



Shining a

CAN OPTICAL FIBRE REALLY CREATE
MORE SUSTAINABLE NETWORK
INFRASTRUCTURES?

Featu
benef

Inside_Networks



a light

res and its

WHY THE USE OF
PRE-TERMINATED
CABLING IS GROWING

A matter of fact

HOW LESS INFORMATION
CAN LEAD TO MORE
INTERPRETATION
WHEN IT COMES TO UPS
TECHNOLOGY



PRE-TERMINATED SOLUTIONS

High Performance Cabling, High Speed Deployment

Changing work patterns and business processes have been driving additional demand for **rapid deployment**, **scalability** and **reliability** all while maintaining data centre performance, costs and operational efficiency has never been so critical.

Siemon factory terminated and tested Plug and Play fibre solutions offer the perfect balance of performance and speed. Available in Base 8 and Base 12 configurations, in MTP and MTP Pro interfaces, they can be deployed up to 90% faster than traditional field termination methods and support today's 40/100G applications, while providing a smooth migration path to 200/400G speeds as the needs of the data centre evolve.

Explore Siemon Fibre Optic Solutions

www.siemon.com



6

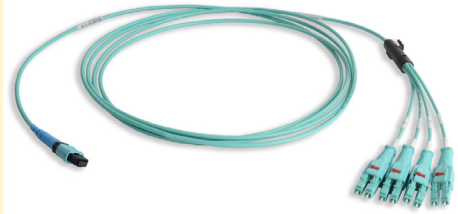
ROB'S BLOG

Last chance

9

NEWS

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



34

PRE-TERMINATED SYSTEMS

Alberto Zucchini of Siemon discusses the role and benefits of breakout optical fibre assemblies in data centre architecture designs

39

PRE-TERMINATED SOLUTIONS

State-of-the-art pre-terminated solutions profiled

18

MAILBOX

The pick of the recent emails to Inside_Networks



48

PRE-TERMINATED SYSTEMS

Stuart McKay of Panduit offers five reasons why the use of pre-terminated cabling is growing

21

QUESTION TIME

Industry experts discuss whether the claims made about optical fibre's sustainability based credentials really stack up



52

CHANNEL UPDATE

Moves, adds and changes in the channel



56

UPS AND POWER MANAGEMENT

Louis McGarry of Centiel UK looks at why less information can lead to more interpretation when it comes to UPS technology

60

UPS AND POWER MANAGEMENT PRODUCTS AND SYSTEMS

A selection of the very best UPS and power management products and systems currently available



62

UPS AND POWER MANAGEMENT

John Booth of Carbon3IT examines the EUCOC best practices as they relate to power management

66

QUICK CLICKS

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



68

SUSTAINABILITY

Jonathan Dunbar of Leviton Network Solutions identifies the green practices to look for from a cabling manufacturer

72

PROJECTS AND CONTRACTS

Case studies and contract wins from around the globe

74

PRODUCTS AND SERVICES

The latest network infrastructure products, systems and services

77

FINAL WORD

Rajesh Gangadhar of STL explains the benefits of using network orchestration to add intelligence and automation to a network



**CELEBRATING
25 YEARS**

Introducing

The Network Infrastructure Education Roadmap Technical Education for Network Infrastructure Professionals

Designed and Delivered by CNet Training, The Global Leader
in Technical Education for the Digital Infrastructure Industry

Network Infrastructure Programs

Level 3



**Certified Network
Cable Installer**

[Click here for more information](#)

Level 4



**Certified Network
Infrastructure Technician**

[Click here for more information](#)

Level 4



**Certified Outside
Plant Technician**

[Click here for more information](#)

Level 4



**Certified Integrated
Infrastructure Technician**

[Click here for more information](#)

Level 4



**Certified Wireless
Infrastructure Technician**

[Click here for more information](#)

Level 4



**Certified Telecommunications
Project Management**

[Click here for more information](#)

Level 5



**Certified Network
Infrastructure Design Professional**

[Click here for more information](#)

The Network Infrastructure Education Roadmap

Designed for those wishing to demonstrate the highest levels of knowledge, skills and expertise in the network infrastructure sector.

The Network Infrastructure Education Roadmap allows sector professionals to map education, official certifications and professional qualifications to meet their needs depending on their career goals.

Each sector approved program addresses the skills and knowledge requirements of different roles throughout the sector, from network cable installers to network infrastructure designers.

Successful completion of each program provides:

- ▶ Official certification
- ▶ Use of the official certification logo
- ▶ An internationally recognised qualification
- ▶ Use of the post nominal title
- ▶ Use of the program digital badge

Time for action

EDITOR

Rob Shepherd
07708 972170



SUB-EDITOR

Chris Marsland

ADVERTISING MANAGER

Kate Paxton
01603 610265



CREATIVE DIRECTOR

Vishnu Joory

TECHNOLOGY CONSULTANT

James Abrahams

CIRCULATION MANAGER

Debbie King

ACCOUNTS

Billy Gallop




All rights reserved.

No part of this publication may be used, transmitted or produced in any form without the written permission of the copyright owner. Applications for written permission should be addressed to

info@chalkhillmedia.com

The views and comments expressed by contributors to this publication are not necessarily shared by the publisher. Every effort is made to ensure the accuracy of published information.

© 2021 Chalk Hill Media

 Rarely a day goes by without an apocalyptic warning about the impending destruction of the planet due to carbon emissions and climate change. The message of 'adapt or die' is stark and yet there seems to be a distinct lack of action on the issue – something that will hopefully change as a result of the 26th UN Climate Change Conference of the Parties (COP26).

Love her or loathe her, Greta Thunberg's scepticism over global leaders' promises to address the climate emergency, dismissing them as 'blah, blah, blah', is something shared by many who are concerned about this issue. It's also fair to say that the data centre sector has its own fair share of 'blah, blah, blah' when it comes to sustainability and reducing the carbon emissions it produces.

What is encouraging, however, is the growing awareness of the need for all the constituent parts of an IT network infrastructure to be as environmentally efficient as possible. Sometimes this can be from unlikely sources and claims about optical fibre's ability to create more environmentally friendly network infrastructures than copper based systems are frequently made. To discuss whether they really stack up, this month's Question Time asks a panel of experts to explain what features make this technology more sustainable.

Also in this issue, we have special features dedicated to pre-terminated systems and UPS and power management. Experts from Panduit, Siemon and Centiel have provided excellent articles on topics including why the use of pre-terminated cabling is growing, why less information can lead to more interpretation when it comes to uninterruptible power supply (UPS) technology, and the benefits of breakout optical fibre assemblies in data centre architecture designs. John Booth of Carbon3IT also examines the EU Code of Conduct for Data Centres (Energy Efficiency) best practices as they relate to power management.

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

Rob Shepherd

Editor



Inside_Networks
THE NETWORK INFRASTRUCTURE E-MAGAZINE



FLUKE
networks

Get up to
£2,500
in savings when you
upgrade.



**We are ready for PoE.
Are you?**

**Don't miss out.
Upgrade your old tester now.**

For a limited time, Fluke Networks is offering up to £2,500 trade-in discount including options with gold support.

Find out more



Faster Deployment, Guaranteed Performance

Pre-terminated fibre optic solutions emphasise simplicity and durability for fast, error-free use and re-use.



- Factory-tested performance minimises the need for on-site testing
- Ideal for high density installations where quality and speed of implementation is critical
- Available to support MTP, LC, SC connectivity in Multimode or Singlemode applications
- OFNP, OFNR, LSZH or CPR rated round loose tube cabling
- Fast plug-and-play connections with the ModLink system of cables and cassettes
- Shielded Cat 6A options deliver up to 10G performance as part of a complete C6A system



With over 35 years of experience, Molex cabling products are trusted by organisations worldwide. Designed for maximum versatility, our products provide flexible end-to-end solutions capable of running the most demanding network protocols in networks that will continue to perform for years.

Find out more at www.molexces.com/products/fiber/pre-terminated

molex

creating connections for life

Digitally mature businesses expanding infrastructure four times faster than at pre-pandemic levels

The latest Global Interconnection Index (GXI Vol 5), an annual market study published by Equinix, has revealed that the coronavirus pandemic has forced economies into digital overdrive, with global business leaders who were already implementing a digital first strategy moving four times faster than at pre-pandemic levels.

In the UK, enterprises have compacted the time to deploy their digital infrastructures to multiple regions, expand to multiple edge locations and integrate multiple clouds. What might have taken two years is now achievable within six months.

This accelerated pace of digital transformation is predicted to continue to fuel the rapid growth in interconnection bandwidth. According to the GXI Vol 5, overall interconnection bandwidth – the measure of private connectivity for the transfer of data between organisations – is forecast to reach 21,485+Tb/s, or 85ZB, per year by 2024, representing a five year compound annual growth rate (CAGR) of 44 per cent. This growth is aligned with the increasing demand for the digital infrastructure needed to bring more businesses online, facilitate electronic integration with partners and supply chains, and reach more people in distributed hybrid work environments.

Frankfurt, London, Amsterdam and Paris (FLAP) are predicted to be the top

locations in Europe for interconnection bandwidth growth by 2024. London, representing the biggest core metro, is expected to grow at a 45 per cent

CAGR year on year, contributing 1,735Tb/s by 2024. This bandwidth is almost three times higher than Paris, more than twice the Tb/s of Amsterdam and double that of Frankfurt. This further cements London's position as a strategic interconnection hub for digital businesses looking to compete on a global scale, despite the UK's departure from the European Union and disruption brought about by the pandemic.



Russell Poole

‘The latest version of the GXI reveals that UK enterprises see the rapid expansion of their digital infrastructure as a key priority in their recovery from the pandemic,’ explained Russell Poole, managing director UK at Equinix. ‘There is now a real sense of urgency, with companies significantly accelerating their digital transformations to meet the increasing demand for the real time transfer, storage and processing of data. As a result, infrastructure deployment times are reducing from several years to just six months.

He added, ‘It is now more critical than ever for UK industries, many of which have been hit hard by the pandemic, to implement a digital first strategy to improve efficiency and develop new business revenue models that will aid their post-pandemic revival.’

CNet Training awarded ISO 14001 certification for environmental management

CNet Training has gained ISO 14001:2015 certification in recognition of its ongoing commitment to environmental management systems. ISO 14001:2015 is designed to help organisations around the world reduce their environmental impact. The certification process follows standards set by ISO to reduce the effect of global warming and mitigate all adverse impacts to the global climate, with the aim to address the 17 sustainable development goals set by the United Nations.

Paul Gorman, head of technical development at CNet Training, said, 'The decision to work towards ISO 14001 certification demonstrates our ongoing



Paul Gorman

commitment to sustainability, and developing our ethical and environmentally focused management systems. To become ISO compliant we underwent a long and extensive evaluation of our processes, which included an in-depth assessment of

our management systems, environmental aspects and relevant documentation, along with an audit, with an emphasis on planned opportunities and objectives to further mitigate risks and impacts arising from the services that we provide.'

Business leaders find a lack of understanding around data a barrier to growth

59 per cent of UK business leaders say that a lack of understanding of data is among the biggest barriers to evolving business conversations. This is despite the fact that for 75 per cent of the c-suite, hard data and numbers remain significant factors in driving quality business exchanges, according to a new survey from Tableau.

The research polled 1,098 executives across Europe. It found while 56 per cent of UK business leaders believe the ability to understand insights from data is one of the most important skills for driving quality business conversations, only 12 per cent

believe that storytelling is important – suggesting that many senior executives are now prioritising hard facts over narratives when making key business decisions.

Simon Quinton, UK and Ireland country manager at Tableau, commented, 'Executives know data enables better business conversations and accelerates decision making. So it's no wonder that boardrooms



Simon Quinton

are concerned that businesses are not emerging from the coronavirus pandemic with data decision making and data literacy at the core.'



IN PARTNERSHIP

MAYFLEX
A Sonepar Company

CERTIFIABLY BETTER TESTING



TRY IT



TEST IT



TRUST IT

Mayflex are bringing the AEM range of cable and network certification tools to the UK market. With innovative product features, in country stock, support and service, get ready to experience certifiably better testing.

Why AEM?

- Global leader in test and measurement innovation
- Annual revenues in excess of \$600m
- Multi award winning cable certification platforms
- All Copper Certification platforms are rated at 3000 Mhz, exceeding Cat8 Standards
- 3-year care plan and UK calibration on CV100 TestPro Platforms
- Participation in development of industry including - IEEE, ISO and TIA
- Established market share in USA, and APAC
- Approved as part of leading cabling vendor warranty programmes
- Multiple innovative features across each certification platform



WIN
£10,000
WORTH OF AEM KIT

[Click here](#) to find out more about AEM products and services by signing up to a 45-minute webinar and be in with a chance of winning up to £10,000 worth of AEM equipment before Christmas!

Contact Mayflex on **0800 75 75 65**
www.mayflex.com

[Click here](#)
to find
out more

Siemon becomes first to demonstrate SPE over 400m of balanced twisted pair copper cabling

Siemon has successfully demonstrated operation of 10BASE-T1L Single Pair Ethernet (SPE) over 400m of its Category 7A TERA balanced twisted pair copper cabling.

This makes Siemon's fully shielded TERA SPE solution the first 23AWG balanced twisted pair copper cabling system proven to support 10BASE-T1L over distances of up to 400m for operational technology (OT) and 10Mb/s enterprise IT applications. It is a milestone step in confirming SPE's ability to bring Ethernet network compatibility,



including operation over a standardised, non-proprietary cabling infrastructure, to a wide range of OT devices operating at 10Mb/s or less.

John Siemon, chief technology officer and vice president of operations at Siemon, said, 'Traditional Ethernet connectivity used for networking devices like wireless access points and surveillance cameras is cost prohibitive for OT device connections. SPE supporting 10Mb/s transmission over balanced single pair cabling delivers reliable power and data to these devices. All Siemon connectors, cords and cables in the SPE channel are commercially available.'

Tokyo, Hong Kong and Washington named as the largest retail colocation markets

TeleGeography has revealed that Tokyo remains the largest retail colocation market in the world, with 13.8 million square feet of gross retail capacity reported in 2021. The second and third largest markets – Hong Kong and Washington – each have a 50 per cent smaller data centre footprint than Tokyo. Mumbai, Seoul, Montreal, Madrid and Johannesburg are also noteworthy markets, with at least one million square feet of retail colocation space.

At least 200 data centre sites are known to be in the pipeline right now. While this construction

is spread across global regions, Asia and Europe far outpace other regions, including North America, with the largest percentages of new deployments.

'Long-term colocation growth tends to be modest in both large and smaller markets – between 2017 and 2021, the median compound annual growth rate (CAGR) among a sampling of 109 markets was just six per cent,' said Jon Hjembo, senior manager at TeleGeography. 'Major hubs outpacing the median growth rate include Amsterdam, Frankfurt, and Washington – each with at least



10 per cent compound annual growth in retail capacity.'

MNOs want clearer views of network performance to generate new 5G revenues

While 88 per cent of mobile network operators (MNOs) are set to deploy 5G standalone in the next two years, many are still searching for the tools that will enable these networks to generate revenues from enterprises and industry.

Heavy Reading and Exfo conducted a survey of MNOs across North America and Europe to understand their approach to 5G standalone and the revenue opportunity it presents. While 76 per cent of MNOs believe service assurance will be necessary to sell advanced 5G services and meet stringent service level agreements (SLAs), operations teams don't have real time



Philippe Morin

visibility into how outages and degradations impact customers. 65 per cent of MNOs say that this lack of actionable insight is

preventing them from automating networks and fault resolution, which are essential to meeting demanding performance expectations in enterprise applications.

Philippe Morin, CEO at Exfo, said, 'The opportunity to generate revenues from 5G standalone lies in

automated networks, which means service providers must deliver on enterprise service level agreements. MNOs want greater service assurance and analytics to deliver actionable insights into network performance and user experience.'

Human review of artificial intelligence decisions needs legal protection

The right to human review of decisions made fully by computers should not be removed while artificial intelligence (AI) is still in its infancy, BCS, The Chartered Institute for IT has warned. A government consultation on personal data suggests human appeal against some automated decisions by AI could be unnecessary.

The UK's Department for Digital, Culture, Media and Sport (DCMS) is seeking further evidence before forming firm proposals on reform of the UK's existing data legislation, including considering the removal of Article 22 of the General Data Protection

Regulation (GDPR). Article 22 focuses specifically on the right to review fully automated decisions.

Sam De Silva, chair of BCS' Law Specialist Group, explained, 'We need clarity on the rights someone has in a scenario where there is fully automated decision making that could have significant impact on that individual. We would also welcome clarity on whether Article 22 should be interpreted as a blanket prohibition of all



Sam De Silva

automated data processing that fits the criteria or a more limited right to challenge a decision resulting from such processing. BCS is not convinced that either retaining Article 22 in its current form or removing it achieves such clarity.'

DON'T DOUBT THE DATA... DEPEND ON THE NEW FIBERMASTER

NEW



The new **FiberMASTER** series of fibre optic testers will make it easier and faster to verify, troubleshoot and certify fibre optic cabling.

- **Complete range** - Includes OTDRs, PM/LS and Probes
- **Easier to carry** - One of the World's smallest OTDRs
- **Lower Cost** - Save 50% compared to other premium brands
- **Highly Accurate** - Distance accuracy verified by German test lab
- **Made in the USA** - Quality testers built with 30 years of experience

For a short demonstration or for more information please call
(0)1925 428 380 or email uksales@trend-networks.com



TREND NETWORKS

Depend On Us

Vertiv defines standard models for deploying edge infrastructure

Vertiv has released the results of an in-depth research project to identify edge infrastructure models. It aims to help organisations move toward a more standardised approach to edge computing deployments, with the intent to improve costs and deployment times. The report – *Edge Archetypes 2.0: Deployment-Ready Edge Infrastructure Models* – builds on the edge archetypes research and taxonomy Vertiv introduced to the industry in 2018.



power requirements and availability, site tenancy, passive infrastructure, edge infrastructure provider and number of sites to be deployed. It defines Device Edge, Micro Edge Distributed Edge and Regional Edge facilities.

