

cablethe future

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Interxion,
Hampshire Council
and Bouygues

FIVE YEAR SPECIAL

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UPDATE

Prepare now
for 40 G

THANK YOU

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Teamwork and market insight help grow business

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Editorial

LESSONS FROM A DEMANDING YEAR



It's been a tumultuous year since I last wrote. The financial world has gone from destabilisation and bailouts to what are now, hopefully, the first signs of recovery. In between, some of our best-known institutions and corporations have either disappeared or are vastly reorganised.

However, hard times should never stop us, but instead call out our strengths. Despite uncertain global markets, Nexans has used the last 18 months to ensure its technologies remain in-step with the key trends evident before the downturn hit. And through our well-honed research and manufacturing skills, we've made these technologies stronger in anticipation of recovery.

Demand for high-speed copper and fibre cable is still growing, in part, to prepare for the eventual migration to 40 Gbps performance for bandwidth-heavy services like video-on-demand (VoD). As financial events started to affect firms last year, Nexans was announcing its copper-based LANmark-7A/GG45 solution for 40G speeds, testing the limits of 1000 Megahertz (MHz) frequency ranges and proving its performance over 100 metre distances.

We've also enhanced in fibre through the multi-fibre push on connector (MPO).

These have gained favour because MPOs facilitate cabling that's mass installed faster and less expensively, with one MPO supporting 12 fibres. Such configuration optimally supports bandwidth-hungry services. This issue's Technology Update explains the rationale behind using both copper and fibre in a comprehensive 10 to 40G migration strategy.

Another big change is environmental. The first green shoots are starting to appear, literally, in the form of the Energy Efficient Ethernet, or EEE. Less than two years ago, most data centre and network managers couldn't automatically locate and identify every device on their infrastructure, much less calculate their carbon footprint.

Yet the IT sector emits considerable amounts of CO₂. A large portion of processing power used for 10G Ethernet active components is for noise cancellation, representing about 40% of energy consumption. If active components were developed geared towards achieving an EEE, the potential savings would be considerable. So 'green IT' will take on far more significance. The story describing Bouygues Telecom's new, highly energy efficient data centre shows one way to achieve such savings using Nexans' solutions and expertise. Energy efficiency will

continue to receive our utmost attention, rooted in Nexans' experience in designing Intelligent Infrastructure Management systems to monitor environmental and operating parameters, as well as network security.

Finally, chaotic times can teach important lessons. This Cable The Future marks the fifth anniversary of its continuous publication. For many months prior, we planned to mark the event by contacting four customers from earlier issues, and describe how each one's relationship with Nexans steadily evolved to support their further growth.

Ironically, what the past years' financial challenges also showed was how the trust these firms placed in Nexans paid off over the long haul. They have grown, and our company has stood by them. If we're going to take today's customers to the next generation network, they have to trust we'll be there for them, come what may. These anniversary stories clearly demonstrate our credibility in this regard. Trust is the first secret of success.

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Streaming Europe's data

Nexans cabling provides dependable connectivity throughout Europe

Netherlands-based Interxion is amongst Europe's leading providers of data centres operating 24 facilities in 13 cities across 11 countries. It relies heavily on Nexans LANmark copper and optical fibre solutions to stream data seamlessly through its facilities.

COUNTING ON RELIABILITY

Interxion operates carrier-neutral data centres and managed data services providing, amongst other items, co-location for reliable connections to Internet Protocol (IP) networks, and peering to exchange data between different networks. The firm accesses 500 Internet Service Provider (ISP) and carrier networks including 13 of Europe's leading Internet Exchanges. Clients include more than 1,100 businesses, content providers, telecommunications firms and mobile service providers.

Its 220 employees service over 40,000m² of equipped space throughout the EU backed by 24/7 support from its European Customer Service Centre in London. Robbie McGhie, Project Manager at Interxion's Amsterdam site, has seen the company's growth and has personally driven several key projects.

He first collaborated with Nexans two years ago whilst designing cabling infrastructure for four customers and their data centres in Amsterdam. These customers opted for time-tested, copper-based Nexans LANmark-6A as well as LANmark optical fibre solutions. This proved to be a significant success, thanks to the professional approach and technical expertise of Nexans staff that assisted McGhie. Nexans' versatility and responsiveness to changing client demands was impressive and gave Interxion significant peace of mind.

This led to Interxion data centres in Brussels, Paris, Madrid and London following suit, all using Nexans cabling as their backbone. McGhie later was responsible for a new, fifth data centre for Interxion Netherlands. Once again, cabling needs were met using a LANmark-6A shielded solution with a low smoke zero halogen (LSZH)

Nexans and Interxion

Challenges

- Continuous reliability of cabling – 24/7
- Fire and smoke resistant
- Client needs and demands for expanding bandwidth and security

Solutions

- LANmark-6A shielded cabling for end-user cabinet connections
- LANmark-OF3 OM3 optical fibre cabling for connecting end-user cabinets with meet-me-rooms
- All cables are low smoke zero halogen
- Nexans' advisory and support services
- Nexans' fast response to demanding situations

Benefits

- Dependable performance satisfies clients
- Data flows smoothly 24/7
- Reliability ensures exceptional peace of mind

jacket ensuring non-toxic smoke in case of a fire. Nexans LANmark-OF3 fibre cabling was used as backbone between the meet-me-room and the client cabinets to provide the necessary bandwidth and security of their data.

Environmental Monitoring and Intelligent Management for new data centre

Local authority meets cost and efficiency targets and green goals with sophisticated cabling solution

“We wanted cabling that was scalable, flexible and allowed us to meet best practice standards for up to 20 years. Nexans’ offer best suited our needs.”

MIKKO GREEN,
OPERATIONS AND TECHNICAL SUPPORT MANAGER,
HAMPSHIRE COUNTY COUNCIL

When Hampshire County Council decided to relocate its data centre, it knew that modern cabling solutions offer more than just connectivity. It discovered that Nexans Environmental Monitoring and Access Control (EMAC) together with Intelligent Infrastructure Management (IIM) enables a broad range of security, efficiency and cost savings benefits.

