THE UK'S NUMBER ONE NETWORK INFRASTRUCTURE MAGAZINE

NCN

June 2015

NETWORK COMMUNICATIONS NEWS

The final countdown?

What the future holds for copper cabling

Net-fix

Kitting out the WarwickNet project

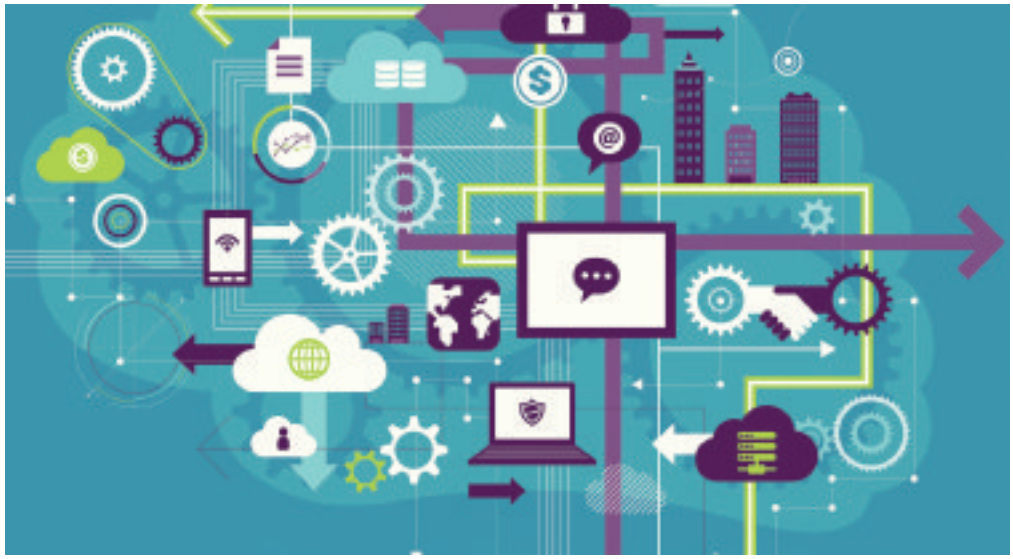
Things to do

How the Internet of Things affects cabling infrastructure

PLUS: Industry news and views • Coping with growing network demand
Investment in the Internet of Things • The latest products

Contents

June 2015



4 Editorial
The heat is on.

6 Industry News
The latest news, partnerships, training news, comment, approvals and forthcoming events in the network infrastructure industry.

10 Talking Point
Matthew Larbey of Virtus argues that the government should invest in the Internet of Things (IoT).

12 On the case
Who is putting what in where.

14 Project Focus
Michael Crane talks to Cannon Technologies about its work with WarwickNet.

18 Cabling infrastructure and the IoT
Rob Cardigan at Nexans Cabling Solutions explains how high speed Wi-Fi and the Internet of Things (IoT) can affect cabling infrastructure.

35 Essential Selection
The latest products available to installers and end users.

Special feature: Copper cabling systems

21 Category 8 in the data centre
Lee Stokes at Draka UC Connect explains how the latest Category 8 cable could be set to transform data centre network infrastructures.

24 The arguments for and against copper cabling
Reinhard Burkert of R&M looks at what the future holds for copper cabling.

29 Copper cabling systems round up
A comprehensive round up of the copper cabling products available to installers and end users.

38 Know How
John Mitchell of Sorrento Networks explains how to cope with changing network demands.

Editor: Michael Crane
01353 616117 | michael@terringtonltd.co.uk

Assistant Editor: Russell Drury
01353 616105 | russell@terringtonltd.co.uk

Publisher: Mike Marsh
01353 616108 | mike@terringtonltd.co.uk

Advertising Manager: Alan Goodes
01353 616110 | alan@terringtonltd.co.uk

Production/Circulation: Hayley Hopkins
01353 616102 | hayley@terringtonltd.co.uk

Financial Controller: Martin Hill
01353 616100 | martin@terringtonltd.co.uk

Designer: Jon Appleton
01353 616114 | jon@terringtonltd.co.uk

Printed by Pensord
Tram Road, Pontllanfraith
Blackwood, NP12 2YA

The editor and publishers do not necessarily agree with the views expressed by contributors nor do they accept responsibility for any errors in the transmission of the subject matter in this publication. In all matters the editor's decision is final. Editorial contributions to NCN are welcomed, and the editor reserves the right to alter or abridge text prior to publication.