‘As the edge matures and sites proliferate and become more sophisticated, creating edge infrastructure

models is a necessary step toward standardised equipment and design that can increase efficiency and reduce costs and deployment timelines,’ said Martin Olsen, global vice president edge strategy and transformation at Vertiv. ‘Edge sites will continue to require some customisation to meet users’ specific needs, but these models streamline many fundamental choices and introduce some much needed repeatability into edge environments.’

NEWS IN BRIEF

Infratil has agreed to invest up to £120-£130m in Kao Data.

The GSA has confirmed the number of 5G devices has surpassed 1,000 and now stands at 1,060, representing an increase of 21.4 per cent in the last quarter alone. Among these 66.4 per cent are commercially available – this proportion having grown by 26.4 per cent over the last three months, with number of available devices having passed 700 to reach a total of 704 devices.

Yadro has joined the Open Compute Project Foundation (OCP) as a Gold member.

According to recent findings by Atlas VPN, almost 40 per cent of users globally don’t have internet freedom. While Icelanders have the most liberty online, Chinese internet users suffer the most from content limitations and censorship.



VERTIV™

Time for a Tech Refresh?



You've Come to the Right Place.

Drive the edge revolution with the latest power, cooling and remote access technology from Vertiv to quickly deploy and protect your IT spaces.

Multiple Edge solutions in a single
Vertiv™ VR Rack:

- **Vertiv™ Edge UPS** reliable, efficient power protection
- **Avocent® ACS** advanced serial console servers
- **Avocent®** LCD local rack access console
- **Vertiv™ VRC** rack-based cooling
- **Vertiv™ Geist™ UPDU** universal connectivity

What's Your Edge?

[Vertiv.com/whats-your-edge](https://www.vertiv.com/whats-your-edge)



Cut Costs. Not Power.

Deliver best-in-class battery backup and power protection for your IT edge applications with the new **Vertiv™ Edge** UPS.

Available in mini-tower, rack-tower and rack mount form factors, with capacities ranging from 500VA to 3000VA, these highly efficient yet compact units deliver optimum runtime at the right size and power density in a cost-effective UPS solution.



- **Includes FREE Vertiv™ Power Assist monitoring software and 2-year warranty***



LCD display



High output power factor (0.9)



Efficiency up to 98%



2-year warranty*

*Warranty period begins with delivery, as per Vertiv warranty terms. Warranty available only upon registering the unit.

© 2020 Vertiv Group Corp. All rights reserved. Vertiv™ and the Vertiv logo are trademarks or registered trademarks of Vertiv Group Corp. All other names and logos referred to are trade names, trademarks or registered trademarks of their respective owners.

What are we waiting fo

Hi Rob

The latest Green Alliance net zero policy tracker report serves as yet another reminder that we all must be doing more to reach net zero targets. We have a situation where emissions from buildings have fallen by only 10 per cent over the last decade and they are now higher than they were in 2015. Meanwhile, the level of CO₂ in the atmosphere has increased by almost 15ppm in that same timeframe. With the technology available to us, we should be making much larger leaps towards the 2050 net zero targets.

The built environment is the source of nearly 40 per cent of carbon emissions worldwide and we spend, on average, 90 per cent of our time in buildings. This means that the built environment is a sector that absolutely has the scope to make carbon savings and must do so in order to fight climate change.

To make these savings and reduce emissions, it is fundamental that we utilise

the innovative technology and digital tools that are available, such as digital twins, that can make a big impact at scale. Put simply, by using tools that can effectively measure output, it is possible to identify where savings and reductions can be made.

The ability to predict performance is also incredibly useful when designing intelligent buildings. Testing intelligent building processes and systems through digital twin technology enables an assessment of which smart infrastructure tech could have the greatest impact. This can help avoid costly mistakes or the installation of systems for vanity reasons



Rittal – The System.

Faster – better – everywhere.

Looking for the right solution for your network or server application?

Then look no further.



ENCLOSURES

POWER DISTRIBUTION

CLIMATE CONTROL

r?



which, in reality, will not deliver the savings – carbon or otherwise – intended.

There can be other solutions available off the shelf, once which may not have been considered, which are more appropriate and better suited to the situation. Far better to scrutinise

to ascertain the best way forward virtually rather than physically.

Being able to compare and contrast different measures according to their economic and environmental performance ensures the most effective building design. And why stop at intelligent buildings? We can go much further in developing

intelligent communities of energy efficient buildings and drive operational optimisation.

If more buildings can be designed and built to reduce energy consumption, enhance energy preservation strategies and operate sustainably, we are likely to make much more efficient progress and get back on track in the fight against climate change – armed with the power of technology.

Don McLean
IES

Editor's comment

The growth and development of in-building technology, driven by the ability to configure building services over a single network infrastructure, has been one of the most exciting IT stories over the last decade. However, as Don suggests, while occupant comfort and productivity are obviously important, more must be done to utilise it to reduce carbon emissions.

19



VX IT

The world's fastest IT rack

IT INFRASTRUCTURE

SOFTWARE & SERVICES


www.rittal.co.uk

Make it easier to manage your relationships.



Explore our all-optical switching solutions.

Connect your data center to growth.



Our powerful all-optical switching solutions ensure fast, automated and secure connectivity in your data center.


So make it easier to manage complex cross-connects and enjoy the integrity of an automated and remotely controlled system.

Find out more at
hubersuhner.com/allopticalswitching

HUBER+SUHNER

Seeing the light

Using optical fibre to create next generation network infrastructures has many advantages and one that is not immediately apparent is sustainability. With numerous claims being made about its environmental credentials, [Inside_Networks](#) has assembled a panel of industry experts to discuss whether they really stack up

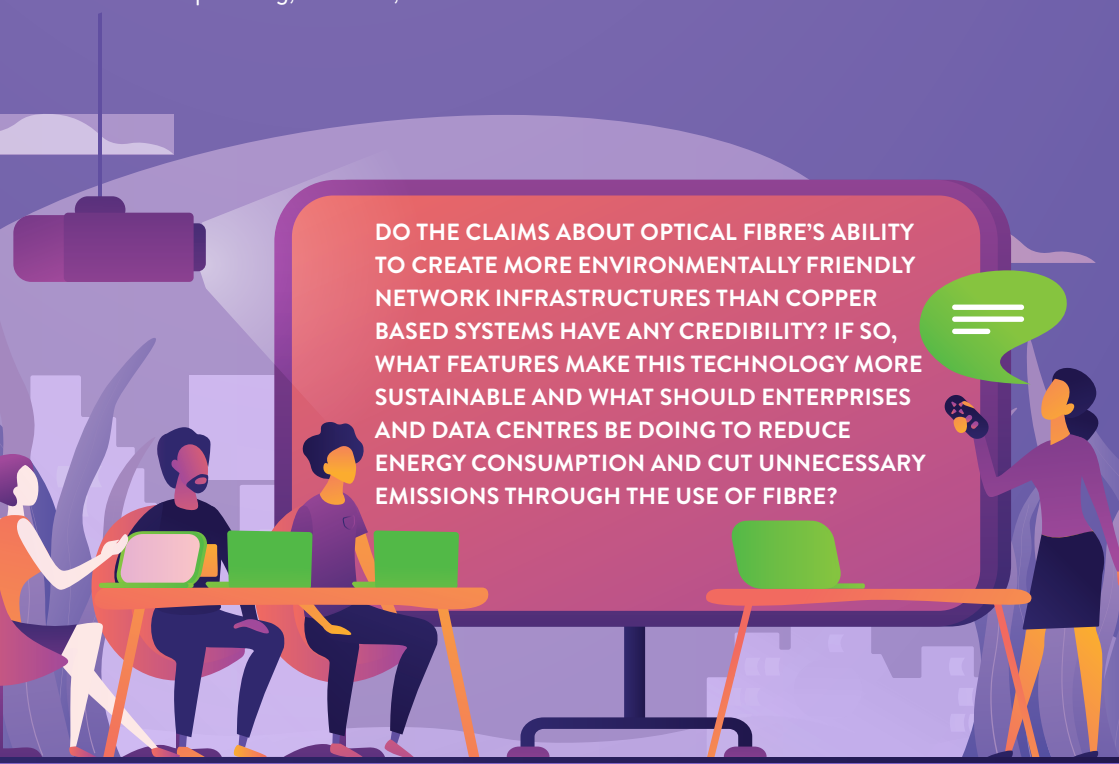
 In order to make data centre and enterprise network infrastructures as sustainable as possible, there is growing awareness of the need for all the constituent parts to be environmentally friendly. Not only does this include using components that use less energy, it also means specifying and installing products that are designed, built, packaged and distributed in sustainable ways.

The operational benefits of optical fibre cabling are significant in terms of speed and future proofing, however, attention

has also turned to the materials used in its production. These qualities are usually positively compared to that of copper but does this tell the whole story, and are the claims about fibre's sustainable credentials being exaggerated? In order to find out, Inside_Networks has assembled a panel of experts to offer their views on whether there are genuine environmental benefits to fibre.

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

21



DO THE CLAIMS ABOUT OPTICAL FIBRE'S ABILITY TO CREATE MORE ENVIRONMENTALLY FRIENDLY NETWORK INFRASTRUCTURES THAN COPPER BASED SYSTEMS HAVE ANY CREDIBILITY? IF SO, WHAT FEATURES MAKE THIS TECHNOLOGY MORE SUSTAINABLE AND WHAT SHOULD ENTERPRISES AND DATA CENTRES BE DOING TO REDUCE ENERGY CONSUMPTION AND CUT UNNECESSARY EMISSIONS THROUGH THE USE OF FIBRE?

NICOLAS ROUSSEL

TECHNICAL MANAGER AT SIEMON

When we consider IT infrastructure on the whole, we can confidently say that the industry has a long way to go to becoming environmentally friendly. IT technologies all require huge amounts of energy for equipment, cable and component production and, once installed, active equipment requires power to support our data needs. For that reason, initiatives like the European Union Code of Conduct for Data Centre Energy Efficiency encourage the data centre industry to reduce energy consumption and the associated carbon footprint.



If we take a closer look at IT cabling and its components, we could consider optical fibre to be, in some respects, more eco-friendly than copper, as sand (silica) is more easily available and production typically 'cleaner'. However, the recycling process is more complex due to the number of jacket types and constructions available to support a wide range of installation environments.

In the LAN environment, fibre to the office/outlet (FTTO) would potentially require less cable, fewer containment pathways and reduced installation times. But at the same point, FTTO requires more active components that use energy all year round. Standard copper LAN infrastructures using Energy Efficient Ethernet could have lower energy usage and benefit from usage standby power features.

Determining efficiencies is not so easy, as fibre could have a lower environmental capital expenditure. However, copper based systems may have a better operational

expenditure based on the cost difference between optical and copper active equipment.

In the data centre, fibre supports much higher transmission speeds than copper.

Instead of using 10 10Gb/s copper links, one fibre link of 100Gb/s provides the same bandwidth, resulting in a reduction of cabling products, active components and energy costs. These improvements help reduce the total energy consumption of a data centre, which is more important than ever, as hybrid working and the general growth of digital

data continue to drive increased demand.

Looking into the future, speed increases to 400Gb/s and 800Gb/s using one link of fibre are becoming a reality. Also, singlemode fibre ensures a future proof network infrastructure compared to copper, as it supports higher bandwidth over longer distances. On the downside, fibre potentially incurs higher transceiver power consumption costs. Customers with an installed singlemode backbone can be assured of a greener footprint, as fibre supports migration to next generation active equipment and higher data rates.

'INSTEAD OF USING 10 10GB/S COPPER LINKS, ONE FIBRE LINK OF 100GB/S PROVIDES THE SAME BANDWIDTH, RESULTING IN A REDUCTION OF CABLING PRODUCTS, ACTIVE COMPONENTS AND ENERGY COSTS.'

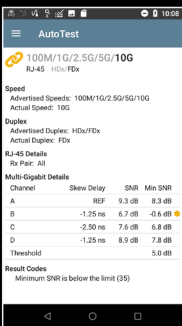
Legendary quality - unsurpassed technology.

LinkRunner® 10G Advanced Ethernet Tester

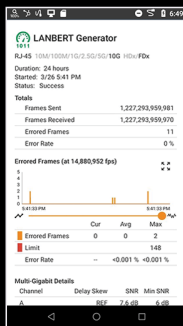
You can't test the network if your tester won't link to it.

With more capabilities than other 'wanna be' products, LinkRunner 10G is simple for network and installer techs to use, but powerful enough for network engineers to discover, diagnose, and solve network issues from cabling to packet performance.

Quickly test, verify, troubleshoot, 1Gig, Multi-Gig, and 10G Ethernet on copper and fiber.



Multi-Gig
Link Validation



LANBERT™ Media
Qualification

Learn more online at: netally.com

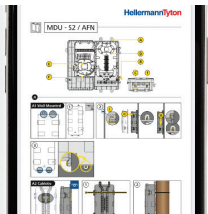
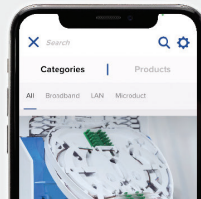
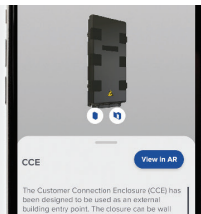


HT CONNECT

The perfect product information tool.

MADE TO CONNECT

NEW APP!



Download our NEW Mobile App

The HT Connect App from HellermannTyton is the perfect product information tool.

Using Augmented Reality (AR) technology through your mobile phone or tablet, you can see a number of selected products from the HellermannTyton product range in a live environment.

The app is designed to give you a closer look at our products as well as giving you additional information including datasheets, installation guides, installation videos and links to website.



ROBERT MERKI

CHIEF TECHNOLOGY OFFICER AT R&M

Telco companies already consume 2-3 per cent of global energy. Increasing data volumes and the rollout of 5G will further increase operators' energy demand. Data transmission can account for up to 80 per cent of energy consumption in video streaming and access networks account for most of the energy consumption – 70-80 per cent. However, energy efficiency has been significantly increased in recent years, largely thanks to optical fibre.



Electrical systems between a central office and a subscriber – such as routers, switches and transceivers – are operational 24/7. However, the energy efficiency of transmission technologies and media differs considerably. There is a big difference between transmitting light signals via fibre optics, transmitting electrical signals via copper cable, or high frequency signals via an antenna.

BREKO, Germany's leading broadband association, indicates that copper based broadband networks consume up to 17 times more electricity than full fibre networks. A recent study by the German Umweltbundesamt shows that CO2 emissions per hour of video streaming for fibre to the home (FTTH) are just half of that of the fastest copper network. In terms of data transmission, 1kg of glass is as powerful as 1,000kg of copper. WIK Consult has calculated that telcos can save 60 per cent of energy costs by switching off

copper networks.

German research project, Green Cloud Computing, claims, 'CO2 emissions are at their lowest when high definition video is streamed to the home via a fibre optic connection'. An hour of video streaming produces two grams of CO2. This value refers to effectiveness of the data transmission and the data centre where the video is stored. Using copper cables (VDSL), the figure is four grams per hour. For 5G radio,

it's 5g of CO2.

What's more, optical fibres are made of silicate, which is available in virtually unlimited quantities. Raw materials can be extracted or recycled at a reasonable cost and less material is required. Optical fibres are light and thin, reducing logistics emissions and new packaging concepts are reducing material consumption.

Fibre networks offer the lowest possible power consumption in data transmission and, therefore, the lowest possible CO2 emissions. In short, the carbon footprint of fibre optics is unbeatable.

'OPTICAL FIBRES ARE MADE OF SILICATE, WHICH IS AVAILABLE IN VIRTUALLY UNLIMITED QUANTITIES. RAW MATERIALS CAN BE EXTRACTED OR RECYCLED AT A REASONABLE COST AND LESS MATERIAL IS REQUIRED.'

KENNEDY MILLER

TECHNOLOGY & SUSTAINABILITY MANAGER AT LEVITON

Ultimately, the ideal environmentally friendly solution is that which accomplishes network goals while using the least amount of space, materials and energy. There are certainly applications where optical fibre best meets these goals, but copper cabling can also play a key role in supporting greater building energy efficiencies.

For example, in data centres, fibre may offer strong advantages, as fibre ports require less power than copper ports, reducing kWh consumption. Year over year, those energy savings add up. Also, consolidating all data centre cross connect patching in a centralised fibre patching field has the potential for additional energy savings. This patching design – often using high density distribution frames that house thousands of connections – does not require power or cooling. That means it can be located away from active equipment, allowing facility or data centre managers to isolate cooling to only the equipment that requires it, as opposed to cooling the entire area.

When it comes to enterprise networks – where copper cabling is much more prevalent – many businesses and building owners are shifting to smart building initiatives for greater energy savings. Power over Ethernet (PoE) is integral to these initiatives, so twisted pair copper also plays an important role in reducing building energy consumption.

For example, PoE enabled LED lighting

systems can significantly reduce energy use and this is often a major part of achieving Leadership in Energy and Environmental Design (LEED) certification. Besides analysing occupancy, a lighting system over PoE allows for tracking real time energy use and improving daylight harvesting throughout a building. Also, PoE can lower material use, since data and power share the same copper cable. And with the emergence of Single Pair Ethernet, many smart devices can rely on power and data from a smaller cable with even less copper and plastic – improving sustainability efforts.

One important sustainability consideration is a cabling system's lifecycle. Fibre typically has a much longer operational lifecycle, as it doesn't need to be replaced over the network's lifetime, while copper is often replaced for a next generation product in a shorter lifecycle. However, copper cabling can be upcycled by claiming back the copper to make the next generation product, which is a real life circular economy benefit.



