Group was founded?

NH: We realised that we could use the strengths of our founders to create a compelling new venture. Myself and Philip are content people rather than events directors and Gregory has a strong background in luxury hospitality, so it made sense for us to create a premium service which focused exclusively on offering quality content and a quality experience developed to appeal to an audience of senior level executives in the sector. The last thing we felt the industry needed was yet another large trade show – there are plenty of these already established across the globe.

What we realised was missing was a conference where the content was at the top of the agenda. Once you start to add large exhibitions and several programme tracks to an event, you naturally end up losing the focus on true thought leadership.

We made a strategic decision to focus our efforts on developing a unique expertly curated programme, with topics determined by what senior leaders and investors wanted to hear about, rather than sales pitches. The decision not to include exhibition space and to only have one track of content was a difficult one but it was right for our audience and enables us to create something truly unique in the market. In addition, we have limited the number of attendees to facilitate meaningful networking and conversations, something we have been asked to continue for future events.

'Our overall aim is to ensure that attendees go away with vital strategic insight which enables business growth, as well as having made useful contacts and connections. Of course, we also want them to have enjoyed the overall experience!'

IN: How has the vision for Platform Markets Group evolved since its inception and what milestones stand out so far?

NH: Our vision remains the same as when we first determined the path we would follow with Platform Markets Group. This is to provide quality content and quality

‘Due to our approach to content, we bring together senior leadership from the operator community, as well as active investors. We know of several large transactions which were concluded at Platform UK 2025 and expect to hear the same again following our 2026 event.’

networking opportunities to an audience of senior leaders from data centre operators and the investment community.

When Platform Markets Group was created, we planned on one global event aimed at operators and investors from across the digital infrastructure sector but we quickly realised that there was a need for similar strategic content in other locations. We introduced Platform UK two years ago and Platform Frontier Markets, Central & Eastern Europe in 2024. This year we introduced Platform Insight into our portfolio to support our content first approach.

Our major milestone was selling out our Platform Global, held in Antibes at the beginning of September each year, in 2023. This was also the case in 2024. In 2026, we are expanding further by adding Platform Frontier Markets, Africa & Middle East to the event series.

IN: There quite a few data centre industry conferences now. What makes Platform UK 2026 different?

NH: There are a few key differences between Platform UK and other data centre conferences. Firstly, most events on the calendar are large and exhibition focused and, from a content perspective, mainly aimed at the engineering level within the sector.

Our programme is expertly curated and focuses on strategy rather than operations, making it more suitable for senior leaders and investors. Finally, due to our approach to content, we bring together senior leadership from the operator community, as well as active investors. We know of several large transactions which were concluded at Platform UK 2025 and expect to hear the same again following our 2026 event.

IN: What can delegates expect from attending Platform UK 2026 and what benefits will it offer both them and their businesses?

NH: Our overall aim is to ensure that attendees go away with vital strategic insight which enables business growth, as well as having made useful contacts and connections. Of course, we also want them to have enjoyed the overall experience!

IN: In your view, what are the biggest trends and challenges currently shaping the data centre sector?

NH: The biggest single challenge is renewable power. Current imbalances in capacity, as well as sustainability compliance and evolving regulatory and policy initiatives, present a challenging landscape for investors in UK digital infrastructure. Yet investment in AI facilities, merger and acquisition opportunities in sector consolidation still project a doubling in market size.

IN: What key issues and subject matter will Platform UK 2026 address and is there

an overriding theme for the event?

NH: This year the event pivots to the core theme confronting both investors and operators – powering the future. The UK government has shared its £725bn infrastructure 10-year plan. Data centres are included and now classed as critical national infrastructure. Promising significant velocity, two AI Growth Zones have already been confirmed with >£40mn of investment. A further five regions including in Scotland and Wales are actively bidding.

Our 2026 agenda will address some of the most pressing strategic issues facing senior leaders across the UK's digital infrastructure ecosystem:

- The urgent need for an escalation in planning reform and renewable energy – critical issues impacting current UK investment trends capacity.
- The impact of timescales for permits, interconnects and energy resources on the attractiveness of the UK for investors.
- Solutions to address the availability of clean, affordable power security and how to overcome grid bottlenecks.
- Sustainability compliance and evolving regulatory and policy initiatives.
- Evaluating the economic benefits of AI data centre investment in UK markets.
- The viability of second tier UK markets for data centre rollout.
- An evaluation of viability of sovereign AI Growth Zones.
- The role of community impact on public sentiment towards the sector.

