

cablethe future

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The 'Green Network' is coming

EDUCATION

Where pharaohs and
the future meet

INDUSTRY

PUMA ready for 40G

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Editorial

ALL IN THE FAMILY



We often refer to our many offerings as 'a family of products.' For many years Nexans has been acknowledged as a global leader in Copper based product solutions and is now increasingly being recognised as a strong player in both Fibre solutions as well as Intelligent Management. Traditionally these product offerings have been seen as discrete solutions, selected independently to meet the discrete needs of the network architecture within the diverse needs of the overall building architecture.

Yet this "package of products" approach is changing, driven by the increasingly harmonized needs of the building architecture towards a total integrated network solution.

Significant emerging technology trends have driven this change of approach with two dynamic market sectors best exemplifying the evolution in LAN design. Here's how we see the effect these trends will have.

In the area of commercial construction, architects and building services managers are increasingly embracing a 'smart building' concept where computers control a wide range of functions for greater economy and environmental efficiency. Included are lighting, heating/cooling, security, water use, and other parameters. The most significant change for the LAN is how much it will be utilised to convey and execute these smart functions. As little as five years ago, LANs were something of an afterthought in new office blocks, usually the obligatory computer and telephone lines installed after the

more traditional infrastructure (pipes, vents, electrical) were near completion.

But as the barrier between the IT network and the building facilities infrastructure gradually dissolves, the LAN is now not only receiving more upfront planning consideration, but is also driving growing demand for intelligent infrastructure management (IIM) systems to reduce the ongoing management costs of these more complex networks. Add to that an increasing demand for environmental stewardship through effective, automated measurement and regulation and telecommunications now becomes paramount in achieving these goals.


The recent building of PUMA Village, Vietnam, illustrates the benefits of addressing easily expandable, high-bandwidth LAN services employing both media at the earliest planning stages. PUMA has embraced this vision on a global scale. You can read their story on page 8.

In Data Centres, the physical network is having to adapt to the potentially contrasting needs of efficient power utilisation while supporting the deployment of the ever more power hungry high speed / high density devices proliferating within the cabinets. At Nexans we are significantly increasing the content of our Data Centre solutions offer to enable designers to abandon the previous fixation with choice of media and instead focus on the most flexible deployment of a balanced media choice. This choice is critical if the facility is to meet both the pace of technology change as well as the increasing drive for

high levels of energy efficiency. Here, like for the building market, Nexans offers a total portfolio of both fibre and copper solutions, unique Data Centre cabinets, IIM and environmental software to reliably handle any facility's needs.

No doubt traditional infrastructure will be here for some time utilising classical fibre backbones and horizontal copper networks. But the demand for new technologies such as Internet protocol (IP) security cameras, IP telephony, IIM, Power Over Ethernet (PoE) and automated environmental monitoring is starting to change the way architects and planners view LANs – more as a unified solution versus an add-on to support desktop sets and other discrete devices.

Nexans is addressing these trends by offering a total solutions approach versus a purely independent product selection. It's no longer a matter of being a copper- or fibre-based provider, but having answers to infrastructure challenges and needs encompassing multiple solutions – fibre, copper, software, accessories, design and technical services. Our real strength is knowing how best to bring these diverse elements to bear to your benefit.


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The 'Green Network' is coming

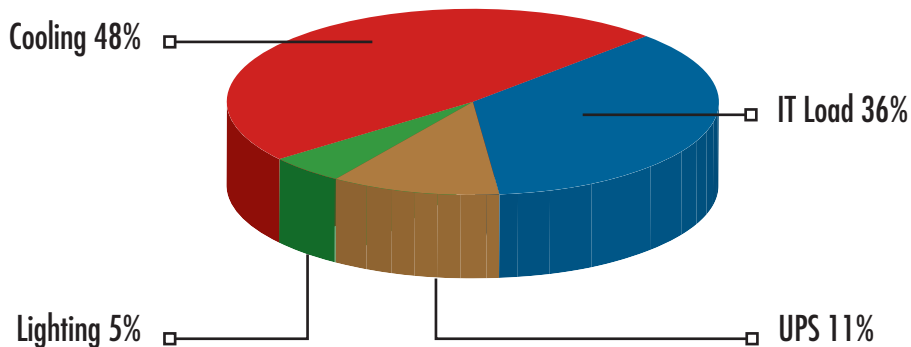
Accelerating IT growth means more robust equipment and increased power consumption. As a result, there is now rising concern that global data operations may become more polluting than aviation in just 10 years. Laws governing how network operators and Data Centres will monitor and reduce energy consumption are just around the corner. Some nations already impose them today.

Cable the Future magazine recently discussed this situation with Harry Forbes, Nexans Cabling Solutions' Chief Technology Officer.

We associate carbon reduction with heavy industry and exhaust fumes. Are Data Centres and IT networks really that polluting?

Our research shows that indirectly, the IT profession and Data Centres in particular have been very inefficient users of energy. You may never see acrid smoke billowing from a Data Centre rooftop, but they are indeed silent hubs of intense heat and power contributing to increased carbon emissions because they digest a lot of electricity that must be generated at a plant. Here's how that energy is typically used in a Data Centre.

ENERGY CONSUMPTION





“As energy bills keep rising, network and Data Centre operators will have to trim usage as corporate executives demand to know why the IT department is so expensive to run, and how high MWh rates translate into lower profits.”

HARRY FORBES,
CHIEF TECHNOLOGY OFFICER,
NEXANS CABLING SOLUTIONS

What nations are addressing this issue?

In April, the United Kingdom launched its Carbon Reduction Commitment (CRC) to reduce greenhouse gas emissions by at least 80% from 1990 levels by 2050. About 20,000 U.K. companies are affected, especially those consuming more than 6,000 Mega-Watt Hours (MWh) of electricity per year. CRC will therefore impact many British Data Centres.

Other initiatives are the EU Code of Conduct for Data Centres, a major effort to understand energy use and impose best practices and energy efficiency targets. Nexans is officially an endorser of EU Code of Conduct. The Green Grid consortium of global IT firms is an industry initiative to promote Data Centres' efficiency, along with Energy Star ratings for servers and computers in the U.S. In general, governments throughout Western Europe, North America and Asia are at various stages of demanding greater energy efficiency from the IT sector.

Are factors other than legislation making IT professionals energy conscious?

Yes – energy bills. As they keep rising, network and Data Centre operators will have to trim usage as corporate executives demand to know why the IT department is so expensive to run, and how high MWh rates translate into lower profits. Action must be taken to stem the acceleration of year-on-year power consumption.

How can I lower IT energy use?

First, know how much energy is being used. This will shock some, but many Data Centre professionals haven't a clue what their operations' energy costs are. Traditionally, an IT organisation's energy bill is paid from a corporate fund. That's now changing, with such costs now being charged to the IT director's budget.

You can get control of these elements by deploying Intelligent Infrastructure Management and Environmental Monitoring software to analyse and better manage network operations and costs. A County Council in the U.K. recently installed an Environmental Monitoring and Access Control (EMAC) tool when creating a new Data Centre. By automatically recording various environmental attributes using its analysis feature, a highly accurate carbon footprint was calculated and examined for corrective action.