'FIBRE TYPICALLY HAS A MUCH LONGER OPERATIONAL LIFECYCLE, AS IT DOESN'T NEED TO BE REPLACED OVER THE NETWORK'S LIFETIME, WHILE COPPER IS OFTEN REPLACED FOR A NEXT GENERATION PRODUCT IN A SHORTER LIFECYCLE.'

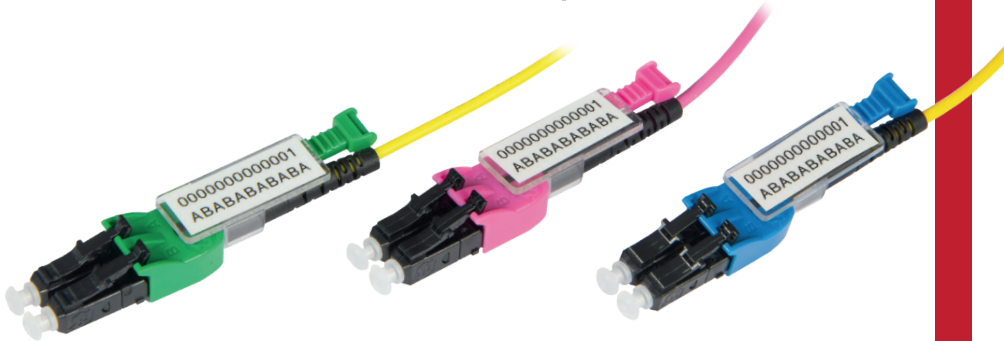


LET'S CONNECT!

NEW

HUBER+SUHNER

Protect your network critical points with the Huber+Suhner LC-XD Uni-boot Patch Cord and Label Clip



New LC-XD Label Clip gives ease of use and identification in high density environments, ensuring improved visibility, a structured set up, and efficient handling to prevent accidental disconnections.

- LC-XD Label Clip enabling simple, structured and cost-effective labelling
- Revolutionary push-pull mechanism Patented (US 8,221,007)
- High Packing Density 2.1mm duplex round cable, aids MACs and improved cooling efficiencies
- Polarity flipping (reversal) without special tools, enabling reduced costs
- Compatible for use with both standard and mini SFP transceivers

DUNASFERN
Inc. AURIGA



Contact us for more information about the Huber+Suhner solutions Dunasfern offer

www.dunasfern.com | 01908 282200 | enquiries@dunasfern.com



IT Infrastructure. Rack Mount Solutions.

Typically, from stock or
configured on
5 - 7 working day
lead time

Intelligent Rack Power Distribution Units

- Enterprise Level Single or Three Phase PDU's
- 32 Daisy chained PDU's supported on 1 IP
- Free Management Software or integrate to third party DCIM via SNMP / REST API
- Remotely set alerts, monitor power usage, capacity planning
- Retro-fitable for legacy applications
- Dual Feed Rack PDU's = 2 PDU's in 1

MiniBoot

Reboot & Monitor Your Device Over IP

Unlike traditional rack power strips - mounted inside server rack enclosures, the MiniBoot's smaller form factor brings innovativeness in power distribution outside the rack. The MiniBoot is designed to meet the needs of a variety of industries in a variety of environments - Transportation (Air, Land and Sea), Broadcasting, Entertainment, Advertising, Manufacturing, Mining, Satellite, Defense, Education, Telecommunication, Finance & Banking, Commercial, etc.



**AUSTIN
HUGHES**[®]

austin-hughes.com

CINDY RYBORZ

MARKETING MANAGER DATA CENTRES EMEA AT CORNING OPTICAL COMMUNICATIONS

In the long run, optical fibre is the more environmentally friendly network option than copper. There are a few reasons for this.

Firstly, transceiver models for fibre optic networks use less energy to power a signal – an SFP+, for example, only requires 1W per port regardless of distance compared to 10GBASE-T copper with 1.5W. This means less cooling compared to models used for copper networks on the same transmission speed. Fibre also offers superior latency over copper due to the more complex encoding schemes within the copper actives.

Likewise, if we look at port breakout deployments, fibre networks can support higher port densities on switch blades and the requirement to power and cool switches or housings is reduced with de-aggregation capabilities. In the LAN environment, the use of passive optical LAN (POL) offers various advantages to enterprises. By replacing traditional aggregation electronics and associated copper cables with passive optical splitters and singlemode fibres, we see a longer lasting architecture that is cheaper to install and maintain, and which saves energy.

Fibre cables also usually have a longer infrastructure lifespan – potentially 25 years or even longer – with migration paths for upgrades including reuse of existing infrastructure. When compared to copper, upgrades often require old hardware to be removed and new hardware to be installed

– sometimes even the copper cable itself. Upgrades also tend to be more frequent with copper.

For enterprises looking to reduce energy consumption, there's several simple equipment choices that can reap rewards from an environmental perspective. For example, multifibre patch cords or harnesses – developed specifically to address the heat dissemination of higher speed transceivers and switches – deliver better airflow, so energy consumption can be reduced and less cooling power needed. More broadly, fibre cabling is

becoming smaller and smaller in diameter, which again improves airflow, as well as decreasing the weight and overall amount of material being used.

Ultimately, there is still very much a place for copper in connected building infrastructures – it remains a compelling media for the last point to point connection to a device, while fibre can move more data across longer distances. However, fibre is where we're seeing the most progress in delivering energy efficient, sustainable networks.

'FIBRE CABLING IS BECOMING SMALLER AND SMALLER IN DIAMETER, WHICH AGAIN IMPROVES AIRFLOW, AS WELL AS DECREASING THE WEIGHT AND OVERALL AMOUNT OF MATERIAL BEING USED.'



STUART MCKAY

BUSINESS DEVELOPMENT MANAGER AT PANDUIT

In the near-term, copper and optical fibre will continue to co-exist. The latest developments in power over Ethernet (PoE) applications has extended the useful lifespan of the latest Category 6A copper cabling infrastructure against any immediate replacement by fibre systems.

There is the obvious industrial manufacturing process of copper mining and the damage it inflicts on the environment.

This must be addressed if, as an industry, we are going to take steps towards net zero carbon emissions and more sustainable manufacturing of infrastructure cabling systems.

Data centre and enterprise fibre networks are increasing geographically, with more fibre count dense cabling, and they are operating at increasingly higher speeds. Once installed, fibre networks should not need to be replaced, as they can be upgraded by changing the light source technology. Solutions are available that allow 10-40Gb/s multimode fibre cable to increase to 100Gb/s using a singlemode signal.

It is generally accepted that fibre cable systems use seven times less energy than copper cable. Higher density fibre distribution systems, smaller diameter cables and smaller connector solutions are, in part, answering the fibre challenge and extending application opportunities. Service, scalability and manageability of high density fibre distribution systems is

another key consideration to ensure system moves, adds and changes (MACs) are handled efficiently, whilst 'rip and replace' scenarios are avoided wherever possible.

The overall lifecycle costs of fibre against copper infrastructure is closing the gap between the two solutions in respect of cost, bandwidth needs and other desired characteristics.

Customers should begin to review their projects on a lifecycle basis rather than a product cost basis.

Bandwidth and distance are two primary reasons for choosing fibre over copper.

Fibre is considered more future proof than copper and will extend beyond today's Ethernet speeds of up to 400Gb/s to support the future terabit roadmap.

There is increasing uptake and interest in the use of high core count ribbon cables. These can reduce cable diameter and, therefore, cable volume, as an alternative to using a make-up of multiple smaller fibre count cables. Such cables can be offered factory pre-terminated and, in many situations, this can reduce installation time by as much as 75 per cent compared to field terminated systems.



'THE OVERALL LIFECYCLE COSTS OF FIBRE AGAINST COPPER INFRASTRUCTURE IS CLOSING THE GAP BETWEEN THE TWO SOLUTIONS IN RESPECT OF COST, BANDWIDTH NEEDS AND OTHER DESIRED CHARACTERISTICS.'

INFINIUM FIBRE DATA CENTRE OFFERING

A SMARTER WAY TO CONNECT

Legrand's Infinium Fibre system is a pre-terminated, innovative data centre solution consisting of three performance levels that deliver never-before-seen headroom, latency, and future-proofing.

Infinium Quantum™	Industry leading lowest connection loss
Infinium Ultra™	Engineered to improve performance
Infinium Core™	Simplified low loss system

These performance levels are achieved by pairing cassettes, trunks, and patch cords to create one seamless and complete solution.

Learn more: ortronics@legrand.co.uk and [Legrand.us/fiber-optic-resources](https://www.legrand.us/fiber-optic-resources)



Adjustable Depth 4 Post Rack

Assemble Your Network Rack in Minutes!



Self-Squaring Capability

Rack is assembled with hardware in two axes, squaring the rack when hardware is tightened



PEM Stud and Carriage Bolt Construction

Eliminates the need for a second wrench and increases speed and ease of assembly



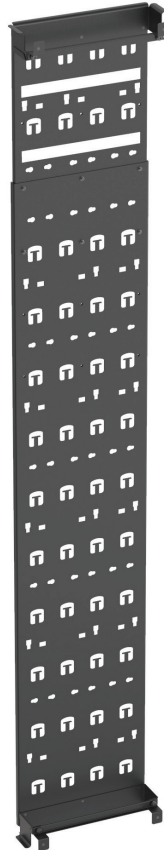
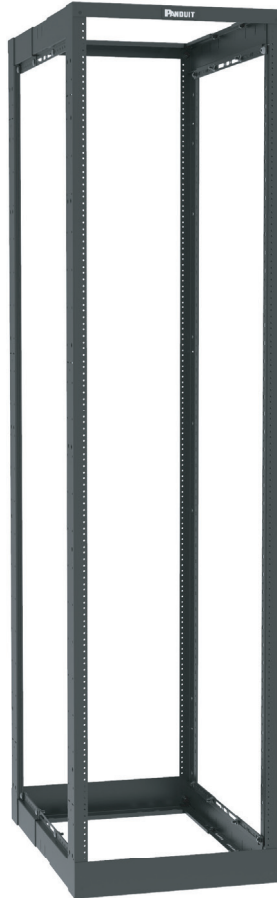
Adjustable Depth

Supports equipment mounting depths from 23" to 42" in 0.5" increments



Masked Grounding Locations

Masked two-hole integrated grounding available at 8 different locations on the rack



Welded Steel Construction

Provides greater stability with a 2000 lbs. load capacity



Numerical Rack Unit Identification

Allows for quick location of rack spaces and faster installation of rack mount items



Multiple Options for Mounting Accessories

Provides greater application victory with accessories such as PDU brackets, vertical tie-off brackets, mount on posts or front-to-back braces



Inward Facing Feet

Reduces overall front-to-back footprint and aligns better to floor tiles

Racks and accessories are available in black or white.



NEW Cable Management Panel Accessory – V4PTOB/V4PTOBWH

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

SWARNIL KHAPEKAR

INTERNATIONAL MARKETING LEAD AT STL

The coronavirus pandemic has made us realise the importance of broadband technologies and they have revolutionised the way people work, socialise, travel and entertain. However, questions have been raised about the environmental footprint of these technologies. Over the years, broadband network deployers and developers have relied on fibre optic technologies to build greener and more environmentally friendly digital networks that can carry data at lightning fast speeds.



Fibre optic technology provides numerous environmental benefits over copper cables. Here are some of them:

- Reduces the demand for copper
Digital subscriber line (DSL) and coaxial cables are made of copper and use copper wire to transmit data. Copper mining is harmful to the environment, as it adversely affects the vegetation, water and biological life near mining zones. Optical fibre is made of glass created out of silicon dioxide (SiO₂). SiO₂ can be easily found in sand, clay, rocks and even water. Extraction doesn't cause harm and production is not detrimental to the environment.
- Provides a long-term solution
Optical fibre, in comparison to DSL and coaxial alternatives, has better strength and

sustainability to withstand external damage such as degradation caused by moisture, freezing and electrical interference. The rate of repair for fibre optics to the one made for copper wires is up to 50 per cent less and it requires fewer updates to networks. Experts back optical fibre networks to last more than 25 years.

- Consumes less energy
Fibre consumes almost 12 times less energy than copper based systems, not just at the beginning but over the lifespan of the network. By consuming less energy, fibre networks stay cooler and require less air conditioning.

While deploying fibre optic infrastructure has become a priority for global telcos, it is still not universally accepted as the future of broadband. It's imperative that tech organisations make more pressing efforts to make greener networks and protect the environment. For that, they need to trust and invest in fibre optic technology.

'COPPER MINING IS HARMFUL TO THE ENVIRONMENT, AS IT ADVERSELY AFFECTS THE VEGETATION, WATER AND BIOLOGICAL LIFE NEAR MINING ZONES. OPTICAL FIBRE IS MADE OF GLASS CREATED OUT OF SILICON DIOXIDE (SIO₂). SIO₂ CAN BE EASILY FOUND IN SAND, CLAY, ROCKS AND EVEN WATER. EXTRACTION DOESN'T CAUSE HARM AND PRODUCTION IS NOT DETRIMENTAL TO THE ENVIRONMENT.'

Take a *break*

Alberto Zucchinali of Siemon discusses the role and benefits of breakout optical fibre assemblies in modern data centre architecture designs

Traditional three tier Layer 3 switch architectures have been common practice in the data centre environment for several years. These traditional architectures consist of core network and storage area network (SAN) switches located in the main distribution area (MDA); aggregation switches located in the MDA, intermediate distribution area (IDA) or horizontal distribution area (HDA); and access switches located in the HDA.

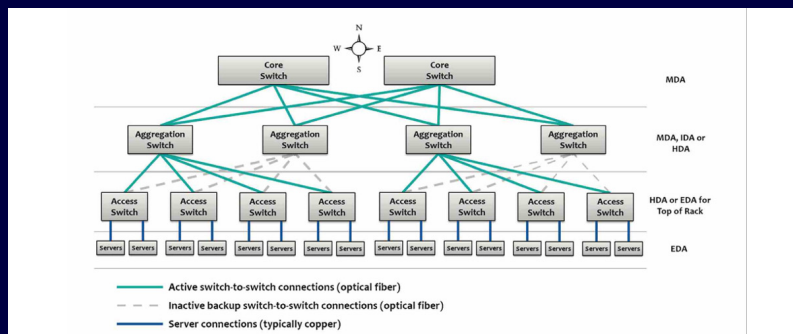
VIRTUAL REALITY

These traditional architectures are no longer ideal for the growing number

increased storage. To achieve this, the industry is seeing the need for multiple servers in different data centre locations having to 'collaborate' by supporting extremely fast east-west data traffic.

The implementation of server virtualisation technology has increased the utilisation of servers' hardware capacity to 80 per cent, with significant financial benefits. The same process has been applied to storage and networking. However, the presence of multiple applications on the same hardware platform increases the need for flexible and scalable network bandwidth. In 2020 the

virtualisation software market value was estimated at between \$40-\$62bn, with a forecast to reach \$120-\$149bn in 2026, while the server



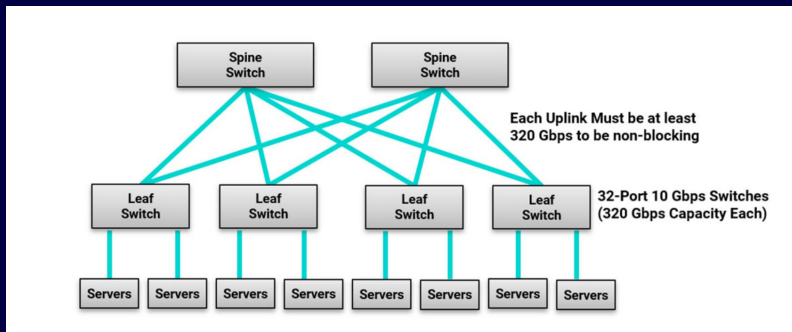
of large virtualised data centres supporting cloud computing and big data management. The increase in data being managed by these emerging services and the associated applications requires faster transmission speeds, data processing and

virtualisation market was estimated at around \$7bn, with an expectation to rise to about \$10bn by 2026.

SUPPORT STRUCTURE

Multi-layer switching architectures do not

adequately support the non-blocking, low latency, high bandwidth requirements of today's large virtualised environments, which divide single physical servers into multiple isolated virtual environments. Non-blocking refers to having sufficient bandwidth so that any port can communicate with any other port at the full bandwidth capacity of the port, while



latency refers to the amount of time it takes for a data packet to travel from its source to its destination.

With increasing virtualisation comes the rapid migration to a leaf-spine switch fabric architecture to help mitigate and reduce any potential latency issues. Leaf and spine architectures consists of interconnection (spine) switches placed in the MDA and access (leaf) switches placed in the HDA or equipment distribution area (EDA) that each connect, or uplink, to every interconnection switch in a mesh – typically via fibre.

This results in just one or two switch tiers and an east-west traffic pattern where every leaf switch connects to every spine switch, so there is never more than one switch between any two leaf switches on the network. A leaf-spine switch fabric architecture reduces the number of switch hops that traffic must traverse between any two devices on the network, lowering

latency and providing a superior level of redundancy. However, it also increases the overall amount of fibre cabling in the data centre, leading to higher density.

TO THE RESCUE

To combat these increasing amounts of cable, the use of link aggregation is on the rise. Link aggregation enables the increase

of throughput beyond the maximum level sustainable, either by a physical link and/or by the activation of redundancy.

Link aggregation

typically uses breakout fibre assemblies. For lower speed uplinks, these assemblies can, for example, 'split' a single 40Gb/s port into 4x10Gb/s ports. Alternatively, if leaf switches have 32x10Gb/s ports, a 400Gb/s uplink to the spine switch provides some level of undersubscription or 'wasted bandwidth', meaning a maximum of 320Gb/s required versus 400Gb/s available at the uplink.