> 'We made a strategic decision to focus our efforts on developing a unique expertly curated programme, with topics determined by what senior leaders and investors wanted to hear about, rather than sales pitches.'

IN: How have you structured the event to foster meaningful connections and business opportunities among participants?

NH: We bring together 350+ key stakeholders from across digital infrastructure, including investors, operators, government, experts and lawyers. A core value of our brand is to facilitate unparalleled networking as well as deal-making potential to all attendees.

IN: How do you see Platform UK evolving?

NH: Platform UK is a premier annual meeting and recognised as an outstanding networking platform. As the conference has evolved so too has the audience profile, which means that we are a C-level event. So, from a networking perspective, it is very attractive to other senior level segments.

We are also reaching out to government and their agencies who are increasingly involved in making critical decisions particularly for planning, and to energy companies which are already involved in renewables and looking to finance the transition. They are aware that data centres will be among their most important industrial customers. There is an emerging synergy between finance-energy-data centres that will become more complex and future events will reflect these trends and interpret them for the audience. ■

CLICK HERE to register for Platform UK 2026.

SITE designs and builds new modular data centre for Somerset NHS Foundation Trust

Secure IT Environments (SITE) has completed its latest modular data centre project with Somerset NHS Foundation Trust. The new 125m² data centre provides an energy efficient disaster recovery facility, ensuring Somerset NHS Foundation Trust can continue to deliver resilient services.

SITE proposed its external modular data centre solution. While cloud solutions were considered, they could not meet the requirements for existing clinical software or the cost constraints in place. SITE's modular system can be built rapidly and this design was live in eight months.

The design was divided into three areas – the main IT racks, an electrical plant area and a build area. SITE's design incorporated 20 19-inch 48U cabinets, configured in two rows of 10 with cold aisle containment, energy efficient uninterruptible power supplies (UPS) in N+1 format, as well as GEA Multi-DENCO Energy Efficient DX Freecool air conditioning units, also in N+1 configuration.

Blackpool Council moves forward with plans for first data centre as part of Silicon Sands

Blackpool Council is taking the next major step in delivering a first data centre for Silicon Sands, a flagship digital infrastructure project at the Blackpool Airport Enterprise Zone. A report recommends the next step on the project, which has the potential to support thousands of high value jobs across the region, both directly and indirectly, through investment in AI data infrastructure, renewable energy and innovation led growth.

Planning permission for a 6MW carbon friendly data centre and 20,000ft² office and research space is set to be submitted, following significant interest from private sector investors. The Silicon Sands plan builds on the arrival of the transatlantic Aquacomms cable and aims to position the Fylde Coast as a leading location for sustainable data centres and digital innovation.

Silicon Sands aims to tackle the climate crisis at the same time. Data centres will be powered by renewable energy, use liquid immersion cooling to improve efficiency and reuse heat to act as an energy source for other properties.

Deep Green proposes $120mn sustainable data centre investment in Lansing

Deep Green has announced plans to build a 24MW ultra-efficient data centre in Lansing. The $120mn project combines powerful computing capacity with a groundbreaking approach to carbon neutral heat recovery, making Lansing a national model for sustainable technology and clean energy innovation. The company will partner with the Lansing Board of Water & Light (BWL) to supply free, carbon neutral heat directly into its hot water system, cutting carbon emissions and creating lasting community benefits.

Benefits the Lansing community can expect from this development include over $1.1mn in annual natural gas savings to the BWL through reduced demand, and lowering carbon emissions through recycled heat at a rate equivalent to removing 3,000 cars from the road each year. It will also create well paid union and high-tech jobs during construction and operations that drive long-term economic impact.