THINKING AHEAD

Hampshire, England’s ninth biggest county, is administered by Hampshire County Council (HCC). Elizabeth II Court is the entire refurbishment of the council’s 1960s headquarters in Winchester. The scheme has transformed a tired building to a highly sustainable workplace, which has enabled HCC to introduce flexible ways of working and reduce its office port-

folio by some 30%. When HCC relocated its data centre to Elizabeth II Court, it sought the most cost-effective answer to every challenge it faced. Mikko Green, HCC’s Operations and Technical Support Manager, recalls: “We wanted an infrastructure that was scalable, flexible and allowed us to meet best practice standards for up to twenty years. Nexans’ offer best suited our needs.” ▶

THE FUTURE INCLUDES FIBRE AND COPPER

McGhie does not believe that copper cabling’s days are numbered. “In our business, I see a future with more copper being used,” he says. “Whilst bandwidth is important, we also provide square metres of space to accommodate more private racks, as well as the security to protect customer’s data. Network availability, fire resistance, security, uninterrupted power supply and cost efficiencies are equally critical to customers, and many of these services can be supported economically by judiciously deploying copper along with fibre systems.”

Interxion believes customers will increasingly demand outsourced data management to allow operational managers to pursue their core functions. It is seldom cost-effective for non-

IT businesses to build dedicated data centres. As a result, Interxion is currently expanding in London and foresees more new data centres in Europe by the end of this year.

“In our business, I see a future with more copper being used.”

ROBBIE MCGHIE, PROJECT MANAGER,
INTERXION AMSTERDAM

Since LANmark-6A has performed admirably, the firm seems set to continue its use into the future. Additionally, Nexans has impressed Interxion with the way it responds to challenges. “Not only are they proficient in their fields of

expertise, but they also respond swiftly to every client request,” McGhie says. “In our business, there are often totally unexpected needs which suddenly arise, but Nexans’ specialists haven’t yet let a customer down.” •

Did You Know?

- Interxion customers house their equipment in shared rooms, cages or private suites with up to 99.999% availability.
- All sites offer high-level security including 24/7 on-site patrols, CCTV monitoring, mantraps and biometrics.
- LANmark-6A removes the need for over-length cabling thanks to its exceptional short distance support.
- LANmark-6A shielded connector achieved component compliance against the world’s most severe Cat 6A standard IEC 60603-7-51.

► THINKING BIG

By any standards, the new data centre is sizeable. Using Citrix thin client architecture, it serves 12,000 to 13,000 council employees. It is home to 600 physical servers, and another 400 to 500 virtual ones. To adequately support such a vast infrastructure, HCC, on advice from Mace ICT Consultancy, the commissioned IT designer, selected Nexans LANmark-6A high-speed copper cabling for its horizontal network enabling 10G speeds for a fraction of the cost of fibre optic alternatives.

The 360-degree screened design is completely immune to alien crosstalk, and allows placement of up to three connection points within ten metres to further save costs and provide critically needed space in tightly packed data centres. Bob Davis, Senior Consultant at Mace ICT Consultancy: "It was clear from day one that a scalable solution was needed for this project. Yet this client, who is open to public scrutiny, required the best value when spending public money. Nexans met or exceeded the requirements to create a highly effective infrastructure that, despite a strict budget, the council could be proud of."

THINKING GREEN

Another Nexans solution greatly contributes to reducing the centre's environmental costs. Nexans' Environmental Monitoring and Access Control (EMAC) allows the council to optimise both power consumption and energy use. It has two elements – intelligent Power Distribution Units (PDUs) and Nexans' LANSense Rack Manager. The PDUs distribute power to individual sockets and can automatically switch them on/off depending on electrical need.

PDUs have intelligent connections to the Rack Manager, which provides time/date stamped monitoring of volts, amps and sockets used, as well as automatic e-mail alerts should preset parameters be exceeded. It can also monitor room temperature and humidity levels for maximum performance. By recording these attributes, a highly accurate carbon footprint can be calculated and later examined for any corrective

Nexans and Hampshire County Council

Challenges

- Equip a new data centre with a lasting cabling solution
- Make it as green as possible
- Build resilience while making cost savings

Solutions

- LANSense Intelligent Infrastructure Management (IIM)
- EMAC (Environmental Monitoring and Access Control)
- LANmark-6A high-speed screened copper cabling solution

Benefits

- Long life expectancy
- High performance throughout solution lifecycle
- Immediate and continuing cost savings in network management
- Taking control of any change in the data centre from remote location

action. "This will let us show provable savings in both power use and costs," adds Mikko Green.

THINKING SMART

A second Nexans offering is LANSense, an IIM component that automatically provides HCC's ICT people with virtually all the information needed to keep the network operating securely and efficiently. First, LANSense detects and monitors what equipment is at the end of any given network cable. It produces a schematic or floorplan in real-time to convey this information, as well as dispatching e-mail alerts of any moves, additions or changes.

The security benefits are enormous. "We know what's on the core Data Centre network and can immediately act. Until now, we had no other option other than people physically checking the integrity of our networks. LANSense should helps us catch problems, such as an accidental disconnection, before they become serious," concludes Mikko Green. •

Did You Know?

- Heat from HCC's new data centre will be used to heat the building during the colder months of the year. This lowers total heating costs whilst reducing its energy footprint.





A model data centre

Cutting-edge technology in harmony with the environment

Bouygues Telecom's new IT Processing Centre at Montigny le Bretonneux, France, incorporates the latest Nexans LANmark-7A cabling technology to serve current and future mobile applications whilst providing a commitment to respect the environment.

THE FUTURE – FROM TODAY

"A key goal was prolonging our cabling investment by installing a very high-performance infrastructure from the outset, capable of meeting the high bandwidth requirements of new mobile services like video on demand," explains Henri Tailleboq, Infrastructure Manager at Bouygues Telecom's IT and Quality Management. That goal has been achieved at the new IT Processing Centre, combining two rooms with over 1,200m² floorspace and two other rooms still awaiting cabling. Like most data centre sites, transmission servers and internal servers are all managed at this new Processing Centre, which is a particularly big challenge. The slightest malfunction is liable to trigger instant repercussions for subscribers, given the nature of their business.