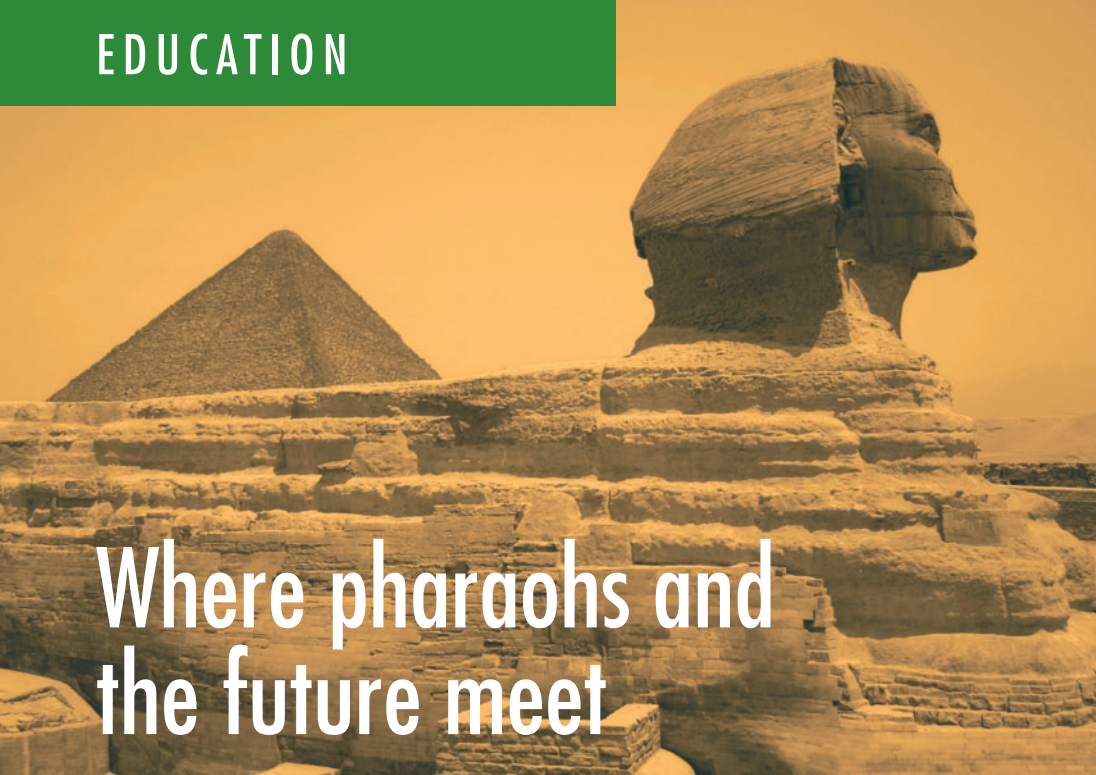
Second, reduce consumption. Server consolidation and virtualisation help achieve this. The Uptime Institute estimates up to 30% of servers in today's Data Centres are unused but continue to be powered using about 70% of their fully rated power. So reduce power through consolidation.

Power management features on newer equipment, new cooling systems and microprocessors requiring less energy for computing also help.

Blade servers and cluster computing create energy balance and hotspot problems because they need to be close together due to the short reach of the input/output interconnect, typically 7 to 15 metres. Using 10Gbase-T as a server-to-server interconnect is a potential solution, enabling cluster servers to be dispersed throughout the building, allowing improved load balancing and cooling. Remember, cooling can represent nearly half a Data Centres' energy use. Lowering cooling costs in any percentage has great savings potential.

Third, the right choice of cable can reduce CO₂ emissions. High grade shielded cable is less affected by external and internal interference, so in the future, energy draining noise cancellers could be shut off or greatly reduced. Resulting energy savings can be significant in a large facility. Remember, too, that a Cat.7 or higher graded cabling system is as energy efficient as fibre. Installing a cabling network that's future-proofed for the next 20-plus years also helps the environment by dramatically reducing expensive recabling or even rebuilding. ●





Where pharaohs and the future meet

Egypt's Nile University helps propel one of the world's oldest civilizations into the 21st Century thanks to Nexans solutions

Home to the world's greatest ancient engineering wonders, Egypt's newest technology institute represents a major effort to build a world-class IT presence in this region. Nexans Cabling Solutions, and distributor UBC, successfully installed the country's first Category 6A network and Intelligent Infrastructure Management platform on its campus.

SMART VILLAGE GROWS NATION'S ECONOMY

Mention Egypt and most envisage ancient pharaohs and their engineering triumphs: the Giza pyramids, Great Sphinx, the southern city of Luxor and mysterious tombs in the Valley of The Kings.

But that's only part of the picture. The Arab Republic of Egypt has one of the most developed and diversified economies in the Middle East, with tourism, agriculture, industry and service at nearly equal levels of total national output. The Egyptian economy is well-developed thanks to legislation that encourages investment, along with recent trade and market liberalisation.

Enter Nile University's (NU) campus located at Sheikh Zayed City, 20 minutes away from the



Centre of Cairo. It is designed to provide the most appropriate scientific environment required to support a "research" university. The 127 acre campus will provide complete service facilities for students and faculties as well as new technology start-ups. The campus is currently under development and will be constructed in various phases. The first phase consists of an Educational Building, a Main Building, a Services Building and Sports Facilities.

The Educational Building consists of 20,000 square metres comprising classrooms, faculty and graduate offices, laboratories, library, cafeteria, fitness centre, clinic, and administration offices. The second building, the Main Building, is expected to be used shortly after the first building and will house administrative offices, the IT central facility, the Institute of Executive Education and the School of Business and Management of Technology's special programs.

The campus also hosts state of the art IT applications and infrastructure, making it an integrated Smart campus in every sense. Nile University is also proud to be the first university in Egypt to deploy several state-of-the-arts IT features:

- The first university network deployment which integrates different building utilities such as access control, unified communications, video surveillance and a fire alarm system together to maximize the customer benefit using IP based solutions, in addition to providing complete indoor and outdoor wireless coverage throughout the campus.
- The first Unified Workspace license in Egypt's Education Sector: The converged voice-and-data network will enable the IT department to manage resources more efficiently.
- The largest 10 Gigabits per second (10G) Ethernet network in Egypt allowing a huge amount of information flow.
- The first Internet Protocol Version 6 (IPv6) based campus network to be deployed in Egypt.
- The first IP Video Surveillance (IPVS) solution to be deployed in a university in Egypt, including cameras, video servers or digital video recorders (DVRs), running, monitoring and reporting applications, thus maximizing campus security and control.
- A complete end-to-end unified communications solution to help teaching staff and administrators streamline communications-

**“The key to success
is teamwork.”**

NEZAR NABIL SAMI, Eng. MSc. MOT
DIRECTOR, INFORMATION SYSTEMS DEPARTMENT
NILE UNIVERSITY

regardless of media, platform, device, or location. Users can stay in touch and get work done wherever they are; using whichever device is most convenient.

- Video portal and digital signage are also available in all lecture rooms, in both the Educational and the Main buildings, to allow instant communications and up-to-date information to be aired at all times.

INTELLIGENTLY MANAGED COPPER & FIBRE NETWORK

During the planning phase, it was realised the new university needed a sophisticated LAN for IP-based telephony, data, security and a building automation system. The university's project manager and IT support staff visited numerous institutions in the EU to develop criteria for an eventual Request For Proposal (RFP) tender.