Breakout assemblies can achieve some acceptable levels of oversubscription by using 2x200Gb/s uplinks from two separate leaf switches, both running into one of the available 400Gb/s ports of the spine leaf. This means a maximum 320Gb/s is required versus 200Gb/s available at each uplink. Breakout assemblies provide data centre managers with sufficient flexibility to decide and optimise the set-up and budget of their networks in accordance with their real needs, and with a much more flexible and scalable approach.

STANDARD ISSUE

One type of breakout cable that will become essential is the MTP to LC hybrid assembly, due to recent developments in the standards groups. In January 2020, the ratification of IEEE 802.3cm for 400Gb/s operation over multimode fibre included 400GBASE-SR8 over eight pairs and 400GBASE-SR4.2 over four pairs using two different wavelengths.

400GBASE-SR4.2 is supported by one optical lane assignment, based on a single row eight fibre receptacle (MPO/MTP-8). 400GBASE-SR8 is supported by two optical lane assignment options – Option A based on a dual row 12-fibre receptacle (MPO/MTP-24) and Option B based on a single row 16-fibre receptacle (MPO/MTP-16).

These applications have broad market potential, as they enable cost effective aggregation with the ability to connect a single 400Gb/s switch port to up to eight 50Gb/s ports. With the introduction of full duplex applications like 50GBASE-SR and shortwave division multiplexing that supports 100Gb/s, 200Gb/s and 400Gb/s over duplex fibre via the pending IEEE P802.3db (Short Reach Fiber Task Force), MTP to LC hybrid assemblies are moving into focus.

One assembly with the correct MPO/MTP interface at one end and with either eight or four LC duplex connectors at the other will provide a simple

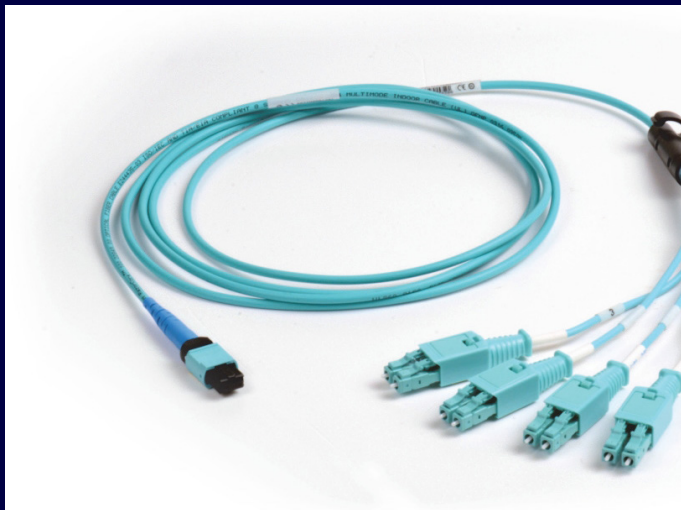
‘The use of link aggregation is on the rise. Link aggregation enables the increase of throughput beyond the maximum level sustainable, either by a physical link and/or by the activation of redundancy.’

method to split 400Gb/s into any required multiple of 50Gb/s in many typical spine-to-leaf architectures. MTP to LC hybrid assemblies are factory assembled, which means that they provide reliability and guaranteed

performance – addressing and reducing concerns of high optical losses.

GOING THE DISTANCE

While a leaf-spine switch fabric architecture leverages the reach of standards based optical fibre cabling to establish large numbers of active connections between fewer switches, these new data centre designs often result in longer distances between interconnection and access switches. Longer fibre runs can be difficult to deploy in data centre pathways and adding new access switches presents the



additional challenge of long fibre runs in potentially already populated pathways.

To maintain flexibility and manageability, ease of deployments and upgrades, and limiting access to critical switches, many data centre managers are looking to deploy multiple mated pairs that support distribution points or convenient fibre patching areas (cross connects). Unfortunately, the use of these valuable cross connects adds additional connection points, which leads to performance loss in the fibre channel, putting data centre managers at risk of exceeding their optical link loss budgets.

With cross connects requiring more passive connection points within a channel, low loss fibre connectivity is the key to staying within loss budgets – especially in higher speed Ethernet and Fibre Channel applications that have more stringent loss requirements. Pre-terminated fibre assemblies ensure much more consistent performance due to high quality manufacturing procedures and the strictest testing parameters at the factory.

ADDITIONAL CONSIDERATIONS

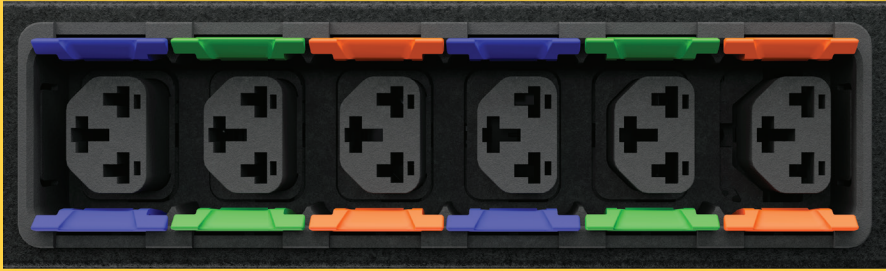
Patching areas between leaf and spine switches are becoming much denser and access to individual ports to reconfigure connections can be difficult. Technicians must be careful not to damage adjacent connections and fibres when trying to access individual connectors. Innovative cable and connectivity solutions, such as MTP to LC assemblies that feature easy to access LC connectors via smaller boot designs and push-pull features, instead of a latch, to disengage

the connection eases cable management. Today's advanced LC connector designs also feature an integrated polarity reversal function, which requires just a simple click to unlock the boot and rotate the latch without rotating the connector and fibre. ■



ALBERTO ZUCCHINALI

Alberto Zucchinali is data centre solutions and services manager at Siemon. With 20 years' experience in structured cabling, he has authored and presented a number of papers at worldwide industry conferences on various specialist subjects concerning premises cabling, data centre design, intelligent patching, copper and optical fibre technologies. Today he applies this learning to data centre infrastructure and designs network architecture for sites around the world.



Premium Power.

Ultimate Performance.

Vertiv™ Geist™ rPDUs are designed to provide reliable, intelligent power distribution to your equipment today, and in the future.

From basic, monitored and switched PDUs, to locking receptacles, Vertiv solutions deliver the power distribution you need to ensure everything is running at peak performance.

 **High Temperature Grade**

Up to 60°C working ambient variants.

 **Upgradable & Hot-Swappable**

Easily update your rPDU's monitoring capabilities.

 **Power Monitoring 1% accuracy**

Accurately monitor input and outlet level power usage.

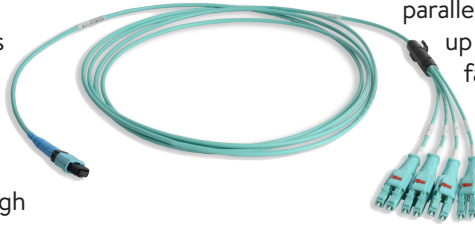
What's Your Edge?

[Vertiv.com/Inside-Networks](https://www.vertiv.com/inside-networks)

Siemon

Siemon's pre-terminated trunking cable assemblies provide an easily installed and cost effective alternative to individual field terminated channels. Combining factory terminated and tested modules with Siemon's cable in a high performance modular cable assembly, trunking cable assemblies are designed to simplify the installation of high performance cabling systems in all types of data centres and other high density environments.

Copper trunks are ideal for data centre raised floor and ladder rack environments, resulting in up to 75 per cent faster deployment compared to traditional installations, thanks to pre-terminated outlets that easily snap into



Siemon modular panels. They comply with standardised Category 6A, 7A and 8.2 cabling, and support application speeds up to 40Gb/s.

High performance optical fibre trunks can support all next generation duplex and parallel optics applications up to 400Gb/s and are factory terminated with a wide variety of interfaces (SC, LC, MTP and MTP Pro) with different modularity. They can be terminated into fibre enclosures combined with adaptor plates and plug and play modules to facilitate an attractive, easily accessible installation.

To find out more [CLICK HERE](#).
www.siemon.com

Leviton

Leviton has expanded its portfolio of pre-terminated copper trunk cables with Category 6, 6A, 7 and 8 rated options, and offers additional bundle sizes. The trunks allow for faster network deployment to bring equipment online quickly and minimise downtime during moves, adds and changes.

Trunks can be ordered in cable counts from 2-12, with a range of factory terminated jack and/or plug configurations. The trunks use Atlas-X1 and eXtreme jacks featuring Leviton's patented Retention Force Technology, which extends connector life by preventing tine damage after repeated connections. Leviton has also introduced the following



trunk cable constructions – eXtreme Category 6 UTP, Atlas-X1 Category 6A UTP, Atlas-X1 Category 6A F/FTP, Atlas-X1 Category 7 S/FTP and Atlas-X1 Category 8 S/FTP.

Most trunks can be configured and manufactured within two weeks at Leviton's EMEA Data Centre Factory, with rapid shipping to jobsites throughout Europe, Middle East and Africa. Based in Glenrothes, Scotland, the EMEA Data Centre Factory runs on world class IT systems, with online configurators that allow for rapid ordering and delivery of both copper and fibre optic make to order (MTO) cable assemblies.

For more information [CLICK HERE](#).
www.levitonemea.com

Excel Networking Solutions

Excel Networking Solutions' range of pre-terminated optical fibre systems includes distribution, breakout and mini breakout cables, MTP solutions and ruggedised assemblies. They are all designed for simple and quick deployment, manufactured to the highest standards and are fully tested before being delivered to site.

Excel's pre-terminated assemblies with ruggedised fan-outs are constructed from multicore 900 micron, tight buffered or loose tube cables to best



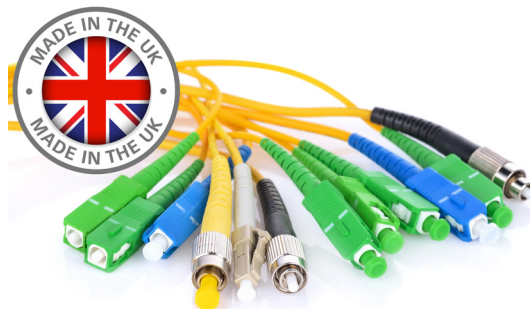
suit the application. These fibre assemblies are also available on robust steel re-deployable cable drums that are ideal for transporting and deploying the cables into temporary applications. They can be quickly and easily wound back on to the reel and used again.

These ruggedised assemblies are extremely robust yet compact and flexible in design. Together with a range of cable options, core counts and connectivity options, they are ideal for use as links from a patch panel to a switch, panel to consolidation points, or rack to rack links. For more information [CLICK HERE](#), to contact the sales team call 0121 326 7557 or to send an email [CLICK HERE](#). www.excel-networking.com

xSiCute

xSiCute is a service focused UK manufacturer of pre-terminated custom optical fibre cabling solutions. Pre-terms allow [fast on-site deployment](#) with up to 75 per cent less installation time than field termination and reduced capital equipment expenditure. They are factory tested and inspected with a high level of quality and production control, and up to 80 per cent less packaging, with no termination scrap material to dispose of.

Pre-terms include [MPO trunks](#) and [MPO breakouts](#), fibre patch leads in [ZIP duplex](#) or [simplex](#), flat twin ruggedised, Uniboot and [armoured leads](#). These are in addition



to [multicore pre-terms](#) in tight buffered, loose tube and CST or SWA armoured. Also available are patch leads, long line leads and multicores in [Construction Products](#)

[Regulation \(CPR\)](#)
[EuroClass Eca](#)
[B2ca](#) and [Cca](#).

xSiCute's Milton Keynes factory has the latest fibre polishing, terminating and test equipment. For multiple

assemblies or a single pre-term, xSiCute has the experience to make light work of day-to-day challenges, with production times of typically just 2-3 days.

To find out more [CLICK HERE](#) or call 01908 972765.

www.xsicute.com



CORNING

Corning[®] Everon[™] Network Solutions

Streamlined, powerful, flexible.

Learn more about Corning[®] Everon[™] Network Solutions at
www.corning.com/everon/emea

Introducing

NETXS

Designed to Connect

STL NETXS

Marquee range of structured cabling solutions designed to connect as best-suited cabling media to support emerging applications

One-Stop-Shop for Structured Cabling



Superior performance with reduced Alien CrossTalk (AXT), upto 100m horizontal link test compliance



Small cable diameter



Adherence with global standards like ANSI/TIA 568.2-D, IEC 61156-5, ISO/IEC 11801



Thermal stability upto 90W for PoE/ PoE++ applications

[Know More](#)

Our Distributor Partner



Write to Aman Arora at aman.arora@stl.tech

Panduit

Panduit's OptiCam 2 termination tool offers 100 per cent right first time termination of OptiCam optical fibre connectors. The tool is the most technologically advanced, feature rich option for field terminated connectors in enterprise applications. It calculates insertion loss value on completion of the camming process, while its red and green light indicators provide additional visual confirmation of termination.

Using OptiCam 2, installer productivity increases and time spent on a jobsite is reduced. Project rework time can also be decreased, therefore helping contractors to improve overall profitability. It offers a step-by-step visual guidance and insertion

loss calculation to ensure the field fibre and fibre stub are in proper alignment before camming.



A simple, ergonomic and symmetrical design allows left or right handed termination in both handheld and benchtop orientations. An LCD display guides the user through the termination process with simple step-

by-step prompts and on-screen visuals. OptiCam 2 also provides a calculated insertion loss, ensuring installers gain confidence in the effectiveness of each termination.

To find out more [CLICK HERE](#).
www.panduit.com

Leviton

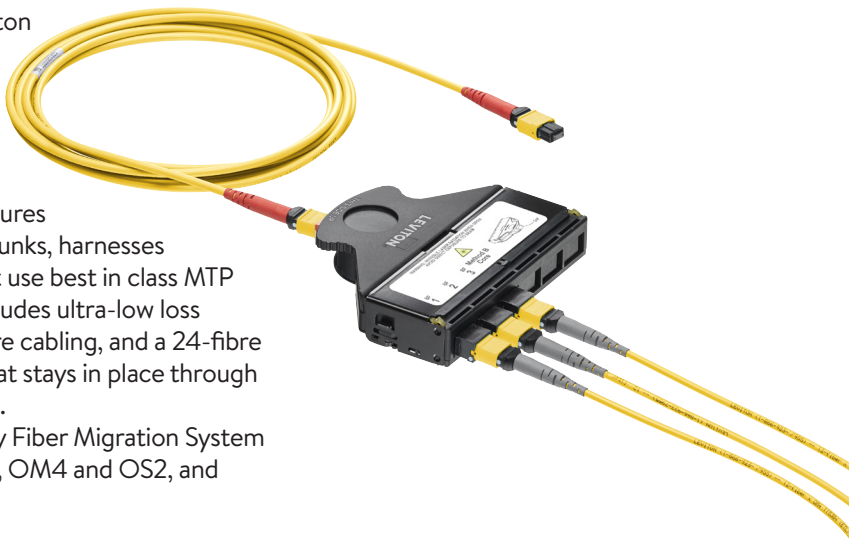
Data centre managers need a network infrastructure that can support multiple generations of tech refreshes. The Opt-X Unity Fiber Migration System from Leviton offers an ideal path to 100Gb/s, 200Gb/s, 400Gb/s and beyond.

The system features pre-terminated trunks, harnesses and cassettes that use best in class MTP connectors. It includes ultra-low loss 8-fibre and 12-fibre cabling, and a 24-fibre MTP backbone that stays in place through multiple upgrades.

The Opt-X Unity Fiber Migration System is offered in OM3, OM4 and OS2, and

includes colour coding to identify optical fibre count and mode.

[CLICK HERE](#) to learn more.
www.levitonemea.com



HellermannTyton

RapidNet is HellermannTyton's fully patented pre-terminated, pre-tested modular cabling system, which eliminates the need for on-site terminations and reduces installation times significantly. All terminations are housed in the RapidNet cassette, ensuring complete protection and strain relief of the cables.



The RapidNet system offers many advantages over a standard site-terminated solution. It can reduce installation times by up to 95 per cent (optical fibre) and, because it is pre-tested, minimal on-site testing is required once installed.

It delivers high performance across all formats including Category 6A, 6 and 5e in

copper and OM5, OM4, OM3 and OS2 in fibre. The Category 6A and fibre solutions will support high speed 10 Gigabit Ethernet networks and beyond. High port densities can be achieved using RapidNet fibre, with MTP connectors providing up to 144-fibres per cassette or up to 576-fibres in 1U of rack space.

RapidNet also allows a greener approach to cabling infrastructure. With each RapidNet loom manufactured and supplied to pre-specified lengths, there is less on-site cabling and packaging waste. In addition, as RapidNet is manufactured in the UK, the environmental impact of shipping is greatly reduced.

[CLICK HERE](#) to find out more.
www.htdata.co.uk

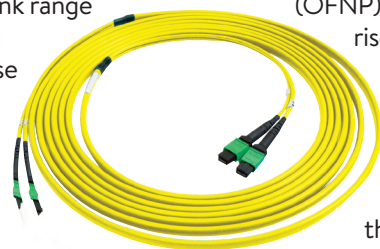
Molex

Pre-terminated solutions offer faster deployment and guaranteed performance, while minimising the need for on-site testing. The Molex ModLink range emphasises simplicity and durability for error free use time and again.

ModLink cassettes are a cost effective, quick and easy optical fibre system, providing factory controlled performance

Simply plug the cable into the rear of the unit and the link is operational – an excellent solution for fast-track installations. Up to 96-fibre connections through LC connectors are provided in 1U of rack space.