STATE-OF-THE-ART TECHNOLOGY

"Nexans was a natural choice as our preferred partner for this project since we have worked with them before. However, their selection was also based on their knowledge of the latest infrastructure technology," says Henri Tailleboq. The two rooms are equipped with the latest Nexans LANmark-7A cabling technology, exceeding the specification of Cat7A standards, and supporting frequencies up to 1,000MHz. The solution provides a migration path to accommodate a future shift towards 40G applications. "The backwards compatibility of the GG45 connectors are also a selling point in favour of Nexans," adds Henri Tailleboq.

A SHARED COMMITMENT

While the technical attributes of Bouygues Telecom's data centre make it a cutting-edge facility in today's market, the company has gone still further by making it a green operation. For example, the optimisation of climate-control is achieved by using outside air to limit less efficient production of cold air ('free cooling').

"The backwards compatibility of the GG45 connectors are a selling point in favour of Nexans."

HENRI TAILLEBOCQ, INFRASTRUCTURE MANAGER,
BOUYGUES TELECOM'S IT AND QUALITY MANAGEMENT

Another environmental saving is achieved through the LANmark-7A/GG45 combination in the form of energy efficiency. A higher performing cabling network has the potential to use less power. With data streaming freely, multiple noise cancelling devices can be minimised or eliminated completely, saving electrical costs. Reducing the use of such devices also lowers heat and the associated cost of temperature control. This further makes the IT Processing Centre a building that respects the environment.

"We had an opportunity to visit a Nexans facility that saves energy thanks to its high-performance cable network. This commitment made Nexans a natural partner in our wish to embrace strong ecological solutions," concludes Henri Tailleboq. •

Nexans and Bouygues Telecom

Challenges

- Future-proofing the data centre for the next 10 years
- Support of expanded mobile services like video on demand
- Achieve top quality and maximum security of transmission systems
- Operate in an environmentally responsible manner

Solutions

- LANmark-7A cabling system offering up to 40G capacity
- 500 km of data cables and 35,000 LANmark-7A GG45 connectors installed in two computer rooms

Benefits

- Cost-effective migration to 40G
- Support legacy equipment
- Ability to cope with new services such as video on demand
- Respect for the environment

Did You Know?

- Bouygues Telecom required a PUE ('Power Usage Effectiveness') less than or equal to 1.8 rather than the level of 2.2 to 2.3 currently seen at other computer rooms.
- Noise emissions are not to exceed 70 dBA by daytime and 60 dBA at night.

Prepare now for 40G

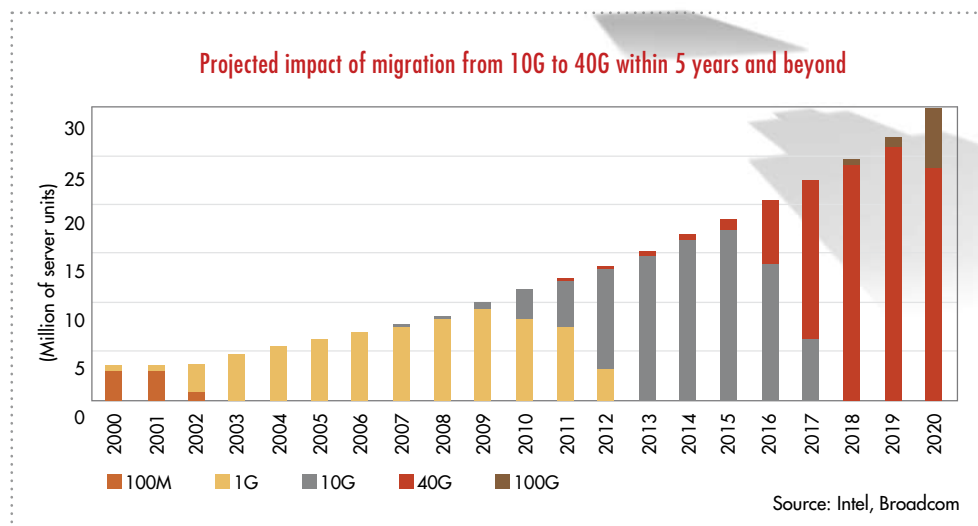
A comprehensive migration strategy today will help data centres easily handle the expected line speed increase from 10G to 40G

Ten Gigabits per second (10G) is today's benchmark transmission rate for large data centres, Internet exchanges, Internet Service Provider (ISP) backbones and high performance computing. Many host some form of video content. But the growing use of Internet Protocol TV (IPTV) and high definition video will soon drive that standard to 40G.

When might this occur? Many IT experts expect that the data centre switch/server links will likely migrate to 40G within the next 5 years. Even if it takes slightly longer, data centre managers need to consider a migration strategy today, and not simply wait for line speed and bandwidth standards to quickly expand. What does this mean for cabling? Within various standards 40G is under development for both copper and fibre. The major difference with previous transitions is the introduction of a new connector type for both. For fibre, MPO is the standardised multi-fibre connector instead of the traditional single fibre connectors like SC or LC for 10G. For copper the GG45 two-in-one connector is proposed instead of the traditional RJ45. Both these new connectors are also backwards compatible with 10G Ethernet. From a customer perspective this provides an easy migration path from the cable infrastructure that is currently installed to support 10G, towards the future required 40G path.

NEW LANMARK-OF SOLUTION PROVIDES EASY MIGRATION PATH WHILE ELIMINATING TRADITIONAL SHORTCOMINGS

The newly introduced Plug & Play solution provides a comprehensive line of pre-terminated and pre-tested assemblies to meet the current needs of data centres. The core of this system is the MPO (Multiple Fibre Push On) connector where 12 fibres can be connected at once. This solution eliminates labour-intensive on site termination or fusion-splicing and reduces installation time by



80 %. It is easy to configure without the need for special patch cords or cassette arrangements and at an operational level provides easy maintenance and facilitates quick changes in data centres.