© Copyright 2015. All rights reserved.

terrington Media
publications e-media exhibitions

Terrington Publications Ltd Alexander House, Forehill, Ely, Cambridgeshire, CB7 4AF, United Kindom.

www.networkcommunicationsnews.co.uk
editorial@terringtonltd.co.uk/
sales@terringtonltd.co.uk

Tel: 01353 616100 | Fax: 01353 665619

Hot stuff

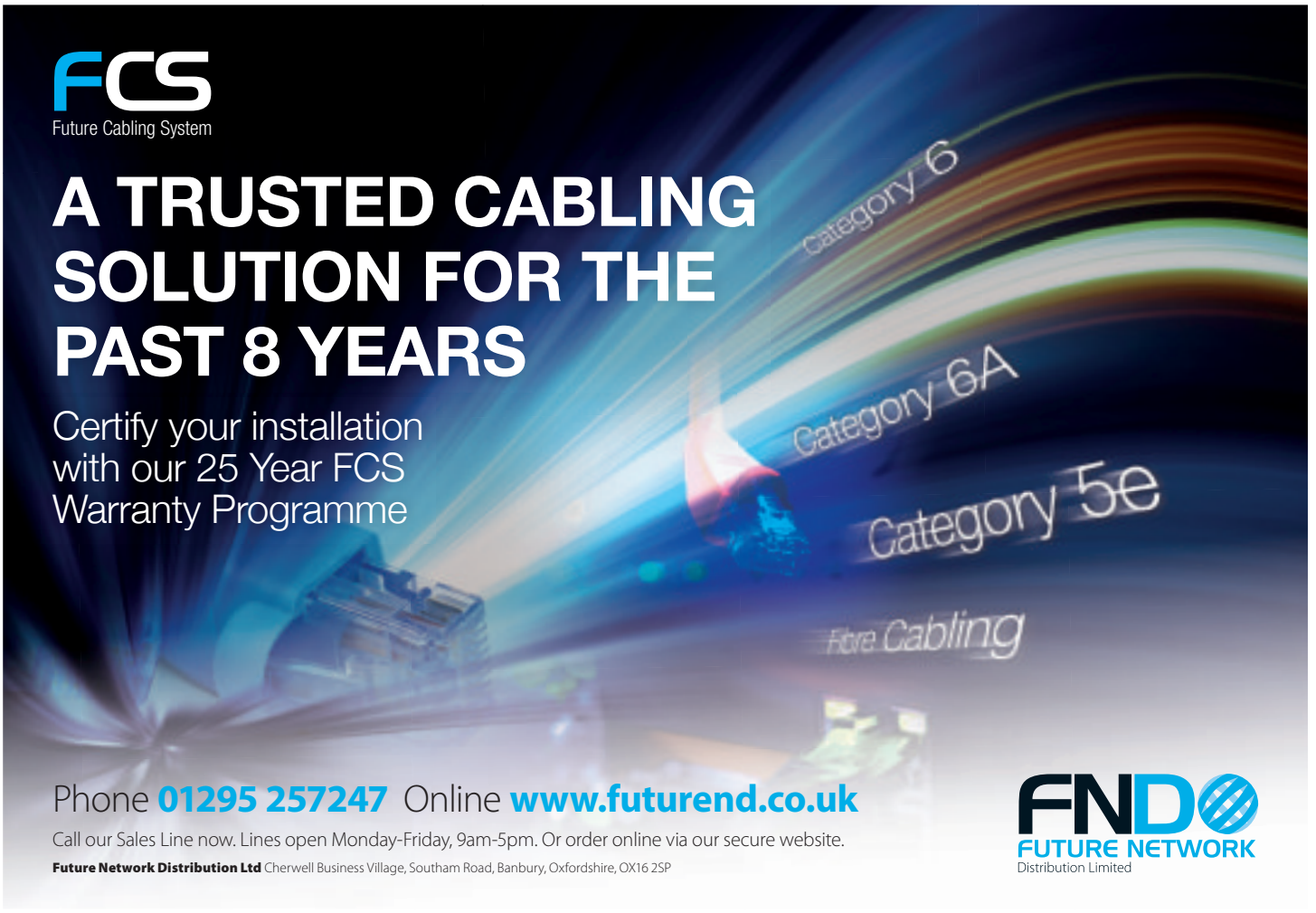
We've all heard the facts surrounding energy usage in the data centre industry. Whichever way you spin it, most data centres outside of the arctic circle consume vast amounts of energy and are contributing to an ever growing oversized carbon footprint that attracts negative publicity.

There are, however, a growing number of facilities that are looking at ways to change this and one of the ideas that is gathering momentum has the potential to change the way we think about the waste heat that is expelled from hot aisles. A number of forward thinking organisations have found ways to recycle this heat and put it to use in other areas - examples include the heating of swimming pools, homes and local businesses and even greenhouses. A facility in Finland is claiming that its waste heat is able to heat up to 500 large houses, enough to cover a small town.