Specifications were prepared for a LAN backbone infrastructure supporting 10-gigabit speeds throughout, with a mix of 1-10G to each workspace. Building One consisted of 2,800 nodes; 1,800 for Building Two, linked by a campus-wide fibre cabling system. Intelligent Infrastructure Management (IIM) software also was deemed necessary. It had to be backward compatible with an intelligent patching system used in other Smart Village structures including Egypt's Ministry of

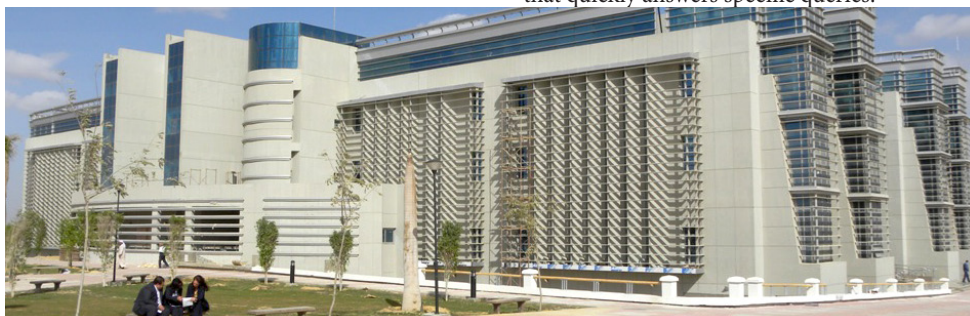
Nexans helps one of the world's oldest nations grow in the 21st Century

Communications and Information Technology (MCIT). It also required modularity and application independence.

The RFP was won by UBC Integrated Systems, a subcontractor for the infrastructure cabling system, a Cairo-based cabling management firm and Nexans distributor. The proposal included a Nexans LANmark-6A screened copper cabling system for each building's infrastructure, LANmark-OF fibre single mode cables for the campus backbone, and LANSense IIM software.

Says Rami Beshir, General Manager, UBC, “Nexans had key technical advantages over the competition with its cost-effective, screened category 6A copper cabling as well as its IIM package, despite the fact there were currently no comparable installations in Egypt.”

Rami Beshir added the LANSense solution offered many benefits not available in other respondents' proposals, including management and documentation of all IP devices anywhere on the network; a quick and effective moves, adds & changes (MAC) process for all IP devices; circuit traceability of network devices; security to identify unauthorised MACs or breaches, as well as a highly responsive reporting system that quickly answers specific queries.



Nexans and Nile University

Challenges

- Recommend/install future-ready LAN and campus wide backbone
- Include IIM in total solution
- Two 20,000 sq. meter buildings; 4,600 nodes total
- 22 Telecom Rooms total
- All solutions compatible with pre-existing intelligent patching system
- Strict compliance and oversight by Egypt's MCIT

Solutions

- LANmark-6A high speed screened copper cabling solution
- LANmark-OF single mode OS2 optical fibre cables
- LANSense Intelligent Infrastructure Management (IIM)

Benefits

- LANmark-6A supports 10G LAN - 1 to 10G to desktop
- Optical fibre supports campus-wide backbone
- Vendor-neutral LANSense, capable of monitoring various network systems and devices
- Effective management of network parameters - MACs, security, device traceability

Concludes Rami Beshir, “Thanks to our relationship with Nexans, and its ability to deal with issues right away, UBC distinguished itself with MCIT by being very proactive. We hope this will lead to other projects within the Smart Village cluster.” ●

**“Nexans has key technical
advantages over the
competition.”**

RAMI BESHIR, GENERAL MANAGER
UBC INTEGRATED SOLUTIONS, EGYPT

Did You Know?

- LANmark-6A exceeds 10GBase-T standards for 10G applications and adheres even to ISO 11801 Am.2
- Screened LANmark-6A cables eliminate the need to perform expensive, on-site testing for alien crosstalk following installation
- Nile University is a pioneer in nanoelectronic integrated systems research

PUMA ready for 40G



Easy migration to higher bandwidth makes Nexans copper and fibre solutions perfect for PUMA's Development Centre in Vietnam.



Ho Chi Minh City is home to the new cutting-edge Development Centre for sportlifestyle company PUMA. Nexans' LANmark-7A copper solution with backwards-compatible GG45 connectors and LANmark OM3 fibre cabling were selected for their ability to meet today's standards, whilst enabling cost effective growth.

LATEST ENVIRONMENTAL AND NETWORK SYSTEMS PROMOTE EFFICIENCY

PUMA is one of the world's leading sportlifestyle companies that designs and develops footwear, apparel and accessories. The company, which was founded in 1948, distributes its products in more than 120 countries, employs more than 9,000 people worldwide and has headquarters in Herzogenaurach/Germany, Boston, London and Hong Kong.

In 2009, the company officially opened its new cutting-edge Development Center, PUMA Village, in Vietnam's Long An province. The whole complex is the new home for footwear and apparel prototype and sample suppliers. Furthermore, integrated in the new complex are material and component suppliers as well as Sourcing, Engineering, Material Management, Laboratory and Research & Development Centres of PUMA's sourcing organisation World Cat.

"After three years of planning and building, we have created a unique place for our creative people to work in a fast and professional way," said Reiner Seiz, PUMA's Chief Supply Chain Officer. "Nearly all of our product categories as well as technologies will be developed at PUMA Village in order to ensure that our entire product service and product quality goals are achieved." In line with PUMA's sustainability concept called PUMAVision, PUMA Village features a number

LANmark-7A copper with GG45 and LANmark-OF fibre meets today's standards for tomorrow's growth.

of environmentally friendly assets. A rooftop reservoir helps supply the complex's water needs by collecting rain, especially during the May-to-November wet season. This water will be used to complement the water supply, for cooling purposes as well as for landscape maintenance. In terms of energy saving a protective screen was installed to protect the office and factory building from direct sunlight which reduces the heating up of the building. Solar panels provide energy to supply hot water and air conditioning.

In keeping with its commitment to use the most up-to-date technologies and systems, PUMA sought a reliable, high quality cabling solution to support PUMA Village's offices and Data Centre that maintains its daily operations.

FUTURE-READY NETWORK SUPPORTS CLASS Fa AND OM3 WITH ENHANCED PERFORMANCE

PUMA was already familiar with the benefits of Category 7 cabling which had been used previously and was written into their corporate specification.

Nexans and Puma

Challenges

- Reliable, future-ready cabling system for Data Centre and office
- Infrastructure helps PUMA adhere to its corporate environmental and sustainability goals
- Flexibility to accommodate eventual migration to 40G performance

Solutions

- LANmark-7A cabling system with GG45 connectors for horizontal links
- LANmark-OF OM3 optical fibre cabling system for backbone between Data Centre and floor distributors
- LANmark-OF OM3 fibre cables linking Data Centre with nearby factory

Benefits

- Smart, cost-effective migration strategy to 40G
- Environmental savings in power use due to high performing cabling network
- 25 year full system warranty

"PUMA is highly satisfied with the overall performance of Nexans and its partners."

DOMINIC PUA, SENIOR SYSTEMS ENGINEER, PUMA

During the planning of PUMA Village, it was an obvious decision to migrate to the latest version of the standard and install Category 7A. This solution still uses backwards compatible GG45 connectivity but delivers enhanced bandwidth up to 1000MHz and even better energy saving benefits, helping PUMA to achieve its corporate environmental goals.