The specifications for 40G over fibre are finalised by IEEE. This standard specifies parallel optics on OM3 or OM4 cable with MPO connectors. This is the first time that Ethernet will use multiple parallel fibres instead of 2 fibres for send/receive and this poses a lot of new issues when upgrading a cabling infrastructure. Nexans MPO solution provides an easy upgrade path from 10G to 40G where all this is taken into account: simply replace the Plug & Play cassettes by MPO adaption plates and make connection to the active equipment with MPO patch cords. No need to replace the existing structured cabling between the racks: the installed MPO-MPO Preterm provides the cable and connectivity for the parallel optics required for 40G.

Nexans has developed a low loss MPO solution for the 40G upgrade path with a guaranteed maximum insertion loss of 0.35 dB for every fibre in the MPO connection. Common configurations in data centres like cross

connects or concatenated links can be implemented with this advanced solution while meeting the challenging maximum channel insertion loss of 1.9 dB specified by IEEE.

In summary, the Nexans solution enables mass installation in a short time for the current 10G applications, with a configuration that easily sustains parallel optic designs and is forward ready to 40G Ethernet.

NOW THERE'S A COPPER ALTERNATIVE

Regarding copper infrastructure, a short link Infiniband cable is available to support 40G for very limited distances. But consider new technologies such as Converged Enhanced Ethernet which have the potential to replace Infiniband, Fibre Channel and older Ethernet platforms and push Ethernet everywhere. In this case, a single structured cabling platform supporting 1 to 10 to 40G up to 100 meters would be needed. The 100m length is significant because more design flexibility would be necessary to reduce hotspots and other impediments, and the ability to support 100m would obviously be ideal in planning any upgrade today.

With last year's launch of the LANmark-7A GG45 copper cabling solution, Nexans is testing the limits of frequency ranges up to 1,000MHz. This revolutionises the thinking about copper's longevity in Ethernet cabling and provides network architects and managers a greater diversity of cabling system choices.

This combination of Cat 7A cabling with the high-speed GG45 connector specifically targets the imminent 40G market. With all the focus shifting to fibre as bandwidth demand increases, a 40G copper solution may come as a surprise. Conventional wisdom has been that copper was not suited to transfer even 10G over long distances. The main deterrent was supporting these high-speed signals through twisted pair components, whilst handling backwards compatibility with conventional RJ45 connectors with minimal crosstalk.

Nexans has overcome these hurdles admirably through its LANmark-7A/GG45 system, which is forward-ready for 40G Ethernet, yet fully backward compatible thanks to the GG45's ability to accommodate RJ45, offering twice the bandwidth at half the crosstalk of Cat 6A. The GG45 standard has been ratified by the International Electrotechnical Commission (IEC) as the Cat 7A interface. Independent research at America's Penn State University has established a transfer capacity of >40G over 100m is possible based on the electrical parameters of the new LANmark-7A system. The backwards compatibility feature preserves the investments of legacy equipment, which makes this solution a very efficient migration path to 40G speeds.

Today, high speed service providers and the data facilities that support them now have multiple options for developing a realistic, cost-effective migration strategy to 40G or beyond, thanks to LANmark fibre and copper solutions. •

Did You Know?

- MPO is the only standardized optical fibre connector specified for 40G.
- With a OF solution for 40G, you need parallel optics, 4 fibres to send and 4 fibres to receive.
- The LANmark-7A/GG45 combination provides sufficient capacity to run 40G over copper.

Saving with pre-term copper

Whether it's time, money or peace of mind, pre-terminated copper cabling offers major benefits

A couple of years ago, Nexans introduced its optical fibre pre-terminated assemblies. Today Nexans provides a similar solution in copper aimed primarily at data centres. Two key benefits are reduced installation time, and enhanced scalability. Pre-terminated copper solutions also offer a novel approach to structured cabling that simplifies network design, installation, and upgrading in an end-to-end system for quick, plug-in service.

This 'snap-in' advantage trims lengthy installation and facilitates swift placement in high-density data centres. It also offers high performance quality because pre-term assemblies can be more precisely constructed, tested and bundled in the optimal factory environment versus on-site.

Nexans produces pre-terminated, custom-length solutions in Category 6, 6A, 7 and 7A in plug-to-plug, plug-to-jack or jack-to-jack configurations, or in specialised bundles with fanout connections pre-specified by the network architect or engineer. Multipair shielded assemblies include 3x4, 4x4 or 6x4 configurations. Such assemblies result in reduced cable diameter and weight making them easier to pull in congested cabling environments.

In data centres, most copper cabling is used between the distribution switches and servers as well as for patching. By pre-terminating these cables, the pulling, dressing, terminating and testing of each link is greatly simplified, resulting in a job that can typically be finished in hours instead of days. In addition to factory pre-testing such cabling can also offer customised labeling and optimal packaging prior to delivery at the data centre. This makes installation highly traceable and therefore easier to manage, deploy and successfully execute at the moment of 'live' handover.

Nexans LANmark pre-terminated copper systems can be constructed with shielded jacks or plugs featuring excellent protection against alien cross talk or electromagnetic interference, making them well suited for today's 10G standard up to 40G that is becoming more common in data centres. LSZH (low smoke zero halogen) jacketing is standard to ensure no toxic fumes propagate in case of a fire inside the building.

Finally, pre-terminated cabling greatly reduces waste, scrap or excess product laying about the floor or hanging off racks. That's the last thing data centre staff need when moving about crowded workspaces. •



Keeping your footprint clean & green

New, automated Environmental Monitoring and Access Control (EMAC) solutions from Nexans manage and control power and cooling parameters in data centres and similar facilities. EMAC performs continuous, real-time assessment and alerts operators to pre-set event thresholds concerning humidity, temperature, electrical and power consumption. Actual power use can be metered

and plotted over time for on-going analysis. LANsense, Nexans' advanced Intelligent Infrastructure Management (IIM) solution, includes a dedicated Data Centre Edition integrating EMAC into an enterprise wide, IIM solution for integrated functionality. EMAC is also available as a 'stand alone' component linked to specific equipment or areas. •



Five year special

Fast forward...