ModLink pre-terminated cables provide



premium, factory controlled performance with a variety of connectors. Cables utilise optical fibre nonconductive plenum (OFNP), optical fibre nonconductive riser (OFNR), low smoke zero halogen (LSOH) or Construction Products Regulation (CPR) rated round loose tube cabling with a flexible outer jacket that is easy to bend, route and install.

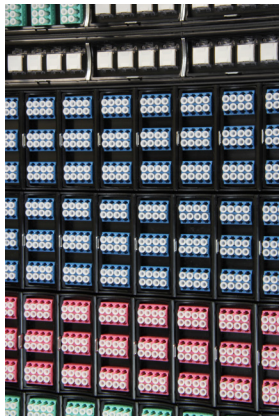
ModLink products are available to support MTP, LC and SC connectivity in multimode or singlemode applications. Copper Category 6A pre-terminated products are also available.

[CLICK HERE](#) to find out more.
www.molexces.com

Patch Solutions

In partnership with Zettonics, Patch Solutions provides an easy to deploy pre-terminated fibre cassette solution – revolutionising your optical infrastructure.

The 1U chassis takes five cassettes, allowing data centres to quickly install 120 LC singlemode or multimode fibres in a tool-less one click installation from either the front or back of the chassis. Each cassette has an option of a single 24-core or two 12-core MTP connections, with cables supplied in requested lengths and polarities. The solution works just as well with traditional tight buffered pre-terminated cables,



using a gland installed on the cassette's backplate, instead of MTP adaptor(s).

In larger installations, a 2U chassis can house 12 cassettes, providing 288-fibres (144 duplex) OM4 or OS2 adaptors. Options are also available for SC, SC/APC and Category 6A cassettes, all interchangeable in either chassis, creating a fully adaptable system for moves and changes as business applications grow.

The Zettonics solution is competitively priced and available immediately. For more information [CLICK HERE](#) or call our knowledgeable sales team on 01442 890890.

www.patchsolutions.com

45

Inside Networks

2022 CHARITY GOLF DAY 25TH MAY

An opportunity to compete and entertain clients and colleagues at the superb Marriott Hanbury Manor Hotel & Country Club.

www.marriottgolf.co.uk/club/hanbury-manor

Playing the Hanbury Manor PGA Championship Course:

This prestigious golf course was the first to be designed by Jack Nicklaus II and still incorporates features from an earlier 9-hole course designed by the great Harry Vardon. The course is now widely recognised as one of the best in England.

The event will ask for 4-ball teams to compete in a 'best 2 from 4' full handicap Stableford competition over 18 holes (with a 2-tee start from 10:30am).

Live Scoring sponsorship is available.

Golf will be preceded by tea, coffee and bacon rolls at registration and will be followed by a 3-course private dinner and prize giving with charity raffle.

There will also be opportunities for sponsorship of all aspects of the day – all raising money for Macmillan Cancer Support – since 2005 this industry event has raised over £78,500 through our charity golf events!

Supporting:

**WE ARE
MACMILLAN.
CANCER SUPPORT**



Indoor Simulator Competition



The cost of a 4-ball team will be £595 (+VAT).

There will also be discounted accommodation at Hanbury Manor Hotel & Country Club, which will include breakfast and use of the extensive leisure facilities. Price to be confirmed.

As in previous years – teams will be asked to provide a raffle/auction prize on the day in support of the charity.

Organised by:

Promoted & Supported by:



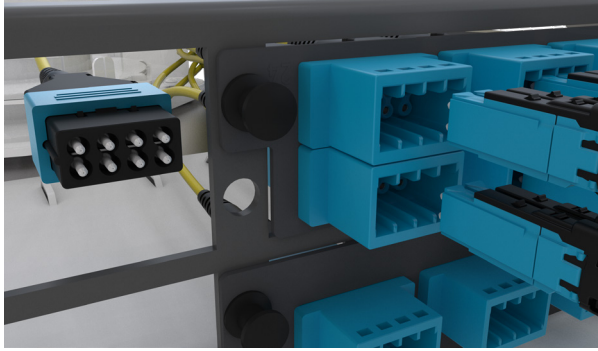
To book a team or for further information email info@slice golf.co.uk or telephone 077 69 69 69 76

Legrand

Complexity is an unavoidable obstacle that fibre optic infrastructure brings to every data centre. Simplicity, cost and, ultimately, time savings are the goal when deploying new data centres worldwide.

Infinium acclAIM from Legrand cuts cost, cuts complexity and cuts cassettes out of data

centre design. All of this is accomplished with the new Infinium acclAIM connector – an 8-fibre connector utilising 1.25mm ceramic ferrules, coupled with the Infinium acclAIM conversion adaptor, enabling the



direct mating breakout of four 2-fibre mini duplex connectors (MDCs).

This direct mating breakout solution

enables exceedingly low loss, no gender considerations, simple six second hot-swap polarity changing, fast patch cable install and removal, and beyond

ultra high density – all at a reduced cost. In short, Infinium acclAIM cuts cost and cuts complexity by cutting cassettes.

To find out more [CLICK HERE](http://www.legrand.com).
www.legrand.us

MISSED AN ISSUE?

CLICK ON THE COVER TO READ MORE



FOR A FREE SUBSCRIPTION TO [Inside_Networks](http://www.insidenetworks.co.uk) [CLICK HERE](http://www.insidenetworks.co.uk)

EDP Europe

The use of MTP connectivity within data centres has enabled optical fibre connectivity to grow to not only meet the demands of today but provide the backbone for future growth. One of the major benefits of MTP is its modularity, high density and ability to support high bandwidth network requirements driven by parallel optics applications.

Now take your MTP connectivity to the next level with Huber+Suhner MTP Pro trunk cables and the advanced IANOS fibre management system, which are available from EDP Europe.

MTP Pro is a next generation connector

edp **HUBER+SUHNER**

TAKE YOUR FIBRE NETWORK TO THE NEXT LEVEL

Next Generation OM4 MTP Pro Trunk Cables & Advanced Fibre Management Systems Available From Stock

#LetsConnect www.edpeurope.com

that enables quick and effective polarity and gender reconfiguration in the field – lowering expenditure by reducing the number of cables needed to be kept on hand. EDP Europe stocks a range of OM4 MTP12 Pro trunk cables in lengths from 7m-20m in conjunction with stocking the IANOS modular fibre management system.

CLICK HERE to find out more, call our sales team on 01376 501337 or **CLICK HERE** to send us an email. www.edpeurope.com

SHARE THE KNOWLEDGE!



TO SHARE **Inside Networks** [CLICK HERE](#)

Taking the advantage

Stuart McKay of Panduit offers five reasons why the use of pre-terminated cabling is growing

▶ Smart buildings and data centres are only as intelligent as the capabilities of the infrastructure that supports them. Cabling is a fundamental requirement in the most efficient and effective on-premise and data centre computing environments, and pre-terminated cable, as part of that solution, offers several benefits to organisations, cable and system installers, and application users.

DEMAND AND SUPPLY

Increasing demand for high performance and low maintenance in every aspect of data centre activity, and the competitiveness of the market at the cabling infrastructure level, are driving growth in pre-terminated cable. Schedules and builds continue to go increasingly digital, whilst paper based logistics is phased out to satisfy the quick turnaround required by the fit-out phase, as well as helping to meet a data centre's sustainability commitments.

However, the use of pre-terminated cabling does require early consideration and planning. A thorough, detailed plan that determines cabling routes and the lengths required, as well as understanding the overall architecture, provides details down to whether trunk breakout need to be staggered, or the alignments needed. Staggered

supports neat connector insertion into the patch panels, whilst trunks with plugs or open ends more typically have even alignment. Also, a comprehensive overview of the cabling architecture will allow the correct variety of connector options to be

designed in and ordered.

Pre-terminated cabling systems components are terminated, tested and configured to match the application, offering quick, plug-in deployment for trouble free network performance. The benefits of complete factory fitted systems arriving ready to install has made pre-terminated cabling essential for the fast commissioning of data halls and on-premises data rooms. This is for both copper and optical fibre connectivity, as the need for speed and density of data

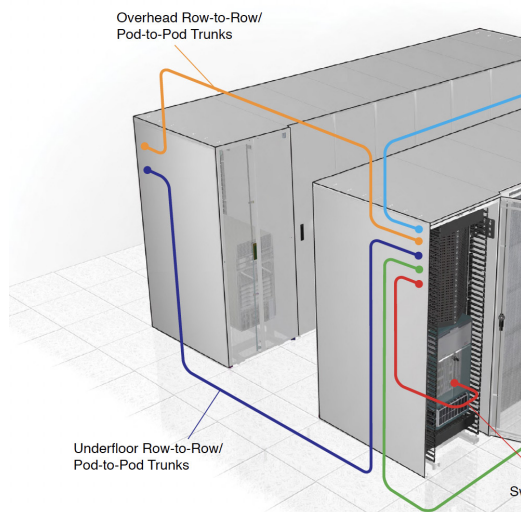


Figure 1: Data Center Application

throughput across the site continues to dramatically increase.

FIVE ALIVE

Here are five key advantages that pre-terminated cabling systems provide over field terminated cable:

• Speed of deployment

This is probably the highest priority for most customers. Installing pre-terminated cabling systems massively reduces the labour intensive element of cable installation process, which is field termination. With co-ordinated delivery dates, once on-site pre-terminated cabling can be unpacked and connected quickly. In many situations it can reduce installation time by as much as 75 per cent compared to field terminations.

• No transmission performance testing

Pre-terminated assemblies are factory tested before shipment and manufacturer

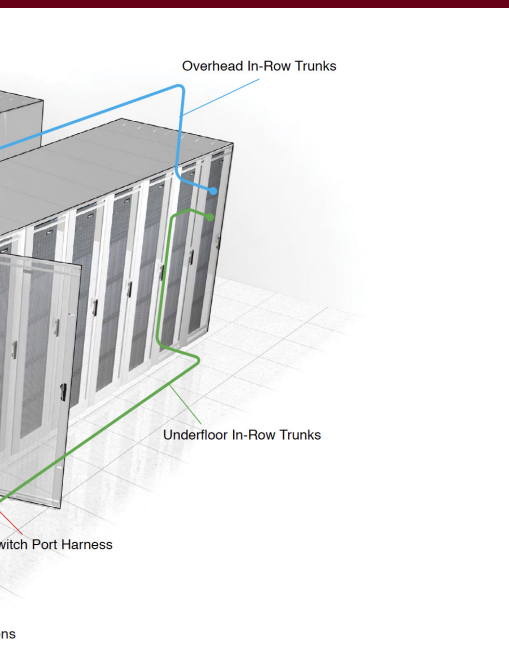
test reports are supplied. The reports provide the test results for the full range of customer quality requirements and include attenuation, near end and far end cross talk, propagation delay, alien crosstalk, and more. Once on-site and installed, there is a straightforward customer peace of mind cable test to ensure that the assemblies have not been damaged during transportation or installation.

• Improved cable management

Pre-terminated trunk cables contribute to data centre modularity, providing cabling that is more accessible and organised. Data centres with consistent distances between cabinets and rows are ideal environments for pre-terminated systems with their multiple repeatable requirements. Planning with pre-terminated cabling in mind can help eliminate excessive cable lengths and cable loops, which then require storage. However, when an application requires excess cabling, some manufacturers offer flexible cabinet systems that can easily offer the extra storage needed, without excess cable lengths interfering with cable runs and equipment cooling pathways.

• Eliminate termination rework

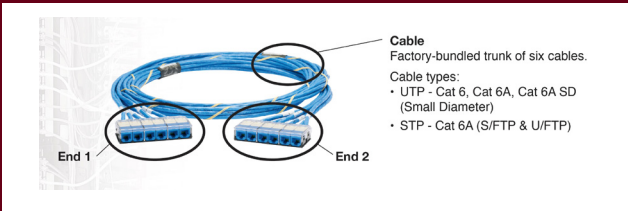
Pre-terminated cabling removes one of the largest commissioning risk items for an installer by essentially eliminating termination rework from the installation project. Factory pre-terminating cables, in fact, provides more consistent channel transmission characteristics. Precision termination at the factory allows the manufacturer to guarantee the cable end to end. As the cables and assemblies are plug and go, with full documentation supplied, the experience of the technician is less of a factor in the data quality of the final connected assembly. Also, pre-terminated



systems ensure faster clean-up times due to minimal scrap materials being created.

• **More flexible moves, adds and changes (MACs)**

Pre-terminated cable allows data centre personnel to make changes quickly, based on shifting compute requirements and network growth etc. Precise records of pre-terminated cabling orders can

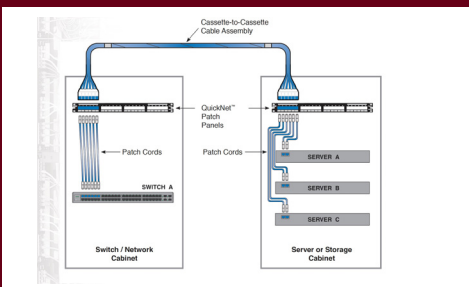


speed reordering and therefore benefit scaling capabilities, without the additional timescales that on-site termination entails.

FIBRE AND COPPER

Whether fibre or copper, a wide variety of cable assembly components such as permanent link trunks and equipment cord harnesses are available that are common in data centre architectures.

Configurations range from standard cassette to cassette cable assemblies to fully custom assemblies that are user defined with a number of key characteristics. A common data centre cable requirement is for the two connector

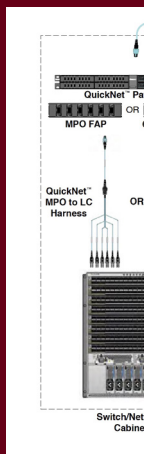
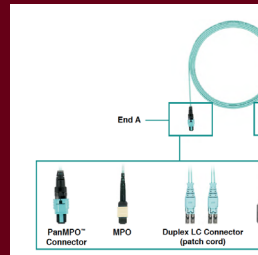


interconnect configuration, where a permanent link trunk runs between patch panels on each end, with patch cords used to interconnect active equipment. Often the panel on one end is in a switch or network cabinet and the panel on the other end is in a server or storage cabinet. An often selected combination is cassette to cassette cable assembly used as the permanent link trunk, mated to patch panels at either end.

Both ends of the cable assembly include one of a range of factory terminated options. Each end can be different and selected based on the application of the trunk or harness within the

data centre. As with copper assemblies, a wide variety of fibre cable systems and configurations are available to meet the requirements of any data centre project at any scale. The proliferation of fibre within the data centre as backbone and the media for row connectivity has created a requirement for an extended range of cable end connectors.

An example of one of the most common, flexible and upgradeable fibre solutions is a four connect interconnect. This illustrates permanent links installed between patch panels in the switch/network cabinet and server or storage cabinets, and a common cross connect cabinet or rack. In this scenario, any fibre from any switch port or server uplink can be routed to anywhere within the data centre.



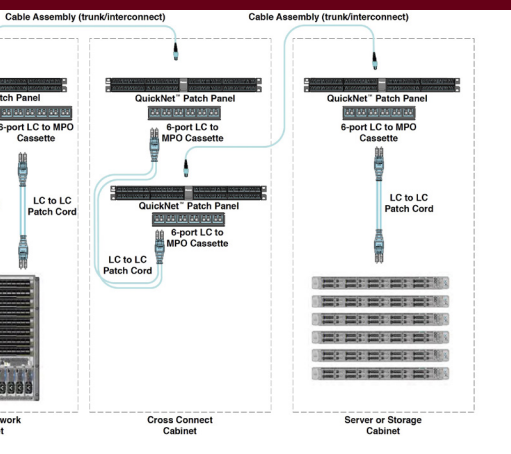
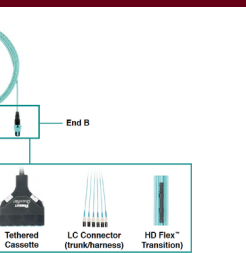
'Pre-offer... en... res... the... and... app...

pre-terminated cabling solutions offer many benefits to the installer, end user and manufacturer in respect of the guarantee that the system solution is configured and supplied with fully tested and approved components.'

This option also allows for easy MACs.

FEATURES AND BENEFITS

Pre-terminated cabling solutions offer many benefits to the installer, end user and manufacturer in respect of the guarantee that the system solution is configured and supplied with fully tested and approved components. Complete systems can have a higher unit cost than individual components. However, when considered against the overall system, installation and implementation project cost, the savings



on on-site engineers, and the benefits of guaranteed quality throughout the assembly, the balance heavily tips towards pre-terminated assemblies and systems. That equation works for any scale of project. ■



STUART MCKAY

Stuart McKay is a highly experienced business development manager for Panduit EMEA, with 21 years at the company spent defining and implementing sales strategy within the enterprise market segment. He has demonstrable expertise in the electrical and electronic manufacturing industry, and is skilled in enterprise and data centre infrastructure implementation. McKay is the author of a number of white papers on intelligent building and power over Ethernet infrastructure.

Schneider Electric teams up with IT distributors for managed power services offer

Schneider Electric has partnered with IT distributors in the UK, Netherlands, Germany and Austria to support them in delivering a market first managed services offer for IT channel partners. Available through ALSO, Ingram Micro and TechData, Managed Power as a Service combines Schneider Electric's APC Smart-UPS uninterruptible power supplies (UPS) with its monitoring and dispatch services to help partners create their own 'as a service' offer, with flexible finance options from the



David Terry

participating IT distributors.

'We've long been developing edge computing technologies and service propositions to help partners meet the demands of the changing business environment,' said David Terry, vice president IT channels at Schneider Electric Europe. 'By partnering with select distributors across the zone and gaining access to flexible repayment terms, partners can create their own managed power service, leveraging our UPS hardware, remote monitoring software and lifecycle service capabilities to add value to customers, and transform single transactions into a predictable, monthly service model.'

R&M joins forces with NBM Technology Solutions

R&M has entered into a partnership with NBM Technology Solutions. This new partnership will enable NBM to assist its customers by integrating selections from the wide range of products that R&M has to offer, supporting fast developing 'megatrends' such as 5G, edge data centres and digital building technology.