The concept of recycling waste heat is not a new one, but in the past conventional wisdom dictated that the temperatures were too low to render the heat useable. This 'low grade' heat needed to be heavily processed before it was of any use, stripping away any energy efficiency advantages in the process. Though this may still be the case for smaller facilities, some of the larger operators are finding ways to reuse the heat in an efficient manner, dramatically cutting emissions and opening up the prospect of achieving carbon neutrality.

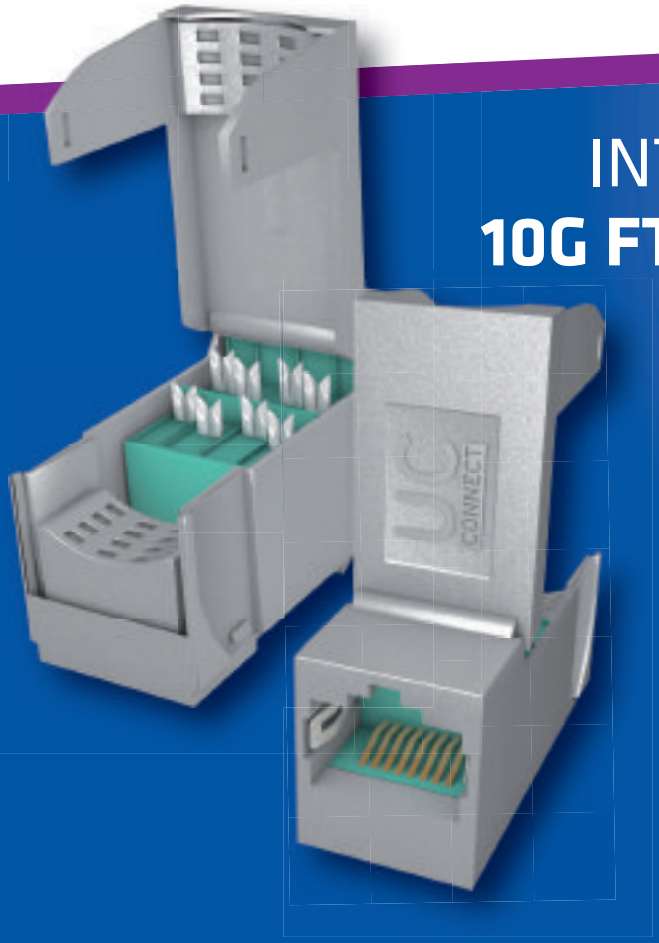
Taking the concept one step further, it is worth considering that in the future it may be the case that some facilities are able to sell their waste heat and generate additional income. This would represent something of a holy grail for operators and, if the process could be rolled out on a larger scale, could forever alter the perception of the energy hungry data centre.

Michael Crane
Editor



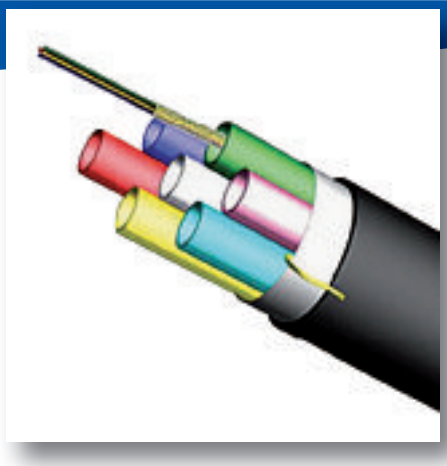
Draka

UC CONNECT
www.prysmiangroup.co.uk



INTRODUCING THE NEW
10G FTP SYSTEM SOLUTION

- full channel manufactured in EU
- Cat.6A acc. to IEC 60603-7-51 component level approval
- 3rd party approved by GHMT
- easy installation by tool free wire termination
- slim design fits well into 32mm back-box floor-box/grid box with angled adapter
- complemented by a range of full and half-unit and angled snap-in panels for installation needs in tight spaces
- comes in an installation friendly 24-fold box packaging



SIROCCO XS

Draka is able to offer the Prysmian Group Sirocco blown fibre solution which provides installers with

- quicker, flexible, future proof and more reliable installations utilising blown fibre units/cable
- network on demand – providing additional service on a just-in-time basis
- unique tube lengths and the ability to carry out integrity testing on installed tubes utilising Prysmian Group test equipment

UC Connect products are distributed by:

COMTEC
T 01480 415400
www.comtecdirect.com

PRECISION CABLES
T +353 42 9331436
www.precisioncables.ie

COMMS CENTRE
T 01634 291191
www.commscentre.com

DUNASFERN
T 01908 282200
www.dunasfern.com

A brand of the
Prysmian Group

After eight

The adoption of Category 8 cabling in a data centre will open up fresh possibilities.

The latest Category 8 cable could be set to transform data centre network infrastructures by providing a cost effective alternative to fibre optic. **Lee Stokes** at **Draka UC Connect** explains.