From The Editor

This special issue marks Cable the Future's fifth year of continuous publication. This milestone, along with our overall corporate success, derives from the many individuals, partners and companies that trust Nexans Cabling Solutions to provide reliable, future-ready infrastructure that doesn't require constant re-cabling.

We thought it would be interesting to look at past magazines and customer installations, and fast-forward to the present to see where these applications are today. The following testimonials will allow the reader to get a view of the type of solutions Nexans has to offer for a variety of customers. We are delighted with our findings, and hope you're as impressed reading them as we are.

Mark Rogers
General Manager
Nexans Cabling Solutions

AZ Sint-Jan Bruges-Ostend AV



THEN...

Five years ago, major bus company Blaguss Reisen – the Austrian arm of Eurolines – decided to build a new terminal in Vienna's Erdberg district. "Not only did we need a larger terminus to serve 400 coaches and passengers, but also a new office building," says Helmut Jäger, Information Technology Director for the Blaguss Group. The new building required high-capacity data connectivity to support the firm's International Travel Department, which oversees transport to 500 destinations throughout Europe. A flexible, future-ready 10G Ethernet was the preferred infrastructure.

Blaguss considered all possible solutions and selected Nexans LANmark-7 shielded cabling system with novel GG45

snap-in connectors for its building-wide network. The network was designed and installed by Nexans' Austrian partner, KSI (Kontakt-Systeme International GmbH).

"We chose Nexans because they guaranteed the best price/quality rate, and their solutions are very flexible and backward compatible. Thanks to the GG45, which accepts both standard RJ45 and GG45 Cat 7 plugs, we only need to switch the patch cables to use future applications beyond 10G, rather than cable the whole infrastructure again," says Helmut Jäger.

TODAY...

"Our decision to install LANmark-7 cable with GG45 connectors for our then new facilities proved the best," says

THEN...

AZ Sint-Jan AV is a public hospital in Bruges that offers high-level care for every patient, developing close ties with other hospitals in Belgium's Flemish region. To keep pace with its growing activities, the hospital in 2007 installed a new optical fibre cabling system linking all buildings on its campus, with a guaranteed data transfer rate of 10 Gig over 550 metres, even with six connectors in-between.

Nexans provided AZ Sint-Jan with pre-terminated cables with pre-installed connectors at both ends, completely tested prior to installation, saving a lot of time during the on-site installation and testing phases.

"The basic requirement for a network is to be stable and fast. Hospitals as a rule own extremely complex IT infrastructures, particularly on

the application level, as new technologies keep increasing data volumes that need to be stored safely. A hospital network simply cannot be a problem child," underscores IT Manager Helga De Neve.

TODAY...

AZ Sint-Jan Bruges has merged with the nearby Ostend Henri Serruys hospital, forming the third largest healthcare group in Belgium, with 1,240 beds and a full-time staff of 2,500 including 245 clinicians. Together, this group generates an annual turnover of 327 million euros. Nearly all staff at each hospital use personal computers daily, with a small minority using just Intranet and a mailbox. On top of this, a growing number of external partners, like general practitioners, access the hospitals' database over the network. A completely renewed Storage Area Network (SAN) offers fast and easy access to all

patient records and images. "Our investment in a 10G network is really starting to pay off", says De Neve. The network is built along a redundant star topology, which guarantees maximum availability and allows for switching on the core during maintenance.

De Neve expects the data volume to keep increasing during the coming years. "Working on three campuses in two cities, Bruges and Ostend, creates new demands, such as teleconferencing. Public authorities require more collaboration with primary care providers and stimulate the creation of local care networks that transfer information between hospitals in a fast and secure manner. Patients will be allowed to interface with the hospital over the Internet, booking appointments, asking personalized information, or checking on prescribed medication. All of these new applications will demand faster connections between the hospital network and the Internet."

Helmut Jäger. "We've had no problems with the network and have easily added new Internet Protocol (IP) devices and systems thanks to the cable's excellent headroom and the flexibility of the GG45 connector."

For example, the cabling system easily accepted new multimedia applications in the form of digital, electronic departure and arrival displays positioned outside the terminal. Also supported are numerous, bandwidth intense IP video surveillance cameras located throughout the facility's interior/exterior.

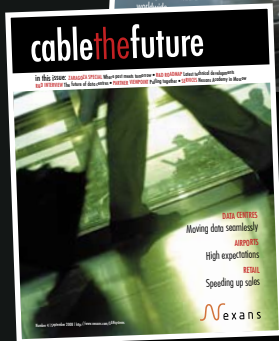
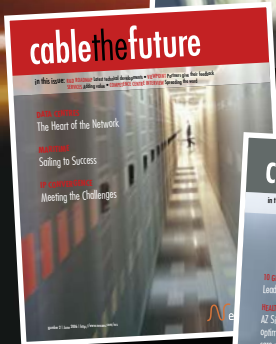
"The Nexans solution has shown a great return on investment," says Helmut Jäger. "I expect it to perform flawlessly for another ten years or more without requiring replacement."



Eurolines, Austria

Five year special

Fast forward...



Previous issues of Cable the Future can be downloaded from www.nexans.com/LANsystems

Tilburg University, Netherlands



THEN...

In 2005, C&C Technology Consulting was asked by an important customer to relocate its data centre from London to a more secure site in Birmingham. A lot of rack mounted and other equipment needed to be installed at the new site, presenting C&C with several challenges. "The sheer space that the new cabling required and fitting the connections into the available area was a major test," says Ralph Colombo, Managing Director at C&C. "At the same time, we had to configure the installation to let the customer make his own moves, additions or changes."

By using Nexans pre-terminated cabling solutions, C&C was able to map out consolidation points in the network design

which meant that, when it came to installing cables, the engineers simply had to plug in the right connection. The relocation was a complete success due to this cost-effective, expedient solution from Nexans.

TODAY...