PROJECTS & CONTRACTS IN BRIEF

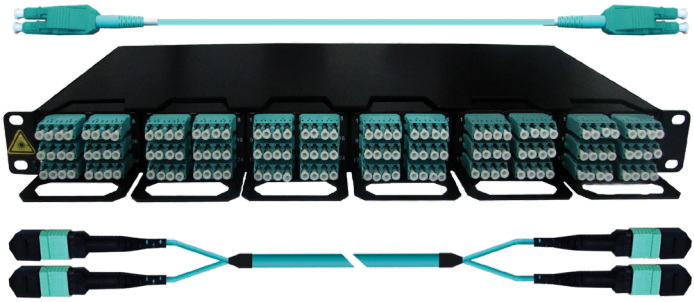
After a competitive tender process, Nokia has been awarded a significant new three year deal by Telecom Italia (TIM) to expand and modernise the coverage and capacity of its 5G network. The strategic partnership will cover TIM's customers across new regions, in addition to Nokia's existing footprint.

Emirates and OpenAI have entered into a strategic collaboration to advance AI adoption and innovation across the airline. The collaboration will entail enterprise-wide deployment of ChatGPT Enterprise, supported by tailored AI literacy programmes, technical exploration and executive strategic alignment designed to embed AI capabilities across the organisation.

Vertiv and Caterpillar have signed a strategic undertaking to collaborate on advanced energy optimisation solutions for data centres. This initiative will integrate Vertiv's power distribution and cooling portfolio with Caterpillar's, and its subsidiary Solar Turbines' product and expertise in power generation and combined cooling, heat and power (CCHP) to deliver pre-designed architectures that simplify deployment, accelerate time to power and optimise performance for data centre operations.

MLL has won an initial three-year contract, valued at approximately £500,000, from Moat. MLL's remit is to transition the BT copper lines currently connecting personal and property alarm systems at 83 Moat social housing sites to high speed optical fibre circuits.

STL - Sterlite Technologies



STL delivers high performance, end-to-end optical fibre cabling systems that are tailored for data centre inside plant (ISP) applications, especially for the white space area.

STL's solutions are designed to simplify complexity and support seamless network upgrades. STL offers a complete range of LC and MPO connectivity in singlemode and multimode (OM3/OM4) variants. Low loss assemblies enable cost effective edge deployments, while ultra-low loss options ensure superior performance in high speed core applications. All MPO assemblies and cassettes follow Method B polarity for consistency and ease of use.

Our structured cabling systems are fully compliant with global standards – ANSI/TIA-942, TIA-568 and ISO/IEC 11801 – and are backed by a 25-year performance warranty. STL's structured cabling solutions are engineered for scalability, performance and long-term reliability.

To find out more **CLICK HERE.**

stl.tech

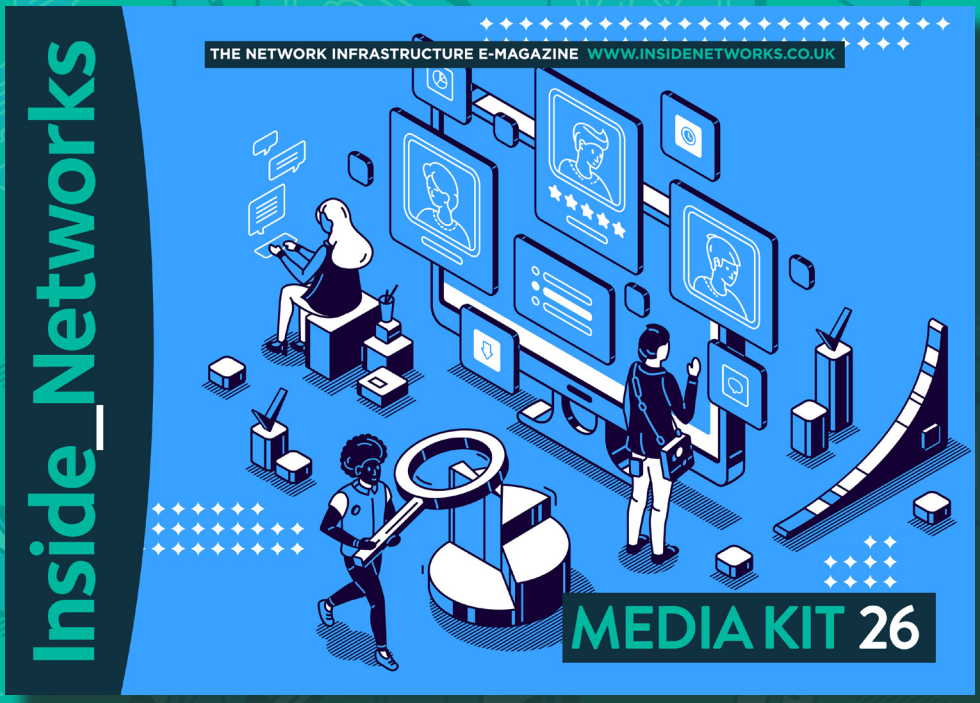
Allied Telesis

The new OneConnect cloud-based platform from Allied Telesis makes network control faster, smarter and more efficient by unifying and simplifying network management across wired, wireless and WAN infrastructures. Developed to help organisations streamline operations and accelerate automation, OneConnect will deliver real-time visibility, AI-driven assurance and seamless orchestration.