Dominic Pua, PUMA's Senior Systems Engineer, saw numerous benefits in the Nexans solution and recommended to install it in the new complex.

"LANmark-7A with GG45 connectors convinced me because it perfectly adheres to our corporate Cat.7 specifications whilst allowing us to easily migrate to next generation applications," he says. "As GG45's backwards compatibility lets us accommodate original RJ45 connectors, we can use many reliable, legacy systems today and have the flexibility to gradually grow to a future 40G network at reduced cost."

The infrastructure project had to be completed in just six weeks following final design confirmation and receipt of the purchase order.

"We can use legacy systems today and have the flexibility to grow to a future 40G network at reduced cost."

DOMINIC PUA, SENIOR SYSTEMS ENGINEER, PUMA

Executive Summary

Client

- PUMA AG/World Cat Vietnam Ltd.

Project

- Horizontal/vertical cabling of Data Centre and office complex. Fibre link to adjoining factory

Nexans Partners

- Lantro Vietnam Co., Ltd. (installation);
U&ME JSC (distribution, logistics, sales and support.)

Nexans Products

- LANmark-7A cable with GG45 connector; LANmark-OF OM3 cables with SC multimode connectivity

System deployment was performed by Lantro Vietnam Co., Ltd., a key Nexans Certified System Partner and regional representative of Lantrovision (Singapore) Ltd., one of Asia's most successful data cabling design and installation specialists. PUMA Village required nearly a thousand links of LANmark-7A system for the horizontal network with each floor having a separate distributor cabinet. LANmark-OF OM3 fibre cables with SC fibre connectivity form the backbone linking the floor cabinets with the Data Centre as well as connecting the office to the PUMA factory next door.

Logistics was handled by Nexans local distribution partner U&ME JSC who was able to source and supply all the required components in a fast timeframe to ensure the project was completed on time for the PUMA Village opening in October 2009.

LANmark solutions come with a 25 year system warranty that further supports PUMA's commitment to a long term Asian presence.

"PUMA is highly satisfied with the overall performance of Nexans and its partners", said Dominic Pua. "In addition to its future-ready design, the Cat.7A network is energy efficient, which is in line with our sustainability concept. •

Did You Know?

- 40G capacity of LANmark-7A/GG45 is ideal for simultaneously sharing data, HD video, voice and Ethernet without signal loss or reduction

The best medical care runs on high-speed cabling



Groeninge's new hospital complex in Belgium's Flemish region provides patients with home comforts and bedside data thanks to a combined copper and fibre cable network.

In 2014, following investments of nearly 345 million Euros, Belgium's highly populated West-Flanders region will become home to one of the country's largest and most modern hospital sites. Each year, 34,000 patients and 54,000 outpatients will be taken care of in this highly sophisticated healthcare environment which will rely on over 900km of Nexans cabling to support all its data communications needs. Today, the first phase of the project has been completed.

FROM "FLANDERS' FIELDS" TO THE 21ST CENTURY

What were once open fields is today home to an impressive new hospital of the AZ Groeninge group. Three different healthcare campuses that are spread apart in the city of Kortrijk will eventually concentrate their activities in a four-storey medical campus, except for some, mainly polyclinic activities, which will remain in the city center of Kortrijk.

The complex's first phase consists of an initial building with plans to expand this by up to three times the current size. Yet despite its clinical purpose and extensive growth, visitors do not feel like they're in a hospital at all – rather, its functional modern infrastructure creates a

home-like atmosphere. All patient rooms are positioned so daylight can come through large windows. Wide-open areas provide huge spaces without supporting beams. Technical equipment is installed behind false walls instead of above a suspended ceiling. Lighting is controlled by sensors so corridor lights dim to 60% at dusk, and to 30% at night.

Light levels increase again if the sensors are triggered by someone walking through the corridor. Active ventilation and air-conditioning provide fresh air during summer and warmth during winter thanks to many kilometers of pipes buried three to four meters into the ground that tap the soil's warmth or coolness, depending on the season. This significantly lowers energy costs.

This highly advanced technology also includes the building's cabling infrastructure. Patients can watch high-quality IPTV (Internet Protocol Television) in their rooms or surf the web. Medical staff can quickly consult a patient's file online at the patient's bedside. The entire network infrastructure will eventually consist of about 900 kilometers of cables, taking voice, data, medical imaging and other health-related information to every corner of the growing complex to improve and expedite patient care.

MIX OF COPPER/FIBRE SUPPORT ALL COMMUNICATIONS

Wim Engelen, Technical Systems Management at the new facility, is pleased with the choices made during the hospital's planning stage. "We sought a

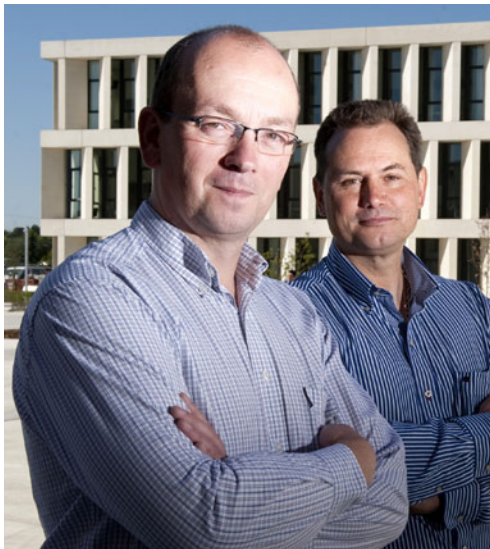
“Codes assigned to various cables identify the corresponding data station as well as the exact location of data racks and patch panels at the central Data Centre.”

FRANKLIN FORREZ,
PROJECT MANAGER EEG - BELGIUM

network capable of delivering a bandwidth up to 500MHz. As a result, we chose a fully shielded cabling infrastructure that was robust, reliable and included Low Smoke Zero Halogen (LSZH) protection to avoid toxic emissions in case of a fire.”

The LANmark-6A F/FTP LSZH is therefore the perfect match. Moreover the Nexans RJ45 connectors installed throughout the complex are of excellent quality and ensure maximum network uptime, even during intensive use.”

At AZ Groeninge, the focus is always on the patient. In communications, this means access to the latest digital technologies at bedside, as well as expediting care by giving physicians and clinicians the digital links they need to monitor a patient’s progress and quickly acquire medical data. With



The hospital’s current 2,000 data outlets are supported by 320 kilometers of LANmark-6A double shielded copper cable.

multiple ports per room, each patient has a dedicated telephone connection, one for Internet-based streaming television, and three open outlets for medical purposes. The new network also has future-ready capacity to support additional outlets per patient room as the facility expands.

All patient and general, clinical connections run over copper cabling, with internal links to the hospital’s main Data Centre and several remote data stations supported by LANmark-OF OM3xt LSZH fibre cables with LC connectivity. In the Data Centre itself both copper and fibre solutions have been installed.

“It’s like a wheel with the Data Centre at the central axle and the data station connections as spokes” explains Wim Engelen. “We have placed a 10G glass fibre in the spokes which connect the data stations to each other, making the whole network resilient. The only zone directly linked by dedicated fibre lines are thirteen rooms in the hospital’s surgical suite.”