The volume of electronic data is rocketing. Every minute YouTube users upload 72 hours of new video, over 200 million emails are sent and Twitterers Tweet 300,000 times. Alongside social media, the use of smartphones, the evolution in industrial sensors, the proliferation of CCTV and the growth of video on demand and cloud computing have all contributed to an explosion in data.

Added pressure

With these increased volumes comes increased pressure on data centres and, in particular, the challenge of providing data centre infrastructure capacity without a degradation of service. In response, cabling standards are evolving in an attempt to keep pace with the increasing capacity demands.

In July 2012, industry representatives decided that a copper cable capable of handling 40Gb/s of data was worth developing. Now, less than three years after that declaration, a Category 8, 40Gb copper twisted pair cable has been launched as part of the Universal Cabling (UC) Connect System.

The new Category 8 screened foiled twisted pair cable is available in two options – an installation cable and a patch cable. The installation cable has an outside diameter of 8.5mm and an installed bending radius of 68mm, while the patch cable is thinner with an outside diameter of 6.0mm and a shorter installed bending radius of 48mm. Both cable options incorporate four twisted cable pairs, screened using aluminium laminated plastic foil; the overall cable assembly is then encased in a copper braided tinned screen surrounded by a low smoke halogen free sheath. Their construction ensures both cable types have a data transmission performance of up to 2GHz, which is four times the bandwidth of Category 6A cables and with significantly higher alien crosstalk requirements.

It remains to be seen if Category 8 will have a use outside of data centres.

Alternative

The launch of the 40Gb/s copper cable will give data centre operators a cost effective end-to-end alternative to fibre optic and Twinax solutions, neither of which are ideal. Twinax solutions are limited to short distances of 7m while fibre is expensive – not because there is a huge difference in the cost of copper over fibre optic cable but because fibre optic switches, connectors and transmitters cost significantly more than their copper equivalent.

The preferred way of connecting servers to switches in a data centre has been Ethernet over twisted pair. Typically, switch-to-server links are 30m or less. Since initial 40GBase-T applications will be limited to data centres, the standard link length of 100m for a twisted pair has been deemed not to be essential. This is significant because for higher bandwidths copper is clearly limited in the distance over which it is suitable before attenuation reduces performance unacceptably. As such, the IEEE, TIA and ISO bodies have all accepted a maximum channel reach of 30m with a maximum of two connections.

While all main cabling standards bodies agree on the maximum reach there is, however, a significant difference in cable performance between the different bodies concerning backwards compatibility. North American standards body the TIA, for example, has decided to break with convention so that the Category 8 product it describes does not have to be backwards compatible with Category 7 or Category 7A products. ISO, on the other hand, has continued with the backwards compatible convention so an ISO compliant product will be backwards compatible with both Category 7 and Category 7A solutions. The new Category 8 cable complies with the ISO/IEC standard and the less onerous TIA standard.

Further developments

Compliant cable is only one element of the 40Gb system, however, and manufacturers of connectors will also need to develop their products to be 40 GBase-T compatible in order to provide system solutions. In recommending the development of 40 GBase-T, the IEEE indicated its expectation that RJ-45 connectors would be the chosen connector technology due to its ease of use and backwards compatibility. Some connector manufacturers have developed high performance non-standard Category 8 solutions. RJ-45 has been the technology of choice for IT professionals because of its low cost and ease of use, largely because of its backwards compatibility, which will allow the new technology to integrate with legacy Base-T applications.

The adoption of Category 8 cabling in a data centre will open up fresh possibilities for connectivity and a host of new data intensive applications. It will also improve energy efficiency by reducing the total amount of links in a data centre and reduce overall operational expenditure by alleviating the need to aggregate multiple 10G Base-T links to achieve 40Gb/s transmission speed. In fact, experience in developing twisted pair copper cable solutions for 10 GBase-T Ethernet systems suggests that, where copper based data systems can be delivered, the cost advantage will ensure the development of a viable market for higher capacity systems. It remains to be seen if Category 8 will have a use outside of data centres, but once the advantages of this capacity become more widely recognised my feeling is that it may well end up in office environments.

100Gb/s

Now that a 40Gb copper cabling solution has been developed the next step in innovative product development for the cabling industry will be to develop the technology to cope with 100Gb/s transmission speed. This will be the ultimate challenge because data volumes this high are probably approaching the maximum technical capacity of copper – watch this space.

Lee Stokes is product manager for Universal Cabling (UC) Connect. Lee's role sees him take responsibility for the design and development of new product ranges for Draka's rapidly growing markets in the UK, Asia and Turkey. In addition, he will support the sales teams in each region with technical expertise and provide advice and information for installers and consultants.
Lee was previously involved in the development of the UC Connect System as business development manager. He joined Draka with a background as a hands-on engineer who developed his career into product development, recently holding the role of product manager.