Danny Kindell, managing director at NBM Technology Solutions, said, 'Our companies share a number of key values including a strong

customer focus. We're excited to be working with R&M – a brand recognised by customers worldwide, which will support our competitive position and ability to provide made to measure solutions.'

Oli Barrington, managing director at R&M UK & Ireland, added, 'Our partnership with NBM will bring us greater exposure to data centre customers in the UK. We will continue to develop solutions that go beyond standards and today's requirements

and support Danny and his team in growing their already significant footprint in the data centre space.'



L-R Oli Barrington of R&M and Danny Kindell of NBM

Mayflex and AEM aim to provide certifiably better testing

Mayflex has signed an exclusive distribution agreement with AEM to distribute its test and measurement solutions in the UK. AEM is a well-established, \$600m, organisation with more than 25 years of delivering innovative advanced test capability products across a broad range of technologies. With a major sales presence in the USA, Asia, India and the Middle East, it has partnered with Mayflex to bring its innovative solutions to the UK, providing customers with greater choice and more options when it comes to testing and together providing 'certifiably better testing'.



Ross McLetchie

Ross McLetchie, Mayflex sales director, commented, 'We are excited to partner with AEM, with its significant international experience and an innovative, feature packed range of testers that we know will excite our customer base. Its UK based calibration and service centre will radically reduce the amount of time that an installer is without a tester – something that we know is critical to most users that can't afford to be without a tester for too long. To make ownership as simple and affordable as possible, units are sold complete with a three-year care plan, no small print and no recurring annual costs for calibration and service.'

Clive Fotheringham joins AMS Helix

Former global operations transition director at Colt Data Centre Services, Clive Fotheringham, has joined AMS Helix as a partner. He brings over 22 years of telecommunication and data centre industry engineering experience to AMS Helix.

AMS Helix already has ex-chief operations officer at CBRE, Martin Murphy, and current AMS director, Stephen Martin, as partners. Fotheringham, with his deep understanding of customer business needs and expectations around continuous availability, safety, security and service

excellence gained through supporting some of the largest companies in the world, rounds off the trio.



L-R Stephen Martin, Martin Murphy and Clive Fotheringham

'I am excited about this next chapter and working alongside both Martin and Stephen,' said Fotheringham. 'Helping to grow a company that has such strong core principles, that truly highlights technical excellence with hugely talented people, and strives to deliver an uninterrupted customer experience, is going to be something that will give me immense pride and satisfaction.'

Alcatel-Lucent Enterprise announces partnership with Exertis

Alcatel-Lucent Enterprise has announced a partnership deal with Exertis. It will see Alcatel-Lucent Enterprise's networking portfolio, including fixed LAN and wireless LAN switches, become a key part of Exertis' enterprise network offering.

Exertis brings technical as well as market expertise to this partnership. Beyond selling to over 50,000 retailers and resellers, it also provides clients with on-site capability



and consultancy support, aligning with Alcatel-Lucent Enterprise's focus on customer centricity.

Heather Zhang, UK and Ireland country head at Alcatel-Lucent Enterprise, said, 'This partnership enables Alcatel-Lucent Enterprise to further its reach in the UK and Ireland with a distributor that is widely known and highly respected. We pride ourselves on our customer centricity and know that Exertis can uphold our reputation and

join us on our mission to assist the digital transformation of businesses across the globe.'

Schneider Electric appoints Karlton Gray as IT channel director for the UK & Ireland

Schneider Electric has announced the appointment of Karlton Gray as its new IT channel director for the UK & Ireland. Gray is a seven year veteran of Schneider Electric's Secure Power Division and since joining he has held numerous roles within the company, managing large scale enterprise, corporate and e-commerce channel partners including CDW, Softcat, Comms Express, Ebuyer, CCS Media, Misco, Amazon and Bechtle.

In his new role Gray will take charge of Schneider Electric's IT channel sales divisions across the region and will be



tasked with driving continued success of Schneider Electric's Secure Power Division. He said, 'As we return to a more digital, electric world, it's clear that partner relationships have never been more important. Throughout the coronavirus pandemic the IT, data centre and communications industries have been pivotal in helping businesses adapt to remote working, and I believe many organisations will look to retain some level of hybrid operations going forward. What's crucial now is that we help our partners meet

growing end user demands, safely return to personal engagements and plan for the future.'

Siemon partners with Paessler to secure uptime of critical IT infrastructure

Siemon has announced a technology partnership with Paessler. Paessler will join Siemon's Intelligent Building and Data Center Complimentary Manufacturer Partner programme, which hosts industry leading organisations that work with Siemon in delivering additional value and support to its customers in the data centre and intelligent building markets.

Paessler's powerful PRTG offers comprehensive monitoring of IT systems, devices and applications, as well as facilities and security systems. The solution will integrate with Siemon's IT network infrastructure and physical layer portfolio to extensively monitor and control all components of a data centre or an intelligent building.

'We are proud to be partnering with



Paessler, which is known for great expertise, quality products and exceptional service,' said Bob Allan, global intelligent building solutions specialist at Siemon. 'Through working together, we can offer our clients access to best in class technology that monitors the health and performance of their entire infrastructure for maximum uptime. Combined with our high performance

IT infrastructure solutions, we will deliver greater intelligent building and data centre benefits to our client base around the world.'

Marcus Kraus, corporate development and strategy manager at Paessler, added, 'Partnering with Siemon is a great step forward for us. The innovative technologies and Siemon's know-how enrich Paessler's Uptime Alliance ecosystem in the world of data centre and intelligent buildings.'

CHANNEL UPDATE IN BRIEF

Cloud Distribution has been appointed as UK distributor for NetMotion by Absolute. NetMotion by Absolute joins the recently announced Nuvias Frontier programme, a channel programme for emerging vendors and new, innovative technology.

CityFibre has announced the appointment of Dan Ramsay to the newly created role of chief marketing officer, as the company continues to accelerate its rollout of full fibre to eight million homes. He will oversee a major increase in CityFibre's marketing capabilities, assuming responsibility for its channel marketing strategy and operations.

EfficientIP has launched new channel partner program offering called SmartPartner. It includes a new category designed specifically for service providers, as well as a partner delivery certification.

Emtelle has announced two new strategic appointments to its senior management team – Kerry Anderson has been appointed as group chief financial officer (CFO) and William Auld as group supply chain director.

Fact finding mission

Louis McGarry of Centiel UK looks at why less information can lead to more interpretation when it comes to uninterruptible power supply (UPS) technology

▶ There are various terminologies used to describe UPS architecture. The most well-known include standalone, modular, true modular, decentralised and distributed. The challenge comes with the interpretation of these descriptions and purchasers have to work harder than ever to understand what they are buying – digging further beneath the surface to find out precisely what performance features and benefits really exist to ensure they meet their requirements. If information is difficult to obtain, then beware of creative sales and marketing techniques, as this may lead to making a wrong and costly decision.

TAKE THE TIME

Moving to a more sophisticated technology such as modular is a step up from a standalone (monolithic) UPS architecture in relation to adding resilience and availability. However, if purchasers are not careful to take the time to understand how the technology has been designed, they may end up taking a step backwards. This is because when manufacturers use the term modular it can have a different connotation and functionality may come up short.

Understanding UPS architecture is key to helping you to make the right choice. I will outline my interpretation and, of course, it is only my view. That said, the information will enable buyers to ask the correct



questions to help ensure they get the most appropriate system to protect their critical power.

STANDALONE ARCHITECTURE

The standalone transformerless UPS architecture includes all the standard building blocks found in a UPS including inverter, rectifier, control logic and internal static bypass. Every component in the system is a potential single point of failure, which poses a risk to the system. If one component fails the entire system could

shut down and the load could be lost.

The most common way to improve the availability of a UPS system is to introduce redundancy. A single standalone UPS has no redundancy, so to create a redundant system a standalone UPS must be replicated with a second unit. Although it is inexpensive to purchase one standalone UPS, adding a second can be expensive, as effectively you are doubling the price of the system.



Standalone UPS technology has come a long way since the implementation of insulated gate bipolar transistors (IGBT). One of the disadvantages associated with standalone systems has been the difficulty in maintaining them. However, some of the latest units that we might call standalone do have a ‘modular influence’, where the technology has been developed to include some of

the benefits of modular systems. This means that ease of maintenance has been the main focus, with the addition of hot swappable components or subassemblies that are completely front accessible. This architecture, if configured correctly, can introduce a level of redundancy into the power parts of the UPS, which can improve availability.

These new standalone systems won’t provide as many benefits as a modular UPS but if you have limited space and budget, they can be an efficient and maintainable

solution. However, this doesn’t apply to all standalone systems, so do your homework! Often standalone UPS fall into the ‘me too’ range of options, but they are now much more than that. With some standalone systems being scaled into the megawatts, they are pushing a lot of power through and are a serious investment.

MODULAR ARCHITECTURE

There are all sorts of UPS products out there labelled as ‘modular’ but what does that really mean? There are three main architectures to be aware of – centralised, decentralised and distributed.

• Centralised architecture

A centralised architecture can introduce redundancy through the use of modules. In reality, this simply means it’s possible to swap certain elements out of a system, which can increase availability.

However, the elements of commonality in a centralised solution, leading to single points of failure, are open to huge variations between manufacturers. Single points of failure might include a central processing unit (CPU), inverter or static switch. Regardless of redundancy, a centralised control logic making decisions for the whole system, along with one centralised bypass and one communication channel means if any of these components fail, the load could be lost.

• Decentralised architecture

Here’s where each module contains all the elements of a UPS including rectifier, inverter, static bypass and control logic – improving availability further. Because of the elimination of any single point of failure, this architecture makes a step forward in terms of the level of power availability. A decentralised

‘There are many options and configurations available to suit different scenarios and projects. However, buyers need to be aware of the different “interpretations” and must be able to compare the technical information provided by manufacturers to enable them to ask the right questions.’

system results in up to six-nines availability, which is equivalent to 31.5 seconds of downtime per year.

Modules can be hot-swapped but there is still a master module making decisions for the whole system through its control logic. It is important to note that other critical components may not have built in redundancy, including the communication bus between modules and frames.

Crucially, there is also no provision for potential human error when swapping modules. This means that when an engineer is working under pressure responding to a fault, they do not have the functionality to isolate and test modules being added to a live system.

• **Distributed architecture**
Distributed architecture adds more layers

of resilience. It offers the highest level of availability on the market because it replicates all of the components across the multiple modules and resilience is added into the components themselves.

The architecture is completely distributed – each UPS module includes rectifier, inverter, static bypass and control logic. No single module makes

decisions for the whole system. Instead, distributed decision making takes place to



eliminate the logic's single point of failure.

Because the static bypass is distributed and redundant, if any component within a single module becomes unavailable it is

automatically isolated within the system and the remaining modules ensure that the load remains protected. The components themselves also contain redundancy. For example, the communication buses between modules and frames have inbuilt redundancy, so if one fails communication is not interrupted.

SAFETY FIRST

For the first time, we see human error mitigation through safe hot-swap capability. In other words, distributed architecture removes the chance of any risk being added to the system through the introduction of a module with an inherent fault.

This means an engineer needing to replace a module can safely isolate any individual module from the output load bus. The rest of the modules will seamlessly supply the load on inverter while the engineer tests the module safely before connecting it back to the load. Even firmware upgrades do not require switching to manual bypass. With only hot-swap functionality, this is not possible and a fault in a new module or human error could cause the load to be lost. As a result, this means the distributed modular UPS architecture provides the highest level of availability possible, achieving downtimes per year as low as 0.0315 seconds.

We call this distributed architecture ‘true modular’, which means there are no single points of failure. There is redundancy on every component.

KEEP IT CLEAN

The purpose of a UPS is to provide clean and continuous power, which is available at all times. There are many options and configurations available to suit different scenarios and projects.

However, buyers need to be aware of the different ‘interpretations’ and must be able to compare the technical information provided by manufacturers to enable them to ask the right questions. Understanding whether they are buying a UPS with centralised, decentralised or distributed architecture will have a direct influence on a system’s availability and whether it will perform as expected if power is interrupted. ■



LOUIS MCGARRY

Louis McGarry is sales and marketing director at Centiel UK. His experience in the UPS industry spans over a decade, with an extensive knowledge of products that enables him to successfully design and deliver solutions for the critical power market. McGarry joined the Centiel team early in 2018 to assist in delivering the company’s technology to the critical power market and build the Centiel brand.

Integra PDU

The Integra PDU SP3 range of IP addressable power distribution units (PDUs) with environmental ports are designed and manufactured in the UK for quick delivery. They come with a five-year warranty and are available as either standard part numbers or built to your specifications.

Multiple PDUs can be monitored from a single IP address. Users can monitor overall PDU performance and allow for minimum/maximum level thresholds to be set for volts RMS, amps RMS, kilowatts, frequency and power factor, as well as



peak volts, peak current, kVA and PDU temperature.

The PDUs are easily set-up in minutes and a display is fitted for local monitoring. The units may also be monitored remotely using SNMP software, which is included free of charge. The software offers the facility for email alerts on all parameters and allows monitoring of temperature and humidity thresholds. SP3 communicates via HTML, HTTPs, SNMP and XML via the inbuilt web

browser.

To find out more call the Integra PDU team on 01823 242100 or [CLICK HERE](#) to visit the website. integrapdu.com

Secure Power

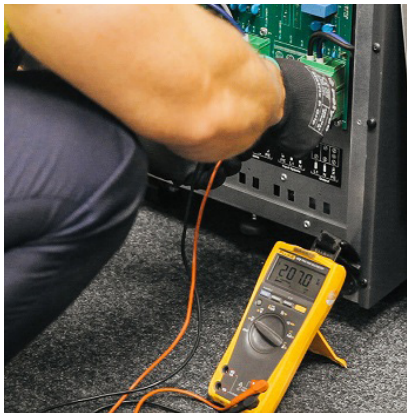
Monitoring the environmental conditions for [uninterruptible power supply \(UPS\) solutions](#) is becoming increasingly challenging and climate control procedures are having to work much harder to maintain optimum atmospheres.

Preventative [UPS maintenance](#) is absolutely critical to managing back-up power environments and ensuring UPS performance. Routine UPS service visits will not only analyse external environmental conditions but also pay particular attention to the condition of the UPS system, its internal components

and UPS batteries. As UPS batteries are central to functionality, extra care should be taken to adopt specialist methods

such as [temperature compensated UPS battery charging](#), where UPS battery life can be significantly extended.

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



For more information [CLICK HERE](#) or call 0800 080 3118.

www.securepower.com

Austin Hughes

Austin Hughes' intelligent rack power distribution unit (iPDU) IP Dongle – IPD-03S – offers high levels of functionality. Its dual LAN network failover provides an auto failover to a second Ethernet connection in the event of network interruption, ensuring 100 per cent iPDU uptime reporting. Alerts can be received via SNMP, email (SMTP), and syslog when predefined thresholds are exceeded for both iPDU and environmental sensor events.

The IP Dongle provides IP remote access to iPDU by a true network IP address chain. Only one network IP is required for up to 32 one phase and three phase



InfraPower iPDU in a single daisy chain using Category 5/6 cable – significantly reducing the number of Ethernet ports used in

deployment. It also features remote level and ID setting for cascaded iPDU.

InfraPower offers three remote management options:

- Free management software
- A web-based graphical user interface (GUI)
- Third-party data centre infrastructure management (DCIM) via SNMP

To find out more **CLICK HERE**.

www.austin-hughes.com

Comtec

Comtec, part of ETC Group, is now a main distribution partner for Salicru in the UK, stocking Salicru uninterruptible power supply (UPS) solutions in Huntingdon and Glasgow to support projects and customers throughout the UK. The Salicru UPS range encompasses solutions for computers and peripherals through to data centres, providing optimum levels of efficiency and reliability for critical devices. The range includes:

- High quality, reliable single phase and three phase solutions



- Multi-socket solutions and space saving compact tower and rack formats
- Clear displays showing all necessary information (input/output voltage, per cent load, per cent battery etc)
- Downloadable monitoring and management software and integrated smart slot (SNMP)

The range is supported with battery extension modules to extend runtimes, maintenance bypass switches and network management cards, so the user can monitor activity and communications.

CLICK HERE to view the Salicru range or to contact the sales team call 01480 415000 or **CLICK HERE** to send an email.

www.comtecdirect.co.uk

A great leap *forward*

John Booth of Carbon3IT examines the EU Code of Conduct for Data Centres (Energy Efficiency) (EUCOC) best practices as they relate to power management, as well as other recent initiatives

At the time of writing the UK appears to be in an energy crisis. Gas prices have risen, a few energy companies have gone bankrupt, unfavourable weather conditions have affected renewable generation and a fire in an interconnector have caused the wholesale electricity price to reach highs of £1,400 per MW. This will no doubt have an effect on data centres, as most operate long-term fixed price contracts. Even if this is a temporary situation, we should still be mindful of a long-term plan to reduce energy consumption, so power management is very much on the agenda.

SETTING THE STANDARD

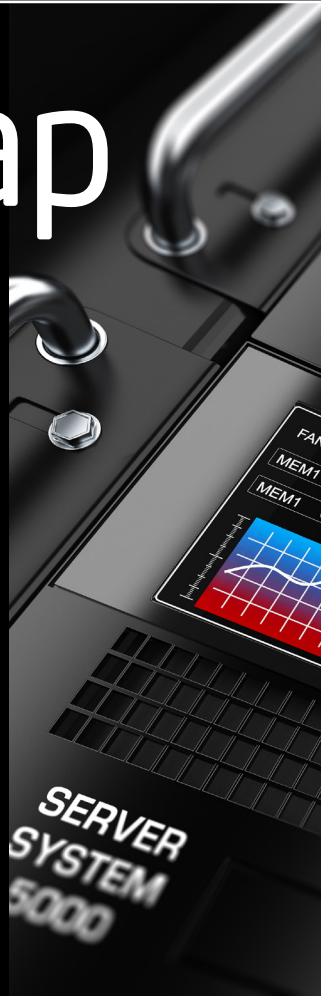
The much used, and much maligned, Power Usage Effectiveness (PUE) metric is often cited as a method for power management. First developed by the Green Grid in 2007, it is now an international and regional standard – ISO/IEC 30134-2 and EN 50600-4-2.