“As wireless communication gains more importance in our hospital, we have placed about 300 antennas in the entire building. Qualitatively, our signals equal those of a commercial mobile

services provider. Because of this fast evolution, our cabling infrastructure had to keep pace in preventing electromagnetic interference along with alien crosstalk,” emphasizes Wim Engelen.

DIGITAL ‘CODES’ ELIMINATE PAPER DOCUMENTATION

AZ Groeninge contracted Nexans installer Electro-Entreprise Gullegem (EEG) not only to put in the network but provide state-of-the-art paperless records of where all connections lead and terminate. Codes assigned to various cables identify the corresponding data station as well as the exact location of data racks and patch panels at the central Data Centre.

This high-tech building also supports sharing medical data over great distances. The hospital’s internal data infrastructure interfaces with the overall healthcare groups’ medical network to continuously exchange information with other hospitals. AZ Groeninge, with its powerful cabling network, is ready for the future. ●



Did You Know?

- In order to accommodate last minute user requirements in the office spaces, cable connections were often lengthened to allow for another work setup. The existing cable was then connected to an extension cord with almost no additional signal loss in the extended connection.

“The LANmark-6A F/FTP LSZH cable with Nexans Category 6A RJ45 connectors perfectly meets our expectations concerning operational safety, communication quality, capacity and endurance.”

WIM ENGELN, MANAGER OF TECHNICAL SYSTEMS,
AZ GROENINGE BELGIUM

A green Data Centre for the Saur Group

Migrating to fast, 40G speeds not only quickens data flow but improves cost and energy efficiencies.

Following a 2008 independent audit of its data storage facilities led by consultancy firm DELIA Concept, the Saur Group decided to build a new Data Centre at Montigny le Bretonneux. Far-reaching in scope, the project achieved unparalleled economic, technical and environmental goals, as well as significantly higher bandwidth that make it ready for new data systems and technologies as they emerge.

ADDRESSING CUSTOMER DEMANDS

A major player in managing water and sanitation services for local governments throughout France, the Saur Group employs 12,500 professionals at more than 500 sites serving 5.5 million water consumers in 6,700 communes. Recent expansion includes managing systems in Gdansk, Poland and Armenia. In 2008, the group's Information Systems management executive sought help in conducting an audit of existing data storage solutions as well as a market analysis.

Following the audit's results, a decision was made to refurbish an existing industrial build-

ing to house a new corporate Data Centre for a minimum period of 10 years. This project required long-term vision in terms of anticipated customer growth as well as the lifetime of currently available technical systems and equipment.

The site at Montigny le Bretonneux is close to the group's main office and various telecommunications networks. To provide the cleanroom environment required for IT, the building was first upgraded by constructing an interior, protective shell designed to house a minimum of 550 servers installed in nearly 330m² of operational floorspace. This included

a main data room and a separate backup space kept on 24-hour standby.

IN SEARCH OF TECHNOLOGICAL PERFORMANCE

As a long-term investment, the new centre also had to accommodate the company's anticipated IT growth by being future-ready for new data technologies as they emerge. This basically meant having adequate bandwidth in the centre's infrastructure to support such evolution, and required a cabling network with exceptional headroom and performance.

Thanks to Nexans, the Saur Group has built a new, environmentally sustainable Data Centre that's future-ready for the next decade.

The cooperation between the Saur Group and Nexans was reinforced by both company's shared values in sustainable development,"

STEVE DELISLE,
PROJECT MANAGER WITH DELIA CONCEPT.

The audit recommended standardising the centre's network on Cat.7A due to its ability to support bandwidth up to 1000MHz which allows the potential for future migration to 40G whilst also being more energy efficient.

A LANmark-7A system with GG45 connectors offers a distinct advantage by accommodating classic RJ45 connections for links up to 10G using standard Cat.6A patch cords. By changing the Cat.6A cords with GG45 Cat.7A ones, the bandwidth is doubled from 500MHz to 1000MHz and the capacity is increased to over 40G.

This simple migration path provides growth and expansion without the risk of future installation upgrades which would be necessary while the Data Centre was 'live'. Having contractors on site in a live Data Centre can bring numerous consequences in terms of security, cleanliness, and even problems to maintain temperature profiles. "It's a good way to prepare today for the connections of tomorrow," says Régis Moine, Specific Operations Manager with the Saur Group's Systems Information Management Division

This solution proved more cost-effective and affordable than installing a complete fibre optic solution. Nevertheless OM3 fibre optic cables have been installed through back-up cabinets linking the area containing the switches with the server room. The reason behind this was to

be able to accept future servers that have copper as well as fibre ports.

Beyond the attributes that allowed the Saur Group to meet their technical objectives, Nexans also stood for exceptional product quality and support before, during and after installation. This service ethic was matched by the selected installer, Tieto France, a certified Nexans partner who were responsible for realising the design of the control access and electrical installation in addition to the data cabling.

Tieto France, a Certified Nexans Partner, who was responsible for the implementation of the project within the timeframe and in accordance with the specifications, standards, and regulations.

ACHIEVING SOLID SUSTAINABLE DEVELOPMENT

Eager to respect ecological values in all its projects, the Saur Group has worked hard to achieve sustainable solutions in a new Data Centre it could be proud of. It began with the watertight interior shell which was composed of a natural thermal insulation. This was followed by installing inverters to minimise electrical leakage.

After this came the high-performance, LANmark-7A cabling solution.

Furthermore, Nexans Cat.7A cables contribute to reduced overheating, which, coupled with the

"A high quality cabling infrastructure ensures reliable data reproduction."

RÉGIS MOINE, SPECIFIC OPERATIONS MANAGER,
SAUR GROUP'S SYSTEMS INFORMATION
MANAGEMENT DIVISION.

Nexans and Saur Group

Challenges

- Free up server space in Saur Group's original clean room and be ready for the next decade's new technology innovations
- Overhaul server architecture (primary and back up rooms)
- Migrate to 40G speeds
- A future-ready cabling infrastructure that supported the firm's sustainability goals

Solutions

- LANmark-7A cabling system with GG45 connectors offering up to 40G capacity
- LANmark-OF OM3 optical fibre cabling with LC connectivity

Benefits

- Increase data transmission speeds
- Improved energy savings
- Designed for long-term functionality with a 25 year guarantee

project's other ecological components such as separate hot and cold airflow paths, allow savings by reducing the Data Centre's overall power draw for cooling.

"The cooperation between the Saur Group and Nexans was reinforced by both company's shared values in sustainable development," says Steve Delisle, Project Manager with DELIA Concept. •



Did You Know?

- The new Data Centre's cabled channel links were designed and installed by a certified Nexans partner, Tieto France
- Retrofitting the original industrial building to accommodate Saur Group's new Data Centre took six months

Fibre solutions embrace 40G/100G

Latest developments strongly indicate the transition to 40G is occurring rapidly, forcing Data Centres to make crucial choices.

These are intriguing times. A number of “firsts” have rapidly occurred in recent months that have significant impact on local and wide area networks, especially those supporting Data Centres.

It starts with new standards for Ethernet LAN and WAN enacted in June 2010. IEEE 802.3ba now standardises on 40G (gigabits per second) and 100G speeds, a sizeable increase from the previously accepted 10G benchmark. It’s the first time two different Ethernet speeds have been specified in one standard due to the desire to support 40G rates for local server applications, and 100G for Data Centre and Internet backbones.