Whilst relocation is but one segment of C&C's total offering of IT infrastructure design, project management and technical consulting, the firm continues to help clients perform large-scale relocations similar to the project five years ago. "Most recently, a major client with five offices across Eastern Europe asked us to relocate not only their data centre from facilities in the UK, but also their office communications infrastructure, both to separate pre-existing locations in

THEN...

A campus-wide cabling project begun in 2000 covered 13 classroom, laboratory, administrative and residence buildings at this school of 12,000 students. "We started by assuming that 1G to the desk should be enough bandwidth for the next 15 years, the expected lifetime of any good cabling system," says Martin van der Walle, Team Leader of the university's Information and Communication Technologies (ICT) Group.

The university selected Nexans LANmark-5 double shielded copper cabling system grounded on both sides for its horizontal network in all existing buildings. Cabling supports data access for computers and campus-wide IP telephony. The initial project was finished in 2003, with additional LANmark-5 cabling installed in two new structures since then, as well as a recently purchased building.

TODAY...

"Whilst some say 70 to 80% of disrupts in computer networks is due to cabling, we don't agree in our case. We spent significant time designing and installing an infrastructure nine years ago, and now enjoy the benefits of that effort," says Martin van der Walle. He adds there's been hardly any maintenance needed to the horizontal network since its installation, aside from an occasional damaged outlet when students move in or out of dormitory rooms.

"Double grounding and double shielding of the LANmark-5 cables has made for a very stable network, with no electromagnetic interference or slow linespeed issues," he says. "This is most impressive since the number of digital devices has exploded from just five years ago, especially amongst students. Everyone now has a laptop, digital assistant or desk computer, and some

have all three. They continually view, download or send video files which may consume up to 500 Mb. Yet the network reliably handles it all."

But the biggest benefit is to the ICT staff. "We're a small group, and don't have time to run after cabling errors over and over during the network's lifetime. Our system had to be good and stay good for 15 years. We're now over halfway there, reaping the benefits of a very steady network."

Prague," Colombo says. "This involved designing and installing both horizontal and vertical networks as well as all the systems, cabinets and panels for the data centre."

C&C, with the customer's concurrence, again turned to Nexans for solutions – this time involving LANmark-6 solution in both open-end and pre-terminated configurations for data centre and office cabling. The total relocation was completed flawlessly, on time and within the client's budget.

"As an independent consultant, we repeatedly test the waters and talk to customers about the products we recommend and install. Nearly five years on, Nexans continues to be at the top of our client's preferred lists. They feel Nexans keeps pace with technology advances, and is seen as a reliable supplier to work with. We heartedly agree," concludes Ralph Colombo.



A computer for every child

Republic of Macedonia is the world's first nation to provide computer access for every student by cabling all schools

Called 'A Computer for Every Child', the programme required cabling school buildings to handle the latest digital communications. Nexans and regional partner KABTEL Ltd. successfully won the coveted cabling contract based on a LANmark-5 cabling system.

PROGRESSIVE POLICY

The Republic of Macedonia's Ministry of Information (MOI) Society proactively promotes information technology to enrich the country culturally as well as to develop a knowledge-based economy.

In late 2006, it embarked on a policy called 'Computer for Every Child', part of a national initiative to enrich and enlighten students. The platform to achieve this goal involved low-cost personal computers that, with special 'thin client' technology, allow up to seven students to access a single server simultaneously from the security and safety of classrooms. Students who rotate computer time throughout the school day share each thin client unit.

Nearly 18,000 client servers, 99,000 flat panel monitors and keyboards, and approximately 81,000 thin client units were acquired and dispersed amongst all primary and secondary schools. The nation's Minister of Information, His Excellency Ivo Ivanovski, explains how the program improves teaching. "It first facilitates one-on-one computer instruction, thereby raising the number of students actively participating in the educational process," he says. "As a result, there will be equal opportunities for all students regardless of the school's location, and equal treatment of every student, regardless of where they sit in the classroom."

"Nexans has demonstrated its installation capabilities supported by the high-quality LANmark product and Nexans technical support."

GORAN MITRESKI,
GENERAL MANAGER, KABTEL LTD.



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HIS EXCELLENCY IVO IVANOVSKI,
MINISTER OF INFORMATION,
THE REPUBLIC OF MACEDONIA

The challenge was to wire school buildings nationwide to accommodate the classroom-based computers, as well as link them in local and wide-area networks and tie each to a high-speed Internet connection. "New cabling was needed inside 105 secondary school buildings with more than 2,000 classrooms in a mix of old and new construction," says Goran Mitreski, General Manager, KABTEL Ltd., a valued Nexans regional distributor headquartered in Skopje. KABTEL was amongst four firms responding to a tender from government-owned Macedonian Telecom assigned to oversee the first phase.

HIGHLY COORDINATED EFFORT

KABTEL won the contract because of its strong regional presence and experience throughout the Balkans, its Nexans Training Centre in

Skopje, and some beneficial attributes of the cable it recommended for the project: LANmark-5 shielded twisted pair.

The highly resilient yet flexible cable became the primary network foundation because its narrow diameter allowed multiple cables to be easily pulled in PVC ducts shared with electric power lines. Its shielded construction reduces electromagnetic interference (EMI).

"The other proposals recommended separate PVC ducts for telecom and power at considerable cost. However, thanks to the excellent shielding of the LANmark-5 cable, we were able to place multiple communications and power cables together in a single duct without concern for EMI or crosstalk," says Goran Mitreski.

More than 261 kilometres of LANmark-5 cable were used throughout the total installation requiring 15,724 links.

GOALS ACHIEVED

Work on phase one was successfully completed in 2008. Since then, KABTEL won a second contract to cable 400 primary schools nationwide involving about 5,000 classrooms. "We've been very satisfied with the cabling network's performance to date," says Minister Ivanovski. Goran Mitreski adds: "Our firm has demonstrated its installation capabilities supported by the high-quality LANmark product and Nexans technical support. We know what we're talking about, and it shows." •

Benefits from cabling all Macedonian schools

- Foundation for building a national educational management and information system
- Shared experience and lesson planning amongst teachers nationwide
- Synchronised nationwide student testing and evaluation

Exceptional service enhances good products

Nexans distinguished by the depth and scope of its customer support

Late last year, a London based marketing research firm studied cabling industry attitudes towards Nexans in four major EU countries. A key goal was to identify primary purchase criteria amongst all customer groups, including network architects and designers, installers and end users.