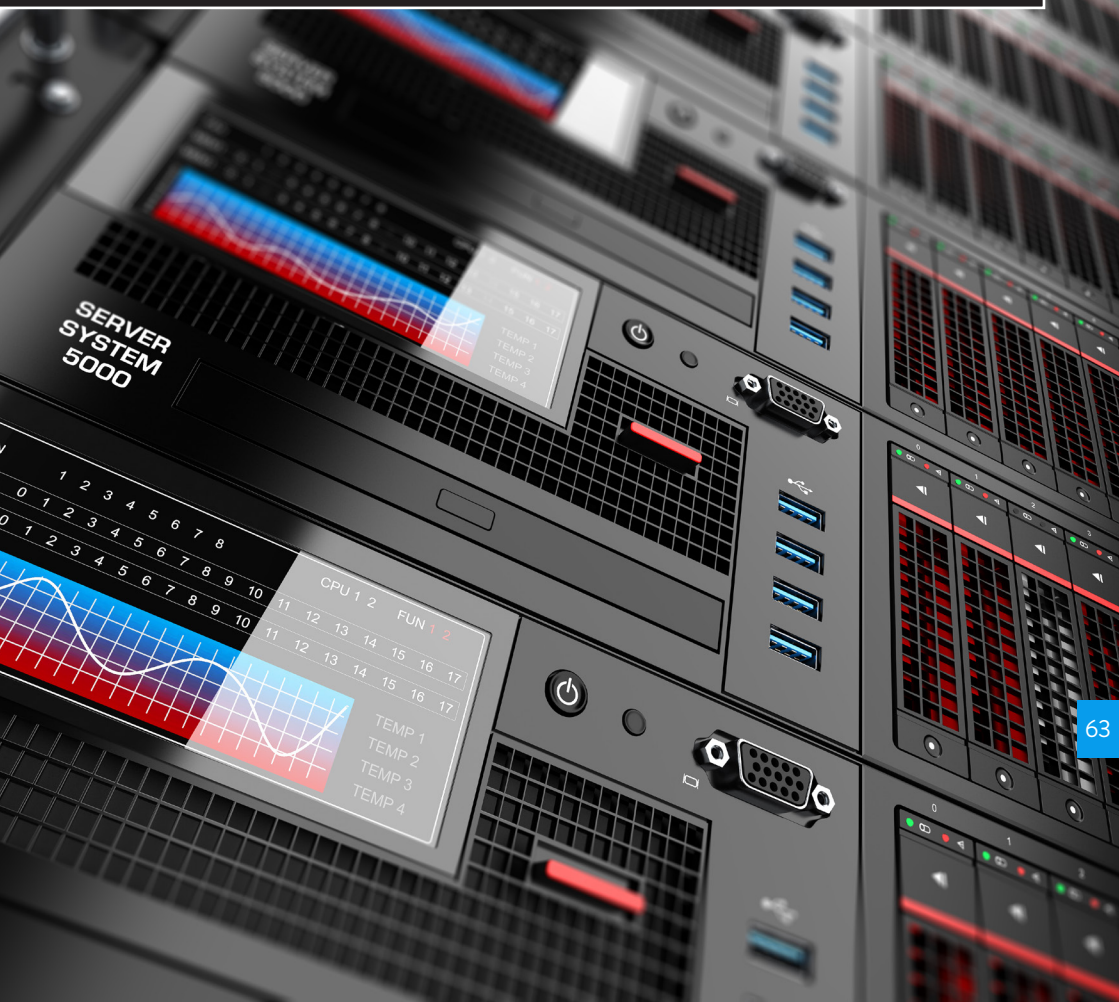
It is essentially the amount of energy entering a data centre divided by the amount of energy used by the IT equipment – the closer to 1 the better. However, it was

never meant to be a comparison metric, it was meant to be an improvement metric. Basically, measure it, adopt some improvements – such as the EUCOC best practices – and then measure again with the aim of reducing energy consumption used in the cooling element of data centres operations by optimising airflow.

Great strides have been made in the reduction of PUE over the years, but recent research by the Uptime Institute indicates that it has stalled at around 1.5-1.7. This is interesting when you consider that new design data centres often cite PUEs at between 1.2-1.4. So what's going wrong?

It could be that the Uptime Institute is getting responses from enterprises and colocation operators, whose ability to manage PUE is tempered by 20th century service level agreements (SLAs). Their





internal or external customers could insist on temperature/humidity settings of 18-22°, which are towards the lower end of the ASHRAE recommended range of 18-27°C. It could also be down to poor management practices, or failing to get their customers to adopt the 160+ EUCOC best practices.

PRACTICE MAKES PERFECT

One of those best practices is on the other side of the fence, being related to IT and thus the 1.0 of the PUE metric. The enablement of server power management features has been a EUCOC best practice for 13 years and says:

4.1.8 Enable power management features. Formally change the deployment process to include the enabling of power management features on IT hardware as it is deployed. This includes basic input/output system (BIOS), operating system and driver settings.

However, it is one that I rarely see when I am reviewing EUCOC applications, or assessing data centres to energy efficiency best practices – indeed quite the opposite. And it is relatively easy to implement, although servers that are running it will require a bit of downtime whilst you reboot and use your server management software

to reconfigure the settings.

So, why is it not being done? The only conclusion I have come to is that it's my old friends fear, uncertainty and doubt acting upon the IT teams within organisations. This is based on prejudices, equipment failures back in their youth, a lack of knowledge or poor management practices.

‘At a time where we are on the brink of, or are already in, a climate emergency and need to meet net zero, as well as energy efficiency and carbon targets, it makes sense to adopt simple power management features that are already present in equipment.’



But it doesn't have to be this way. Chip and server management has improved beyond all recognition from the late 1990s and early 2000s. Systems are actually a lot more attuned to power management than they have ever been, largely as a result of work undertaken by the server manufacturers.

There are also two relatively new ISO/IEC data centre key performance indicators that may be of use – ISO/IEC 30134-4 IT Equipment Energy Efficiency for Servers (ITEEsv) and ISO/IEC 30134-5 IT Equipment Utilisation for Servers (ITEUsv).

Whilst these are more focused on the enterprise, a colocation operator could endorse or advise their customers that these metrics exist.

JUMP AROUND

As an early Christmas present in 2020 (published 15th December 2020) the Netherlands Enterprise Agency published the results of the Lower Energy Acceleration Program (LEAP) and this is now a planning requirement in certain areas in the Netherlands for data centre construction projects. The

LEAP team already knew that many server manufacturers had dynamic energy technologies or modes available, so investigated the extent to which the technology/modes had been adopted and how much energy they could save.

One important point stands out, which is 'If the company configures power management to modes that save more energy, this results in energy savings of approximately 10 per cent on busy server hubs. No detrimental effects for

performance were reported during testing of these energy conservation modes.' This is just one of the observations from the report, but it is clear that considerable savings can be made by simply rebooting a server and adopting various power management technologies/modes that are already present. The report even has more examples from real

customers, and some guidance on how to do it.

ADVICE LINE

My advice is to download the material from the website and set up a testbed in your development environments, implement the BIOS and management settings for any additional hardware, expansion cards etc on the physical machine. Then adopt the server start-up process, implement the dynamic power management settings and test using dummy loads from your production environments.

Test and monitor for a period of at least a week, and then review the results. A further action may be to tell your environmental, social and governance (ESG)/sustainability department about the project so that it can be included in your annual report.

TIME IS OF THE ESSENCE

At a time where we are on the brink of, or are already in, a climate emergency and need to meet net zero, as well as energy efficiency and carbon targets, it makes sense to adopt simple power management features that are already present in equipment. ■



JOHN BOOTH

As well as managing director of Carbon3IT, John Booth is the chair of the Data Centre Alliance – Energy Efficiency steering committee, vice chair of the British Computer Society Green IT specialist groups and represents both organisations on the British Standards Institute TCT 7/3 Telecommunications, Installation Requirements, Facilities & Infrastructures committee. He is also technical director of the National Data Centre Academy.

Quick clicks

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

Ethernet Alliance has produced The Voices Of Ethernet – a collection of spoken records with the people behind Ethernet’s story, with engaging personal accounts of pivotal events and major milestones. To visit the website [CLICK HERE.](#)

Bend Insensitive Fibres: A Key Component of Future Proof Networks is the title of white paper from **Prysmian Group.** [CLICK HERE](#) to read it.

Uptime Institute’s latest Global Data Center Survey has been published. To download a copy [CLICK HERE.](#)

FOR A FREE
SUBSCRIPTION TO
Inside_Networks
[CLICK HERE](#)



The **European Data Centre Association (EUDCA)** has published a white paper titled **Fire Protection Options in Data Centres**. It provides a description of active fire protection systems providing automatic extinguishing of fires in white spaces, together with their advantages and potential risks associated with their use. **CLICK HERE** to download a copy.

The **Teneo 2021: Work From Anywhere IT Impact Report** explores the impact that the shift to the long-term work from anywhere environment has had on IT infrastructure leaders. **CLICK HERE** to download a copy.

Is OM5 Fiber a Good Solution for the Data Center? is the question posed in a blog by Gary Bernstein of **Siemon**. **CLICK HERE** to read it.

Understanding Liquid Cooling Options and Infrastructure Requirements for Your Data Center is a white paper from **Vertiv**. **CLICK HERE** to read it.



Do the right thing

Jonathan Dunbar of Leviton Network Solutions identifies the green practices to look for from a cabling manufacturer

▶ In a recent poll of network professionals, Leviton found that nearly 75 per cent of respondents globally viewed sustainability as a high priority when selecting products and partners. This priority is gaining impetus in Europe, with the European Union and the UK striving for of net zero greenhouse gas emissions by 2050. Companies are increasingly asking about manufacturers' green practices and giving those initiatives greater weight when choosing network infrastructure.

LOUD AND CLEAR

Defining sustainability and determining its scope can often seem a bit unclear. When selecting a cabling system provider, it's important to consider manufacturers that take a holistic approach to reducing their carbon footprints. This means they go beyond simply using more sustainable materials here and there — they consider sustainability throughout the product lifecycle, in design, manufacture and delivery.

Certification and adherence to environmental standards provides assurance of an organisation's commitment to maintaining green practices. These may include certification to ISO 14001 and ISO 50001, which provide ways to monitor and measure continual improvements in environmental performance and energy

efficiencies.

Progressive companies may even hold carbon neutral certification through the British Standards Institution (PAS 2060) or the CarbonNeutral Protocol. This certification confirms that companies are taking the extra step to address climate change through lowering their own carbon footprints, while balancing any remaining carbon emissions through supporting other carbon reduction projects.

MATERIAL GAINS

Cabling manufacturers can reprocess and reuse some materials in the factory, and work with partners that will purchase items, such as short lengths of aramid, plastic purge waste, aluminium and other scrap metal. Cabling factories should address water and chemical management. This may include on-site treatment systems that thoroughly clean manufacturing water before release and having stormwater pollution prevention plans performed regularly. And, of course, manufacturers should ensure careful containment and disposal of all chemicals.

Does the cabling provider seek greater energy efficiencies in its facilities? For example, using LED bulbs and automated sensors instead of fluorescent lights can reduce energy consumption



by up to 55 per cent. Additional energy reduction efforts include smart air compressor systems, improved heating management systems, smart building technologies and ongoing equipment energy monitoring.

Also, manufacturers should work to integrate sustainability into their research and development efforts, using computer modelling, analysis and prototyping prior to physical modelling, greatly reducing the amount of

material waste. When prototypes are verified through several layers of quality control before they can continue to each next step, it ensures that incorrect iterations are revised prior to committing large amounts of raw materials.

PRODUCTS AND PACKAGING

Manufacturers should be able to tell you about ways that their cabling systems and packaging can reduce material use. Here are some examples:

- Ask about eco-friendly materials. How much of the product packaging comes from recycled materials? Are cable reels made from Forest Stewardship Council (FSC) sourced plywood or timber?



- Consider smaller cabling solutions or higher density systems to reduce the amount of materials used and conserve space. A smaller diameter cable can be particularly helpful in data centres, as it can improve airflow in racks and cabinets for better cooling and less energy consumption. Reduced cable size is also important in existing pathways where additional channels are added and space can become an issue. Smaller cables may avoid the need for additional cable trays and associated mounting materials.
- Choosing high density, higher count optical fibre cabling in data centres can offer even greater advantages. Array cables with 12-fibre or 24-fibre MPO/MTP connectors potentially reduce the amount of FEP, PVC and other cable jacketing materials by employing fewer cables, fewer breakout pigtails and less bundling material.
- Pre-terminated fibre and copper trunk cables create very little product packaging or termination waste at the jobsite. Since they are factory terminated, waste is easily contained and recycled, and there is no termination scrap material created at the jobsite.
- Shutters on components like fibre cassettes, adaptor plates and copper jacks eliminate the need for dust plugs or caps that are typically thrown away at the jobsite.
- Products shipped in bulk packs can eliminate thousands of single use bags on a project jobsite.

‘Higher quality cable and connectivity may come with a higher price, but can contribute to greater sustainability efforts and a lower total cost of ownership.’

Finally, higher quality cable and connectivity may come with a higher price, but can contribute to greater sustainability efforts and a lower total cost of ownership. Higher performing systems generally have longer lifecycles and lead to fewer cable upgrades – reducing materials and waste. Connectors that can handle multiple re-terminations will also reduce new material use and higher quality cabling also contributes to fewer abandoned cables in pathways, improving overall airflow.

ON THE MOVE

Sustainability efforts should include more than just manufacturing practices and innovative products. Transportation and shipping should also be taken into consideration. Cabling manufacturers that increase packing density can reduce the number of pallets and, in turn, reduce the number of trucks needed for transportation, while combined shipments and pallet sharing can reduce the number of roadway and air freight shipments that leave a factory.

For example, when Leviton Network Solutions Europe revised its packing method for optical cable, it halved the number of containers required and reduced shipping-related emissions by 50 per cent. Similarly, smart cabling system providers will evaluate and optimise their supply chain network throughout all product development projects to ensure the most energy efficient transportation model globally. Also, find out if the manufacturer



can offer a carbon footprint measurement of the product.

BIGGER PICTURE

With the right solutions and designs, you can significantly extend the lifecycle of your structured cabling system and create a more environmentally responsible network. Remember, you don't have to do it alone. Look to network experts for help with more efficient infrastructure designs. Take advantage of consultants, specification engineers or data centre infrastructure experts who can find ways to meet your environmental objectives. ■



JONATHAN DUNBAR

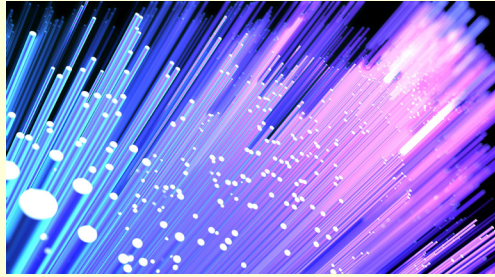
Jonathan Dunbar is senior product manager at Leviton Network Solutions. He has 25 years of experience in the telecoms sector, in technical, business and product management roles, bringing many new products and services to market. Working closely with customers to understand their applications and develop unique solutions, he plays a key role in the evolution of Leviton's structured cabling offering.

Prysmian Group extends its partnership with Openreach to support full fibre broadband plan

Prysmian Group has extended its partnership with Openreach with a new three year contract. Prysmian Group will provide innovation and expertise to support Openreach's updated full fibre broadband build plan, which will be fundamental to the UK government achieving its target of delivering 'gigabit capable broadband' to 85 per cent of the UK by 2025.

Openreach has recently undertaken a live trial using the double overblow installation method developed by Prysmian Group. The Karona installation technique enables

the installation of high density optical fibre cable into pre-existing sub-ducted routes, already containing legacy cable.



The trial took place at Stonehaven in Scotland. The cable used for the trial was Sirocco HD 144f with 5mm diameter, and the innovative installation method allowed an overblow of 600mts of

cable in less than four hours, increasing the capacity of the route to 432f. This installation technique was repeated at Bury St Edmunds, where a route of 730mts was successfully overblown in less than four hours.

Vantage Data Centers expands into Africa with Johannesburg campus

Vantage Data Centers has begun the construction of its first African campus in Johannesburg, leveraging a \$1bn investment from existing financial



partners. The 80MW campus will be in Johannesburg's Waterfall City, a business and data centre ecosystem in the heart of the continent's largest data centre market.

The carrier neutral Johannesburg campus will consist of three facilities across 30 acres, with 60,000m² of data centre space once fully developed. The first phase of the campus, slated for completion in the

summer of 2022, will include a 16MW building.

The design is based on Vantage's standardised campus blueprint, which emphasises sustainable construction

practices such as offering renewable energy options, limiting carbon footprints and maintaining energy efficient operations. Sustainable building features include permeable landscaping and natural on-site drainage. Vantage will invest in recycling, motion sensor LED lighting and other elements for incremental energy and water savings throughout the campus.

Equinix levels up UK digital economy with £61m Manchester data centre

Equinix plans to build a new International Business Exchange (IBX) data centre at the Agecroft Commerce Park in Salford. As the UK's second largest city, Manchester occupies a key strategic location at the



intersection of the UK's highly resilient 'figure of eight' fibre optic network. The new IBX – called MA5 – will be Equinix's fifth data centre in the Greater Manchester area and is scheduled to open

in Q2 2022.