And in a major departure from prior specifications, it’s the first Ethernet requirement needing multiple parallel fibres. Instead of a single fibre to transmit and one to receive, the new standards specify four fibres for each transmit or receive path. Another first is the inclusion of

Multiple Fibre Push On (MPO) connectors versus traditional SC or LC single fibre connectors commonly used in 10G installations.

These latest specifications come from a High Speed Study Group formed in 2006 by the IEEE to investigate new standards for high-speed Ethernet. Researchers and engineers from Nexans were amongst the many industry participants in that group.

These new standards are now for the first time supported by LAN infrastructure products being sold this year by well-known firms like Force10 Networks and Extreme Networks that have dedicated 40G ports in the switch.

Whilst the IT profession has always changed rapidly, these developments viewed collectively have the potential to profoundly impact the field by hastening the move to 40G and beyond.

READY OR NOT - TIME TO EMBRACE 40G/100G

The quickening transition to 40G/100G for switch to switch links poses a fundamental challenge to Data Centre managers who are now, or soon will be, planning a facilities expansion.

First, consider that cabling represents only about five percent of all infrastructure costs. So preparing now for a 40G-ready network versus a 10G ceiling is undeniably cost-favourable to a Data Centres’ efficient performance throughout its average 15-20 year lifespan.

Preparing your Data Centre now with the expected high port count for 40G/100G also helps make Data Centres future-ready for new technologies and devices as they become available and avoid Data Centre interruption during complex installation of additional cables for 40G/100G.

Feature	Traditional loose tube	Micro-bundle: MPO cable	Advantage
Diameter	13.3 mm	6.4 mm	Less space Data Centres
Weight	180 kg/km	50 kg/km	Less weight in trays
Maximum pulling force	520 daN	100 daN	Sufficient for short distances
Compression	300 daN/dm	100 daN/dm	High for DC
Bending radius: static	190 mm	65 mm	Small bending radius
Bending radius: dynamic	250 mm	100 mm	Small bending radius

Nexans has three fibre technologies for the move to 40G that are also backwards compatible with original 10G networks, making such technologies cost-effective. The first is a low loss MPO connector with a guaranteed maximum insertion loss of 0.35 dB for every fibre in the connector. Common Data Centre configurations like cross connects or concatenated links can be achieved with this solution whilst meeting the demanding 1.9 dB maximum channel insertion loss over 100 meters specified by IEEE.

Another Nexans fibre solution involves micro-bundled MPO cables featuring a smaller 6.4mm diameter, lower weight, and tighter bending radius than traditional loose tube fibre products. These cables therefore take less space in

cable trays which can potentially reduce costs by lowering the number of trays required. Small diameter cables also facilitate improved airflow that positively contributes to better interior temperature control. By it is special design the Micro-Bundle results in low skew values exceeding the requirements for 40G/100G by a factor of 10.”

The third Nexans technology is LANmark-OF OM4, a 50-µm laser-optimised cable with extended bandwidth over OM3 and other fibre products. Though highly viable to support current 10G applications till 550 m, nearly twice the length of its predecessor or similar products, it’s ideally suited for 40 to 100G speeds. LANmark-OF OM4 offers additional headroom and extends the reach for 40G/100G

beyond 100 m. As data centers and higher performance computing applications grow, the additional headroom and distance will become increasingly important.

Nexans also produces backward compatible copper solutions for Date Centres designed for short lengths, patching and switching. If not already facing the 40G challenge, high-speed service providers and Data Centres will undoubtedly have to confront the issue well before 2015.

Fortunately, there are many realistic, cost-effective migration strategies to 40G and beyond thanks to LANmark solutions. •

New high density cabinet for Data Centres

The Nexans 42HU high density cabinet is specifically designed to help Data Centres and similar facilities host dense, passive cross connects in copper and/or fibre. Using a central frame structure without corner posts, the cabinet addresses limited space issues and provides optimal front, rear and lateral access.

This openness also offers superior flexibility maintaining or accessing patch cords and connections. It facilitates the proper management and clear identification of a large number of fibre or copper cords which helps improve a facility’s reliable long-term performance.

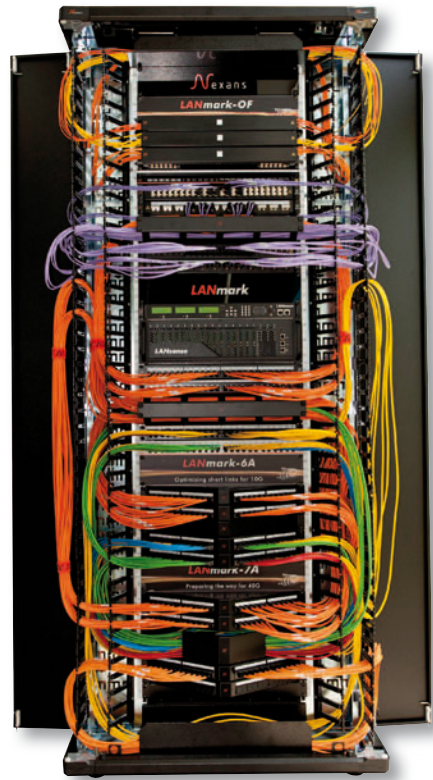
DUAL PATHWAYS PROMOTE EFFICIENT CORD ROUTING

The cabinet’s dual patchcord pathways promote the efficient, clean routing of cords whilst allowing storage

space for extra lengths. The central row of cable fingers is angled for easiest access to the patch panels. Two cabinets placed back-to-back match the size of most server racks. •

Features

- Dimensions 600 X 900mm x 42U
- Double row of cable fingers
- Top and bottom cable troughs
- « L » shaped cable trays at the rear of the cabinet
- Small or large doors can be installed
- Large cable entries
- Suitable for Nexans panels with automatic bonding
- Suitable for back-to-back installation
- Can be joined to other cabinets from Cooper B-Line



Sustainable development drives growth & progress

Meeting demand for highly advanced, reliable products and services whilst minimising environmental impact is a key Nexans goal.

In addition to LAN, Nexans is a major player in diverse cabling markets including power transmission and distribution, shipbuilding, rail, automotive and building construction. These markets all face an explosion in energy use, which is expected to double by 2030. Nexans views this as an opportunity to help customers efficiently conserve resources by producing safer products and solutions with improved performance that respect the environment.

PROMOTING SUSTAINABLE APPROACHES COMPANY-WIDE

“Sustainable development can be slightly complex to understand, but what must be kept foremost in mind is that it corresponds to development that meets present needs without compromising the ability of future generations to meet their own needs,” says Charlotte Ingold, Sustainability Development Marketing Manager at Nexans’ corporate headquarters in Paris.