Three criteria were consistently mentioned:

- Reliability of the solution.
- Speed and bandwidth.
- Added value services and support.

Differentiation of Nexans from its competitors comes from how well the company designs, builds and installs its products and backs them with valuable technical support. The latter is the main responsibility of Didier Willems, Manager of the company's Project Design and Technical

Support Department. Willems and his team of technical service specialists help reinforce Nexans structured cabling projects worldwide.

He says: "Whilst there are many important participants and stages in a cabling project, installation and handover are the front line. Installers in particular give it to you straight. They repeatedly tell me that we have the most in-depth, comprehensive and responsive technical support in the cabling industry. That's not by accident."

A WEALTH OF KNOWLEDGE

Nexans' excellent reputation is exemplified in the following services:

1. *Daily Technical Support:* A fundamental yet important service, Nexans engineers and technical specialists answer daily enquiries from customers and partners around the world. Nexans staff will often arrange scheduled conference calls for live consultation including video conferencing where drawings,



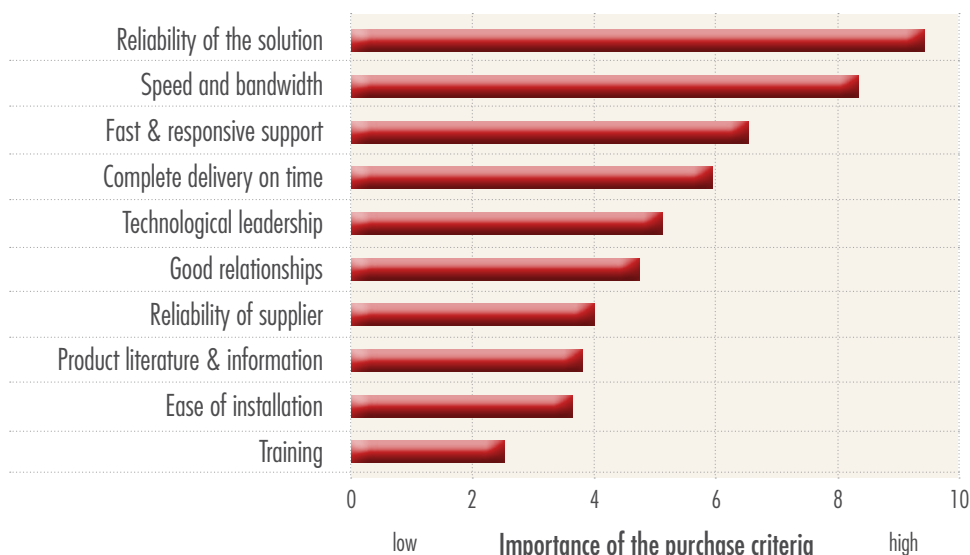
"Customer feedback is taken very seriously. We proactively confer with R&D, product management and any other department within our company to analyse, evaluate and recommend actions to make sure quality is assured."

DIDIER WILLEMS,
MANAGER PROJECT DESIGN AND
TECHNICAL SUPPORT DEPARTMENT, NEXANS

presentations and charts complement the discussion. The objective is to provide same day turnaround on daily enquiries.

2. *Design Support for Projects:* Engineering drawings are prepared to aid the execution of medium and large projects where Nexans products are used, or provide drawings and data in support of a Nexans partner's response to a highly complex Request for Proposal (RFP) tender. Often, this added technical documentation helps partners submit a more impressive response that provides a competitive edge.
3. *Free Online Software Tools:* Concurrent with design support is the development and availability of various software tools to help customers or partners prepare their own engineering drawings. Nexans Visio Template (NVT) can be used by installers and systems integrators to present their copper or fibre network design solutions, as well as document infrastructure components. Another software package, The Installation Toolkit, provides the means to more easily determine various installation parameters such as how much to separate data and power cables or how many bundles can fit in a tray (see box). These freeware tools can be downloaded at www.nexans.com/LANsystems.
4. *Technical Documents for Field Use:* The department regularly develops, writes and dispatches technical notices and guidebooks to assist partners and customers in various field challenges. Protocols, testing procedures, schematics and other documents are routinely prepared.
5. *Training:* Working in conjunction with Nexans' user training organisation, the Department regularly assists in customer or partner training, either in preparation of instructional materials or actual hands-on education when needed anywhere in the world.

WHAT DO CUSTOMERS FIND IMPORTANT?



Source: Tilburg University, PIMS, Nexans

In addition to these services, the project support team are able to provide a vital feedback role in the product development process.

"Customer feedback is extremely important and taken very seriously. We proactively confer with R&D, product management and any other department within our company to analyse, evaluate and recommend actions to make sure quality is assured," says Didier Willems.

A similar service involves handling requests from Nexans product marketing and business development wanting to know how products and systems really perform at the customer's location. "Because we're in the field with customers practically every day, we see, hear and personally experience situations that cannot possibly be conveyed in a formal memo back to the lab or office," says Didier Willems. "That makes us a valuable, live link to the real world."

A two-way information flow is an important component of successful technical service, and a hallmark of a truly global company with multiple resources like Nexans. •

Nexans Installation Toolkit saves time

- **Cable tray fill calculator**
Calculates the amount of cables that fit a tray/basket depending on cable type and pathway size.
- **Optical fibre cable selection tool**
Helps select the most suitable fibre cable based on different environmental conditions.
- **Power segregation calculator**
Assists in determining the required distances between data and power cables to avoid interference.
- **Horizontal link length calculator**
Automatically calculates maximum fixed links for different configurations.
- **Stacking height calculator**
Helps calculate how high your cable tray is in case of non-continuous support.