MA5 has been designed for high density deployments in support of digital transformation projects across industries. It will offer state-of-the-art colocation, interconnection and edge services including Equinix Fabric, Equinix Internet Exchange and Network Edge nodes, making MA5 an attractive new interconnection hub and remote geo-redundant deployment location for London.

PROJECTS & CONTRACTS IN BRIEF

SONOC has expanded its global network infrastructure in the US with a point of presence (PoP) in the International Business Exchange (IBX) data centre in Los Angeles. The PoP provides direct access to the SONOC platform on the US west coast and optimises performance for its customers across the region.

MLL Telecom has been awarded a 10-year managed network services contract valued in excess of £20m by the South East Grid, following a competitive tender initiated by East Sussex County Council at the end of last year.

Nokia has announced the expansion of the Industry 4.0 digitalisation enabler application ecosystem running on the newly launched Nokia MX Industrial Edge. Nokia partners will be able to help address enterprise demands for Industry 4.0 capabilities and use cases.

The Austrian Space Forum (OeWF) is simulating a Mars expedition on Earth for the thirteenth time. The test site for the current AMADEE-20 mission is located in the Negev Desert in Israel and network components from Lancom Systems are being used to ensure stable data transmission in the field.

National Grid has partnered with Digital Catapult to deliver the UK's first feasibility report to assess the opportunity for adoption of 5G within the electricity and gas transmission networks.

Rittal

Rittal's VX IT is the world's fastest IT rack. Conceived as a universal and modular variant kit, the solution can be used as a network and server enclosure in a variety of edge applications.

All VX IT variants have been tested and certified with all their components in accordance with international standards such as UL 2416, IEC 60950 and IEC 62368. This means there is no need to additionally certify the finished, configured system. This ensures maximum freedom and peace of mind when assembling new IT infrastructures.

With VX IT, companies can implement



new infrastructures at unprecedented speed – from a single network rack to a complete edge data centre. Rittal maximises the full digitalisation potential to the benefit of its customers. The entire process from selection, configuration and ordering through to delivery is digitally supported and transparent. During configuration, the

3D model is assembled piece by piece, including the accessories, and the finished 3D model is available for reuse by the user.

CLICK HERE to find out more.

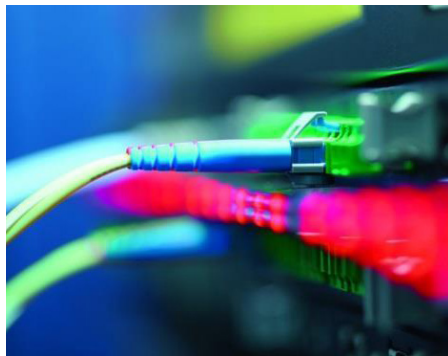
www.rittal.co.uk

R&M

R&M is expanding its intelIPhy net data centre infrastructure management (DCIM) software with self-explanatory tools that data centre planners and service providers can use to design and organise network infrastructures. Users can now create and save 'metamodels' that include, for example, pre-configured devices with plug-in cards or assembled and wired cabinets. Planning can be combined with site information, campus and building plans.

intelIPhy net manages connections, devices and capacity of networks, cabinets, spaces and power supplies. Network connections can be tracked to individual ports in real time and intelIPhy net

automatically updates connection plans when devices are installed or connections changed.



The software can be used in colocation, edge and enterprise data centres, local data networks and smart buildings to plan maintenance work or change processes, generate reports and carry out audits. It is compatible with

intelIPhy Monitor, R&M's automated infrastructure management (AIM) and real time connection monitoring platform.

CLICK HERE to find out more and to get a free trial.

www.rdm.com

Sunbird Software

Sunbird Software's data centre infrastructure management (DCIM) software can now support up to 300,000 cabinets, reaching new heights of scalability.

With the release of dcTrack 8.1, Sunbird's field proven DCIM software supports the largest customers in the world, while still delivering the speed it's known for. Sunbird

has also greatly expanded the scope of its application programming interfaces (APIs) and has added a 'rules engine' to provide the automation required by enterprise class customers.

New infrastructure project management capabilities provide customers with a complete solution to manage

infrastructure deployment projects at every step of the project lifecycle. Customers report improved agility, data driven collaboration, smarter project

decision making and faster rollout of infrastructure and services.

Additional new capabilities include the ability to remotely visualise busways,

suspended racks and compartment racks in 3D, busway enhancements to better understand power capacity utilisation and three phase balancing, more robust management of direct current power infrastructure, and much more.

CLICK HERE to schedule a demo.
www.sunbirddcim.com



GET YOURSELF SEEN

BY THE TIME YOU READ THIS YOUR COMPETITORS' ADVERTISEMENTS WILL HAVE BEEN SEEN BY OVER 20,000 READERS OF INSIDE_NETWORKS.

IF YOU WOULD LIKE TO PROMOTE YOUR PRODUCTS AND SERVICES AND MAXIMISE THE POTENTIAL OF YOUR ONLINE ACTIVITIES, **CLICK HERE.**

FOR A FREE SUBSCRIPTION TO **Inside_Networks** **CLICK HERE**

All you need to know

Inside_Networks

THE NETWORK INFRASTRUCTURE E-MAGAZINE WWW.INSIDENETWORKS.CO.UK

MEDIA KIT 22



CLICK ON THE COVER TO VIEW THE **2022 MEDIA KIT**

Taking a hands off approach

Rajesh Gangadhar of STL explains the benefits of using network orchestration to add intelligence and automation to a network

▶ As the digital experiences of today evolve, there is increasing pressure on service providers to deliver resources quickly, efficiently and reliably. Against a backdrop of high traffic volumes and increased devices and usage, networks must adapt to respond appropriately.

LEVEL HEADED

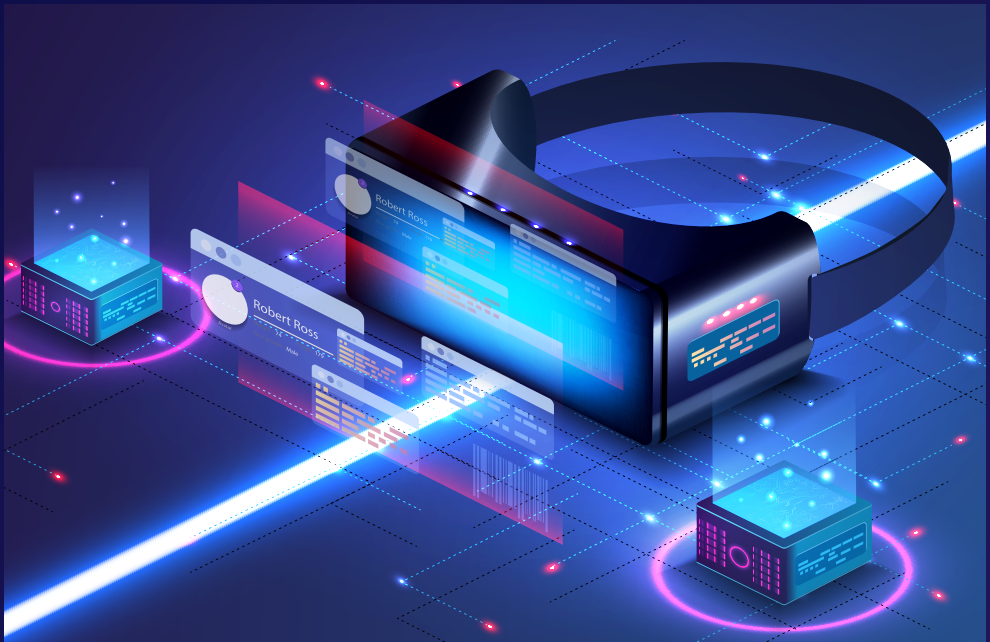
The complexities involved in service provision demand an entirely new level of automation and virtualisation, and this is best served through network orchestration. This introduces a level of agility that allows networks to respond more efficiently to the ever changing demands of business environments,

enabling greater control, enhanced visibility and improved cost efficiency.

To put network orchestration into context, we should look at a typical virtual network in which everything is defined, designed, and engineered by virtual network functions (VNFs). There are a host of features such as fault, configuration, accounting, performance and security (FCAPS), analytics, automated workflows, scaling, healing and zero-touch provisioning. These can be improved by adding intelligence and automation, and this is best managed through an orchestrator.

KEY DRIVERS

With new use cases such as enhanced



mobile broadband (eMBB), augmented reality (AR) and virtual reality (VR), the rise in internet of things (IoT) enabled use cases such as Industry 4.0 applications, vehicle to everything (V2X), machine to machine, online gaming and content streaming, data centre operators are reassessing their network architecture strategies. This is resulting in demands for a new approach that delivers storage, computation and analytics as close to the consumer as possible – the concept of edge networking.

Also on the horizon are new networks enhanced by a combination of 4G and 5G radio access, virtual and disaggregated deployment of centralised unit (CU), distributed unit (DU) and

core. These will have a huge impact on operational performance including wide area optimisation, load balancing and dynamic spectrum sharing, and on providing a markedly improved customer experience.

WHAT DOES IT LOOK LIKE?

While different platforms are structured in a variety of ways, a typical orchestration platform is based on a cloud native architecture utilising an application management system. Orchestration is centralised and micro-services based on using representational state transfer (REST) application programming interfaces (APIs) to communicate with each other.

Other essential elements include an edge orchestrator, open and

disaggregated CU-DU architecture, and a radio access network (RAN) intelligent controller. Some data centre operators and service providers are using containers and, in these instances, orchestration will also provide further enhancements through autonomous, distributed application microservices, which improve scalability and ease deployment across the network.

Service providers also need help to implement centralised network

management or zero-touch automation and this can be enabled through orchestration features such as network slicing or multi-domain lifecycle management. The choice of cloud infrastructure or the ability of the network to utilise

close loop automation is essential too. Selecting the right orchestration platform can enable multi-vendor with open APIs and automatically optimise network wide service resources and policies based on multi-layer traffic information.

‘In the next few years network orchestration will have an increasingly important role to play in enabling network functions inside the data centre to be automated.’

ROOM FOR IMPROVEMENT

The objective of network orchestration is to automate the processes by which requests are carried out and reduce reliance on human intervention. The more flexibility that can be built-in, the more improvements can be made to the customer experience.

It is important to note that network orchestration is highly connected to service quality management and network resources optimisation. This entails provisioning adequate network capacity

sensitive to the services and applications, allocating physical and logical resources when and where needed. In other words, the concept here is to make network capacity fluid and make it closely track demand, which is inherently fluid in a mobile communication premise.

This is a major paradigm shift in the way network capacity is planned and provisioned. RAN intelligent controller (RIC) is a key enabler of this aspect. RIC also plays a pivotal role in network operations automation by leveraging the power of artificial intelligence (AI). Thus, RIC is a major player in network orchestration.

PLAYING A PART

To understand how orchestration can help service providers to get more out of their networks and improve efficiency in their data centre infrastructures, it is important to understand all the parts:

• Service orchestration

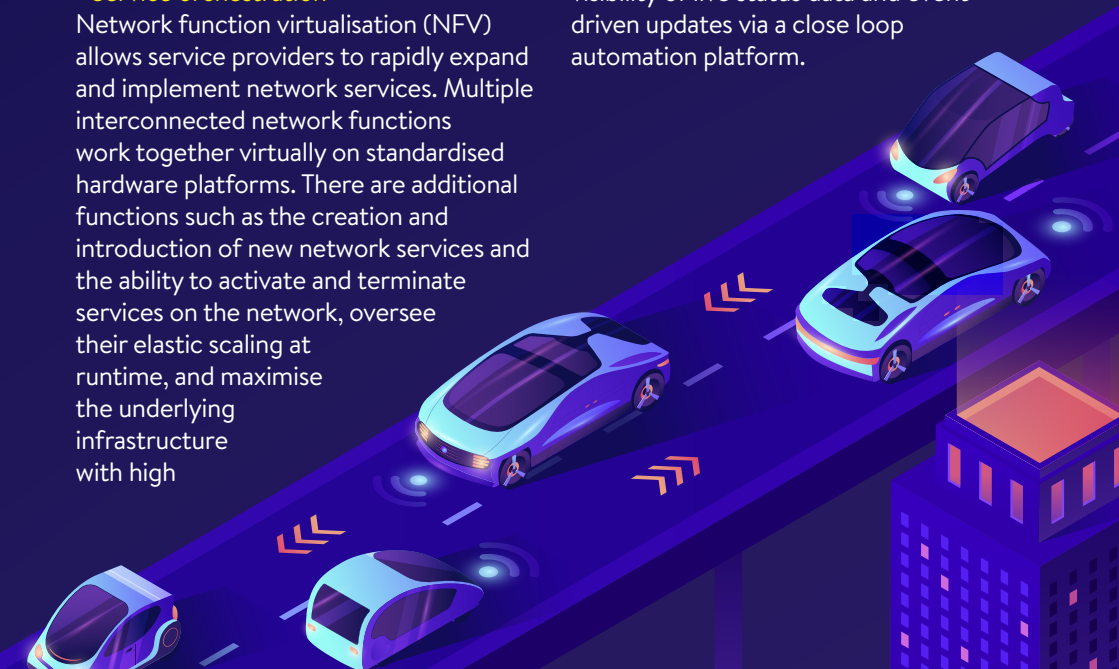
Network function virtualisation (NFV) allows service providers to rapidly expand and implement network services. Multiple interconnected network functions work together virtually on standardised hardware platforms. There are additional functions such as the creation and introduction of new network services and the ability to activate and terminate services on the network, oversee their elastic scaling at runtime, and maximise the underlying infrastructure with high

performance and reliability. NFV is also instrumental in orchestrating the end to end lifecycle of the complicated network functions and services that run on multi-vendor ecosystems.

• Slice management

Network slicing is essential to 5G supporting critical and diverse services that are typically shared across a multi-vendor network infrastructure. The objective of 5G wireless technology is to support three generic services – enhanced mobile broadband (eMBB), massive machine type communications (mMTCs), and ultra-reliable low latency communications (URLLCs).

When considering orchestration, service providers should identify a slice manager that automates and enables the type of service that will help to monetise 5G networks. Ideally, the solution will dynamically select and allocate underlying physical and cloud resources and provide visibility of live status data and event driven updates via a close loop automation platform.



• Multi-cloud management

To maximise the myriad advantages of the cloud, service providers are moving towards private cloud platforms that give them the autonomy to develop, test and deploy new applications. At the same time, the public cloud is serving the growing needs of enterprises that are looking for the best way to scale services and control costs. These shifts demand improved orchestration, particularly for organisations that opt for a multi-cloud or hybrid cloud model that combines both private and public cloud services.

FEATURES AND BENEFITS

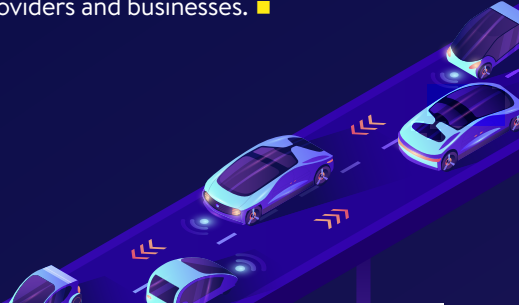
By using a network orchestration platform, operators can benefit from the latest innovations in analytics, AI and machine learning, and these not only improve performance but can also boost profitability and the bottom line.

A well-orchestrated multi-cloud environment provides the flexibility to propel innovation, lower capital expenditure and optimise investments, and create a stable production environment that will benefit companies not just now, but long into the future. It also gives them the option to maximise new technologies such as AI on the cloud, make use of infrastructure as a service or platform as a service to develop new applications to meet customer demands.

ROLE PLAY

Service providers and their data centre estates are evolving constantly as the demands of enterprises and operational requirements change. Agility and flexibility are essential, which is why the industry is making huge leaps in the direction of open and virtualised converged networks. In the next few years network orchestration will

have an increasingly important role to play in enabling network functions inside the data centre to be automated and this will have a significant impact on improvements in overall efficiency for operators, service providers and businesses. ■



RAJESH GANGADHAR

Rajesh Gangadhar drives disruptive wireless technologies for last mile connectivity at STL. He has worked at Sprint, Nextel, Cable Labs and Clearwire.

WE HOPE YOU HAVE ENJOYED

Inside_Networks

COMING UP IN JANUARY 22'S ISSUE:

SPECIAL FEATURES:

- > **CONNECTORS AND CONNECTIVITY**
- > **CABLE MANAGEMENT AND LABELLING**

**TO FIND OUT MORE ABOUT PROMOTION
WITHIN THESE FEATURES [CLICK HERE](#)**

- > **ALL THE LATEST NEWS, VIEWS, COMMENT AND ANALYSIS**
 - > **2021 REVIEWED AND 2022 PREVIEWED**
 - > **HOW LABELS CAN HELP AVOID DOWNTIME, REDUCE MAINTENANCE COSTS AND CREATE PHYSICAL ASSET VISIBILITY**
 - > **THE KEY CONSIDERATIONS WHEN SELECTING CONNECTIVITY SOLUTIONS**
- > **IS POWER USAGE EFFECTIVENESS (PUE) A COMPETENT METRIC FOR A SUSTAINABLE FUTURE?**
- > **UPCOMING DEVELOPMENTS IN CONNECTIVITY**
- > **HOW TO PLAN FOR EFFECTIVE CABLE MANAGEMENT**
- > **MOVES, ADDS AND CHANGES IN THE CHANNEL**
 - > **NETWORK INFRASTRUCTURE CASE STUDIES FROM AROUND THE WORLD**
- > **THE LATEST PRODUCT, SYSTEM AND SERVICE DEVELOPMENTS**

**FOR A FREE SUBSCRIPTION
[CLICK HERE](#)**