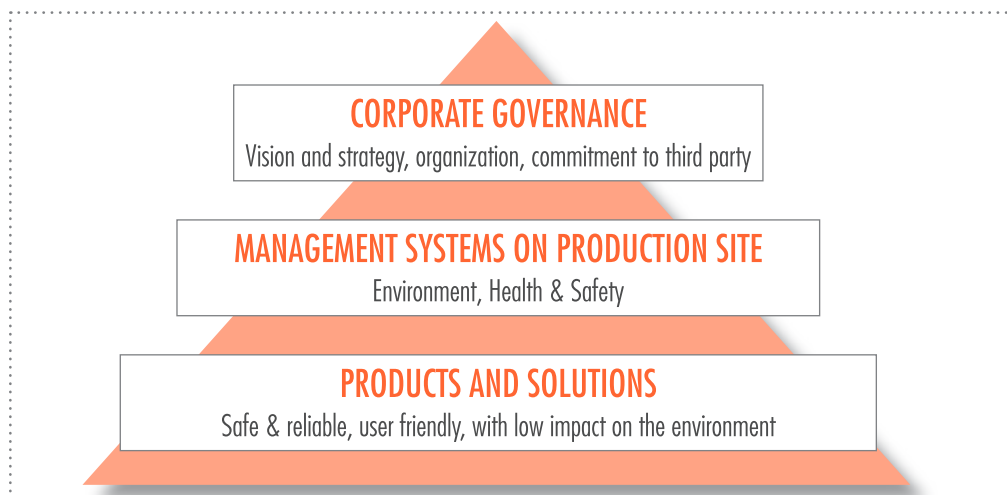
Translating this broad concept into specific action is a daily challenge, which manifests itself through activity in three corporate endeavors:

governance, industrial standards, and what products and solutions offer. “It can be compared to a pyramid, with corporate governance providing the lead and the two other disciplines forming the broad base,” Charlotte Ingold says. Throughout the business world, a tangible commitment to sustainable development is increasingly being required by customers who see proactive environmental and social stewardship as positive attributes that can, in many cases, be a deciding factor in awarding bids. Such customer views can also impact attitudes of investors, financial ratings firms and standards-setting environmental agencies towards a company.

At Nexans, sustainable development is at the core of a recently formed Corporate Social Responsibility (CSR) committee covering all Sales & Marketing, R&D, production and administrative functions. Members include directors of Human Resources, Legal, Marketing, Purchasing, Manufacturing and R&D, amongst key corporate divisions. Employees and stakeholders also serve. Large meetings are held twice annually, with small operational gatherings typically held once each quarter or more.

This is an outgrowth of Nexans joining the United Nations Global Compact (UNGC) in 2008 which sets 10 socially and environmentally responsible principles, and requires on-going documentation as to their implementation. In addition to the environment, three social components include human rights, labour, and anti-corruption. Specific environmental principles are:

- *Principle 7:* support a precautionary approach to environmental challenges.
- *Principle 8:* undertake initiatives to promote environmental responsibility.
- *Principle 9:* encourage the development and diffusion of environmentally friendly technologies.



In manufacturing, adherence to safety as well as environmental standards is a key component of corporate responsibility. This is first demonstrated by Nexans' enterprise-wide certification in line with ISO 14001, which amongst other criteria, establishes an Environmental Management System (EMS) to measure and document environmental impact. Nexans also launched its own internal Safety Management System (SMS), along with overall compliance with long-standing ISO 9001 standards.

"Achieving globally-accepted environment, health and safety benchmarks company-wide is critically important," Charlotte Ingold adds, "but equally essential is including sustainable development as a foundational criteria for all product or service innovation." Nowhere is this more important than in Nexans' R&D efforts, where 600 experts worldwide are involved in developing new products, services and production systems. Of that number, 80 work in fundamental research, 220 in product development and 300 in engineering. Research covers a wide scope of expertise in new alloys, superconductors, fire safety, polymer science, chemistry, and materials research

SOCIAL, ECONOMICAL & ENVIRONMENTAL RELATIONSHIP EXPLAINED



associated with all aspects of cabling, from telecommunications and shipbuilding to power distribution.

For central equipment rooms and Data Centres, taking into account sustainable development translates into the recent development of various copper and fibre-based products with attributes that positively impact the environment. One example is Nexans' high-speed LANmark-7A copper cabling with backwards compatible GG45 connectors. In data environments, a higher performing cabling network with ample bandwidth has the potential to use less power. With data streaming freely with little if any impedance, multiple noise canceling devices can be minimised or eliminated, saving electrical costs. Reducing the use of such devices also

lowers heat and the associated cost of temperature control, helping Data Centres reduce power draws to lessen their carbon footprint.

Other new technologies include automated Environmental Monitoring and Access Control (EMAC) solutions to continually perform real-time assessments of power and cooling parameters, and alert operators to pre-set thresholds for humidity, temperature and electric use. EMAC facilitates quick, corrective action to give Data Centres more control and improved stewardship of the environment.

Aside from internal studies, standards and processes, there are more visible efforts that directly address customer and market expectations regarding sustainability. For example, as part of its product offer, Nexans provides its customers with solutions for sustainable buildings, smart grid management and renewable energies (such as wind and solar power), as well as recycling facilities.

Also, Nexans is the world's first cable manufacturer to upgrade to wooden drums produced with PEFC™ (Programme for the Endorsement of Forest Certification schemes) certified sustainable wood and carrying the distinctive PEFC™ logo for all replacements of drums from 2010 onwards.

Finally, Nexans has this year partnered with The CarbonNeutral Company, a world leader in carbon reduction solutions, to make all its business flights carbon neutral starting this year. CO₂ emissions generated during Nexans' flights are precisely calculated and fully counterbalanced by purchasing carbon offsets from the Uchindile-Mapanda reforestation project in Tanzania. ●

More detail is available at www.nexans.com/sustainable



"Achieving globally-accepted environment, health and safety benchmarks company-wide is critically important."

CHARLOTTE INGOLD, SUSTAINABLE DEVELOPMENT MARKETING MANAGER, NEXANS HQ



Mutual trust: a guarantee for success

A Data Centre and hospital are the latest projects in which NextiraOne and Nexans have joined forces to provide cutting-edge communications solutions.

NextiraOne was created in 2002 through the acquisition of Alcatel's multi-vendor Enterprise service and distribution business. Since then, it has grown into one of Europe's leading experts in communications services, with a presence in 17 countries and a total of 5,000 employees. The fact that NextiraOne and Nexans share a common origin from Alcatel has brought them together throughout the years to collaborate on many projects in Spain.

NextiraOne offers comprehensive, end-to-end communications solutions in which quality and reliability are paramount. In this sense, Nexans is the perfect partner. "Nexans' history, global market coverage and presence in international standardisation organisations make it a reference for engineering firms, integrators and installers like NextiraOne, whose main business is designing and installing communications networks," says José Luis Conesa, Product Manager and Sales Support Leader at NextiraOne.

Currently, a new Data Centre project and big hospital, both of which have Category 6A cabling, have once again reunited NextiraOne and Nexans. But this relationship goes way back. "All of NextiraOne's integration projects have a cable infrastructure component which

must satisfy growing bandwidth demands as well as the rising trend in operating devices with power over Ethernet (PoE)," adds José Luis Conesa. Many examples – in every sector – bear testimony to their fruitful collaboration. A recent project of note is the University of Valencia Research Institute, a three-building office complex including laboratories with 6,500 Cat.6 unshielded twisted pair (UTP) end-user connection points.

The challenge of communications is ongoing, and although present-day demand focuses on Cat.6/Class E topology, there is growing demand for PON (passive optical networks) as the main component of FTTH (fibre to the home) technology.