Built on a secure, scalable and multi-tenant cloud architecture, OneConnect will provide enterprise IT teams, managed service providers (MSPs) and partners with a comprehensive view of their entire infrastructure through an intuitive, single pane of glass interface. A simple, subscription-based licensing model will benefit customers and partners with uniform pricing and co-term flexibility.

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

All you need to know



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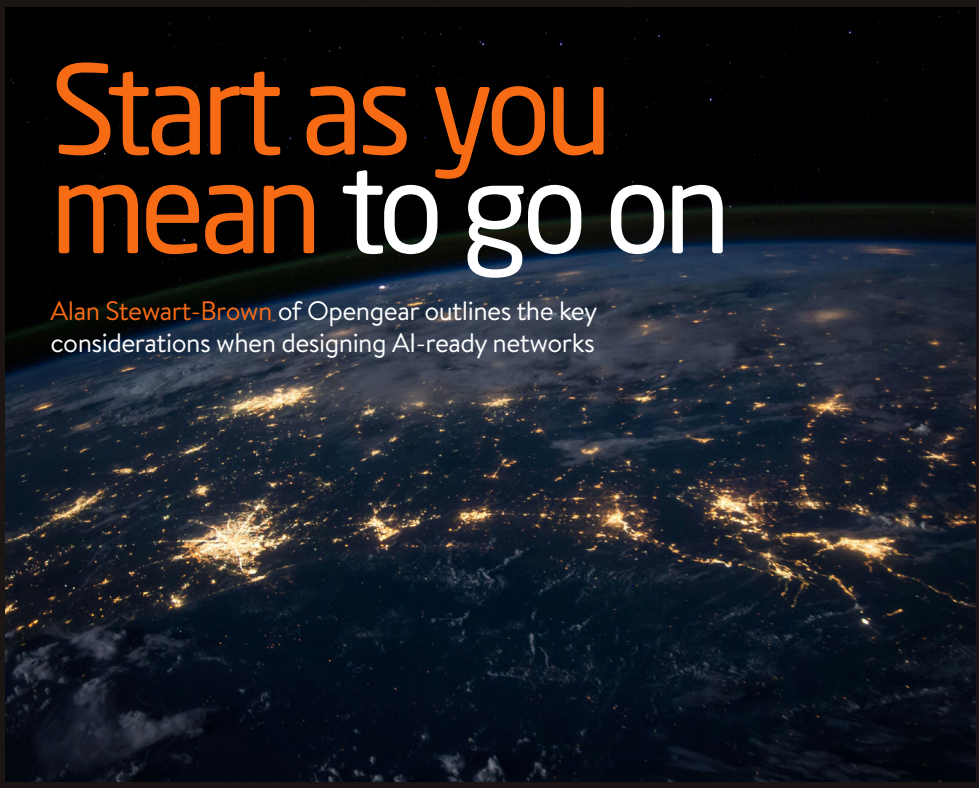
Start as you mean to go on

Alan Stewart-Brown of Opengear outlines the key considerations when designing AI-ready networks



An increasing number of enterprises want their network infrastructure to be AI-ready from day one. According to McKinsey, demand for AI-ready data centre capacity is projected to grow by an average of 33 per cent per year from 2023 to 2030. By the end of the decade, about 70 per cent of total data centre capacity will need to support advanced AI workloads.

DIRECTION OF TRAVEL

That level of growth has no precedent in traditional environments. It points to far greater demands on network infrastructure, with many decision makers expecting a sixfold increase in data centre interconnect bandwidth over the next 2-3 years. This creates an increasingly urgent need for networks that are always available, secure and engineered to support data intensive workloads across both centralised data centres and the environments where that data originates.