By astutely studying the cabling market and promoting the Nexans brand, Rashi Peripherals in Mumbai has dramatically increased network business.



Since 1989, Rashi Peripherals Pvt. Ltd., has served the IT hardware, distribution and service needs of government and commercial organizations throughout India. The Mumbai-based firm has today grown to 51 branch offices covering 130 towns and cities nationwide including well-known metro regions like Bangalore, Delhi and Chennai.

But two years ago, Rashi's structured cabling offering was small compared to its other divisions that relied heavily on IT equipment and components sales. That changed quickly thanks to its energetic General Manager of Networks and Peripherals, Sanjay Aggarwal, along with his experienced team of infrastructure professionals and strong support by Nexans' Singapore office.

"The support from Nexans is extremely fast and of the highest quality."

SANJAY AGGARWAL, GENERAL MANAGER,
NETWORKS AND PERIPHERALS

"There was no Nexans brand presence in India back then, and few global firms aggressively supported structured cabling here," says Aggarwal. With the support of Nexans, he encouraged Rashi to become a Nexans Distributor and to pursue opportunities in this area. Aggarwal and his team spent the next eight months studying India's structured cabling market, its needs and various applications, and identifying the correct market channels to be considered for projects and bids.

"We correctly identified the best contacts for selling structured cabling, and complemented our approach to these prospects with the global reputation and proven support of Nexans," adds Aggarwal. "In essence, we sold ourselves as a well-established Indian company with global resources and expertise."

Rashi's capability in distribution was put to use with a major cabling opportunity with HDFC, the nation's second largest private bank. HDFC chose Nexans due to their position as worldwide leader in cable industry and Rashi's capability to provide its products in 54 locations across India. Rashi installed a Category 5e cabling system in more than 350 branch offices. Ensuring availability in remote locations was a challenge that Rashi could handle with ease to the satisfaction of the installer and the customer.

A second contract followed with RailTEL, a division of India's national railroad service. This expansive project was to provide Internet connectivity to railway facilities within India's three largest cities – Chennai, New Delhi, and Mumbai. Each railway facility received a Nexans LANmark Category 6 cabling system interconnected with underground fibre optic backbone cables.

"Partnering with Nexans helped us obtain and execute these and other major projects, all within a year of our basic market research," says Aggarwal. "We've seen incredible growth just in the past five months. The support from Nexans is extremely fast and of the highest quality. Nexans' umbrella is huge, and already has opened doors to other opportunities." •

Teamwork and help grow





market insight business

For 67 years, Caporal & Moretti has been Lebanon's leading electrical and telecom contractor. Nexans helps them stay that way in the cabling market.



It's 1942. World War Two is being fought in Europe, the Pacific and Africa. The new film 'Casablanca' is taking moviegoers by storm. That year also sees the birth of Beirut's newest electrical contractor, Caporal & Moretti.

Caporal & Moretti formed its first relationship with Nexans predecessor, Cables de Lyon, in 1952. Today, Caporal & Moretti still counts on this long-standing team effort to stay competitive in the digitized 21st century. Not only are they one of Lebanon's leading telecom contractors, they are also a leading IT services provider, accredited by Mitel and Cisco Systems, Inc. The firm has expanded since 2001 by opening offices in Dubai, Qatar and Abu Dhabi, serving the market as electrical, telecom and security contractor. Today it employs around 300 people.

Marc Moretti, grandson of the firm's co-founder and son of the current Chairman, is Caporal & Moretti's Vice President and Deputy General Manager overseeing the entire firm. He got his Master's degree in Telecom Engineering in the USA and co-published a paper for the Institute of Electrical and Electronics Engineers (IEEE). He also was an early adopter of structured cabling in Lebanon and one of Nexans' first partners in the Middle East. They provided the first Category 5 project at the United Nations ESCWA building in Lebanon and the first Category 6 and fibre to the desk at BLOM Bank Headquarters, a leading and prestigious bank in Lebanon.

Caporal & Moretti's recent achievement was installing the nation's first Category 7 network for the prestigious Central Bank of Lebanon, a public institution with the exclusive right to issue the national currency. The project involved designing and installing all network cabling throughout the bank's central data centre, as well as providing security systems, video monitoring and a system-wide uninterruptible power supply.

The data centre regularly monitors financial records from local and commercial banks around the country. Caporal & Moretti's IT management sought a structured cabling system to support the centre's operation for at least ten years. A future-proof cabling network with maximum bandwidth support was a key criterion in selecting a system.

Caporal & Moretti worked with Nexans to propose a combined architecture involving LANmark OM3 fibre cables linking the centre's switch points. This was supported by a horizontal network of LANmark-7 copper cables with Nexans' revolutionary GG45 two-in-one connector to accommodate all servers. More than 2,000 fibre connections and 1,000 LANmark-7/GG45 copper nodes were installed.

“With this outstanding project, the successful and close partnership between Caporal & Moretti and Nexans proved Nexans' dedication and proficiency.”

MARC MORETTI, VICE PRESIDENT AND
DEPUTY GENERAL MANAGER, CAPORAL & MORETTI

In addition to the superior future-proof architecture this combination offered, the bank chose this solution based in large part on both companies' technical expertise and reputation for satisfying customer needs. “In addition to product excellence, a supplier should have a first-rate reputation and work flexibly with our clients as projects evolve. With this outstanding project, the successful and close partnership between Caporal & Moretti and Nexans for more than a half century was able to prove Nexans' dedication and proficiency at these kinds of execution,” says Moretti. •



LANmark-7A

Gateway to **40G**

One copper system helps data centres easily migrate to 40G performance



40G

The quest for higher-speed media will soon drive Ethernet to 40G. Nexans LANmark-7A cabling with GG45 provides smart, cost-effective migration from 10 to 40G capacity to meet evolving standards.

The system performs with traditional RJ45 patch cords to support

legacy Category 5e, 6, and 6A. Just change the patch cords for Category 7A performance. Be ready now, choose LANmark-7A with GG45.

**The future
never looked so secure.**

 **nexans**
Global expert in cables
and cabling systems

www.nexans.com/LANsystems

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