"Nexans' history, global coverage and international standardisation knowledge makes it a reference for firms like ours that design and install communications networks."

JOSÉ LUIS CONESA, PRODUCT MANAGER AND SALES SUPPORT LEADER AT NEXTIRAONE.

nextiraOne

THE COMMUNICATIONS EXPERTS

"We are even aiming to introduce Nexans' LANsense technology, which offers intelligent infrastructure management and a reduction in medium- and long-term costs," affirms José Luis Conesa.

The result of years of collaborative work with Nexans is a relationship based on mutual trust that guarantees that the job will be up to par, offering the most cutting-edge communications technology. This is why José Luis Conesa believes that Nexans is the ideal partner for "companies requiring an added degree of cabling design expertise, since with Nexans, they'll find the right resources and know-how to guarantee their customers a service level that exceeds expectations". ●



Cabling Solutions for Premium Requirements

Nexans updates the data network at ALLPLAN to meet tomorrow's technology standards

ALLPLAN
- Die Umweltmanager -



Vienna is not only a meeting place for art and culture lovers, but also an attractive location for high-end companies, one example being ALLPLAN GmbH (www.allplan.at). Founded in 1967 as a design office for heating, ventilation and air conditioning technology, ALLPLAN has grown to become an international consultancy in technical building services, energy and environmental management.

In 2009, this Austrian company entered a new chapter in its history. Its headquarters was to be revamped – a perfect opportunity to replace the data network from the ground up and, in the process, benefit from their own expertise in implementing many remodelling projects. David Schwinghammer, Project Manager for ALLPLAN, explains, “For a previous project,

our client asked we plan an IT infrastructure which had to meet the highest demands in terms of availability and bandwidth. To meet such requirements, the IT distributor, KSI, recommended Nexans products, a decision which turned out to have been the right one because the system performed convincingly throughout.”

“When it comes to technically demanding needs, we definitely recommend Nexans without hesitation.”

DAVID SCHWINGHAMMER,
PROJECT MANAGER ALLPLAN



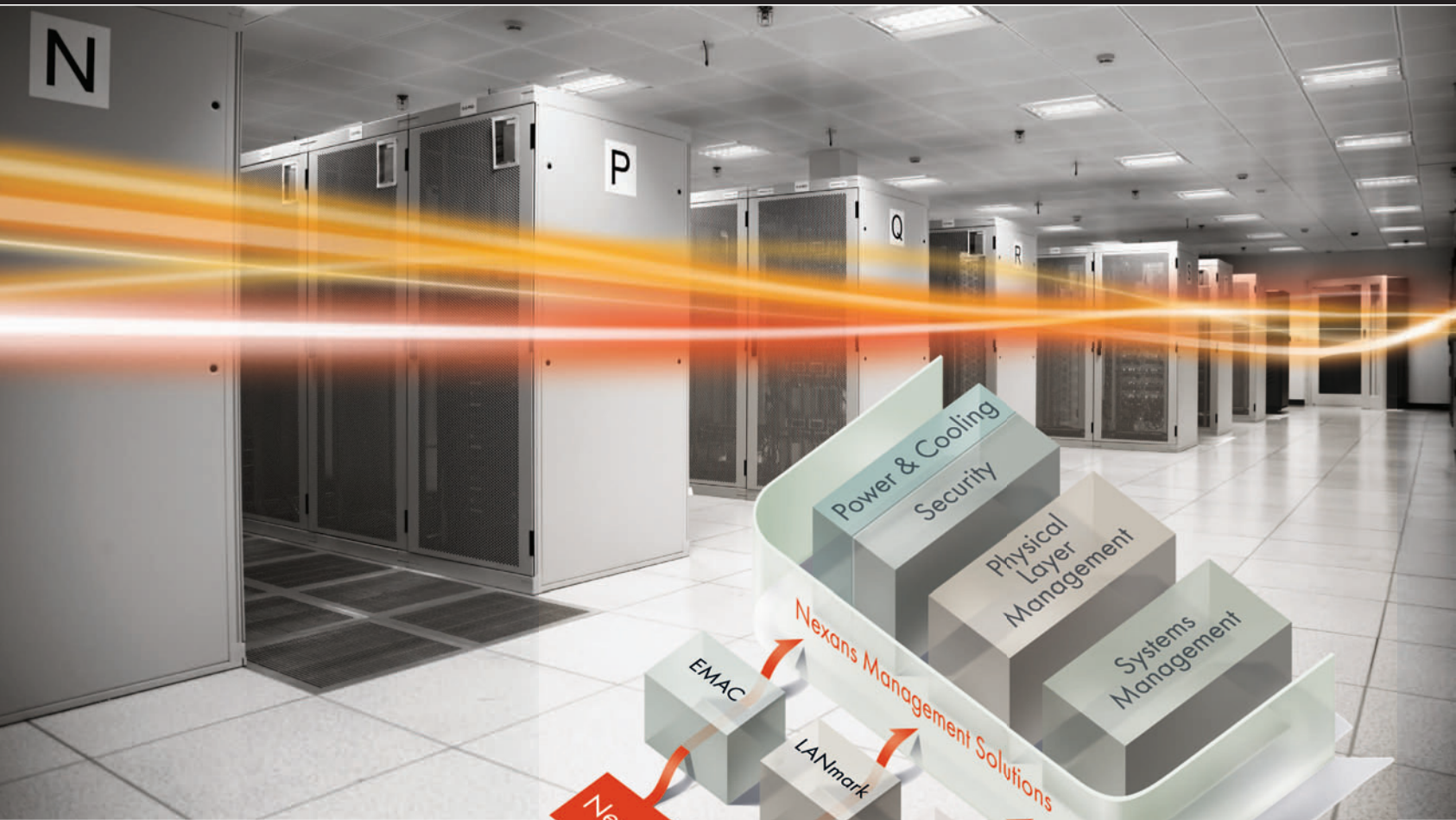
Now that ALLPLAN's remodelled headquarters with its new data network was on the agenda, Nexans solutions were the obvious choice for the job. The standards required for the internal ALLPLAN project were high. Schwinghammer added, “We wanted to build a network today which would meet the requirements of tomorrow.”

To achieve this, the existing antiquated infrastructure was replaced with Nexans high performance LANmark-7A cabling which included GG45 connectivity. This enabled the existing RJ45 based equipment to be utilised whilst providing a future upgrade path.

The new network has been in active use since January 2010, and according to ALLPLAN's project manager, “We are extremely satisfied with the Nexans products. Although we are not yet using the network's full performance range, it meets the high, Class FA standard, providing reliability and confidence for the future.” There was also an exceptionally good working relationship with KSI and its project manager, Karlo Simon. “We had a contact person who really knew his way around Data Centre design,” David Schwinghammer said. “As for the product, when it comes to technically demanding needs, we definitely recommend Nexans without hesitation.” ●

Energy Efficient Data Centres

Next-generation solutions from Nexans



Data centre managers face common challenges - to keep information flowing reliably, to plan for future migration and to manage energy consumption.

Nexans can help meet these challenges with reliable infrastructure solutions which offer a migration path to 40G whilst delivering the maximum potential for energy efficiency.

With Environmental Monitoring and Access Control (EMAC) and LANsense Intelligent Infrastructure Management, Nexans offer complete infrastructure solutions for data centres.

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