The challenge is that in response to these growing demands, many providers are now scrambling to retrofit products and systems that were never designed with this future in mind. Instead of enabling growth, it often leads to rising technical debt, brittle integrations and spiralling operational costs. The pace of change is exposing the limits of a reactive mindset.

REACHING THE LIMITS

Much of this happens because older architectures weren't built for the scale, speed or resilience that AI demands. Each short-term fix adds another layer of complexity, creating a patchwork that

grows harder to maintain over time. What starts as a workaround to meet immediate needs eventually locks organisations into rigid systems that can't adapt, thereby draining resources and slowing innovation.

The need for resilience is the other key part of the puzzle. As AI models grow in complexity, achieving resilience itself becomes more challenging. Modern deployments rely on vast, distributed data pipelines and specialised compute, which create more points of potential failure.

DOWN AND OUT

Data centre outages remain prevalent. According to the 2024 Uptime Institute Global Data Center Survey, more than half (53 per cent) of operators say their organisation has experienced an outage in the past three years. A slowdown in a cloud region or an outage in a streaming backbone can ripple across the stack, interrupting both the movement of data and the models that depend on it.

When disruption strikes, whether in data flow or infrastructure, the effects can cascade quickly, making it harder to sustain the consistency and reliability organisations expect. In parallel, continuous processing and real-time analytics are raising the stakes, turning minutes of downtime into material risk. These aren't background jobs running at the margins, they are decision engines operating in the moment and are directly tied to business outcomes.

And when that flow is interrupted, the impact extends well beyond delayed insights. Network issues can degrade performance before systems fail outright, while security gaps can amplify the fallout of any incident. In AI-centred environments, even brief outages can stall training pipelines and interrupt inference, undermining confidence in results that need to be both timely and dependable.

SHIFT WORK

Addressing these challenges requires a shift in how infrastructure is designed

and managed. Networks need to be built for AI from the outset, rather than adapted later. Building networks with AI-readiness at the foundation ensures organisations aren't forced into costly and disruptive retrofits. Instead of piecing together incremental fixes, they can create an architecture that is flexible enough for today's data intensive workloads, while scaling smoothly as demands increase.

A strong network management framework underpins this approach.

'Organisations that design for AI from day one, supported by a strong management framework and resilient OOB access, are better placed to scale and keep operations steady when it counts.'

Unified visibility and control across distributed sites should sit on a dedicated management plane, with secure, independent access to critical devices even when production links are impaired. Consistent policy, zero touch provisioning and targeted automation reduce operational load and speed recovery time, especially across remote or edge locations.

Agility can be designed in from the start, allowing systems to adapt more easily to new applications and changing compliance demands or shifts in business strategy. The outcome is not just smoother adoption of AI-driven operations but also longer-term value for customers. It means infrastructure that holds steady under pressure, lowers risk and frees time for improvement rather than remediation. In effect, AI-readiness turns the network from a constraint into a platform for growth.

ENSURING RESILIENCE

Even with this foundation, resilience remains essential. As AI becomes central to real-time decision making, the tolerance for downtime is shrinking. That's why out-of-band (OOB) management has become

critical. By providing an independent, secure management channel, OOB ensures infrastructure remains accessible, recoverable and resilient – even under stress.

Adopting OOB enables teams to diagnose issues, apply fixes and restore services without waiting for on-site intervention or risking further instability. This capability is particularly vital in distributed and high scale environments. OOB management ensures resilience by reducing the blast radius of failures, sustaining operational continuity and giving organisations confidence that their AI-ready networks remain dependable in the moments that matter most.

AI BY DESIGN

Organisations that design for AI from day one, supported by a strong management framework and resilient OOB access, are better placed to scale and keep operations steady when it counts. The alternative is a cycle of retrofits that drains time and budget. As AI workloads spread across regions and edge locations, the expectation will be clear – availability and control must be built in from the start. By adopting this approach, organisations will not only put themselves in the best position to meet today's demands but also create the foundation for a secure, resilient future. ■

ALAN STEWART-BROWN

Alan Stewart-Brown is Opengear's vice president EMEA. His primary focus is the development and execution of sales strategies, talent development and channel initiatives that ensure the accelerated growth of the Opengear business across the region. Stewart-Brown brings 25 years of sales leadership experience gained across the technology sector.

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