SMART CHOICES
FOR DIGITAL INFRASTRUCTURE

Optimised performance

Faster deployment

More room for scalability

Bandwidth

Class

Length

More connections, longer links and cost-effective bandwidth
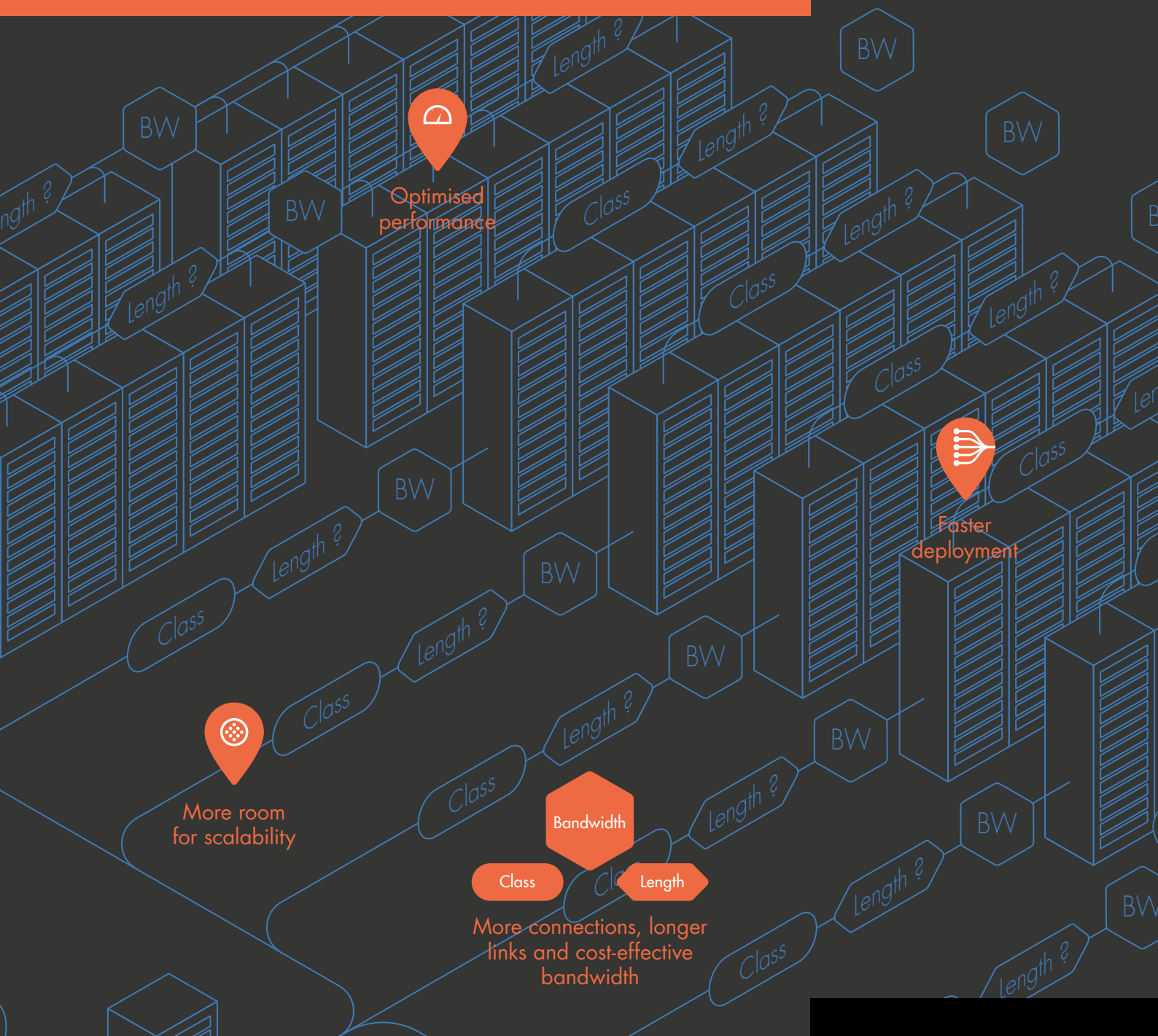
Nexans

The changing role of the data centre

Our society and economy are becoming increasingly mobile, digital and smart. We may not always be aware of it, but the services we use each day run on server racks in data centres. These data centres have become essential to customer satisfaction and business efficiency and their function extends far beyond that of a 'data repository'.

The digital transformation requires agile, carefully planned IT infrastructure, efficient data access and exchange. Each of these factors is vital to success. Cabling systems supporting several consecutive generations of active equipment need to be robust, flexible and scalable to adapt to new requirements.

Data centre cabling needs to offer more than connectivity between ever more powerful servers and their storage systems. Your cabling should be designed with business growth in mind, always ready to accommodate more bandwidth and ports. In today's data centres, service utilisation and virtualisation levels are high, availability is key, security a 'must have' and energy efficiency a common concern.

Nexans supports you in making smart choices that will help you build and operate the most efficient and cost-effective digital infrastructure to support your business goals.

Nexans offering includes:

- Flexible, cost-effective bandwidth architectures
- Optimised space usage
- Performance protection and enhancement
- Faster modular deployment
- 'Design through to operation' support services

Even the shortest data traffic interruption can compromise availability. You could spend a fortune on UPS systems, but even the shortest cabling-related outage could have more far-reaching consequences than you might imagine. HVAC (heating, ventilation and air conditioning) issues take place within minutes and power difficulties in milliseconds – but data losses start to occur after nanoseconds.

Balancing risk and uptime

Data centres are constantly evolving. That means your cabling system needs to be modular, scalable and easily adaptable, allowing you to quickly respond to market opportunities and introduce and manage new applications. Designing, building and operating a data centre is all about balancing risk with targets for service availability, security and energy efficiency. Businesses and institutions depend on critical processes and must avoid downtime and system failure at all costs.

The challenge is making smart, correct choices in line with performance requirements, without over- or underspecifying. Whether it's a small computer room or a resilient data centre, optimal infrastructure will help you meet current needs or grow in a planned, repeatable way.

Planning ahead for increased bandwidth

Cabling must be capable of supporting several consecutive generations of active equipment. When designing copper networks and structured cabling solutions, it is vital to plan for the step from 1G to 10G whilst making sure you'll also be able to make the move to 25G. In order to take that next step, you need a migration path. That means reusing or reconfiguring part of your installation and changing cables. Of course, data rates won't stop at 25G or 40G. Standards have been developed for 50G and 100G – and the IEEE task force for 400G is making headway too…
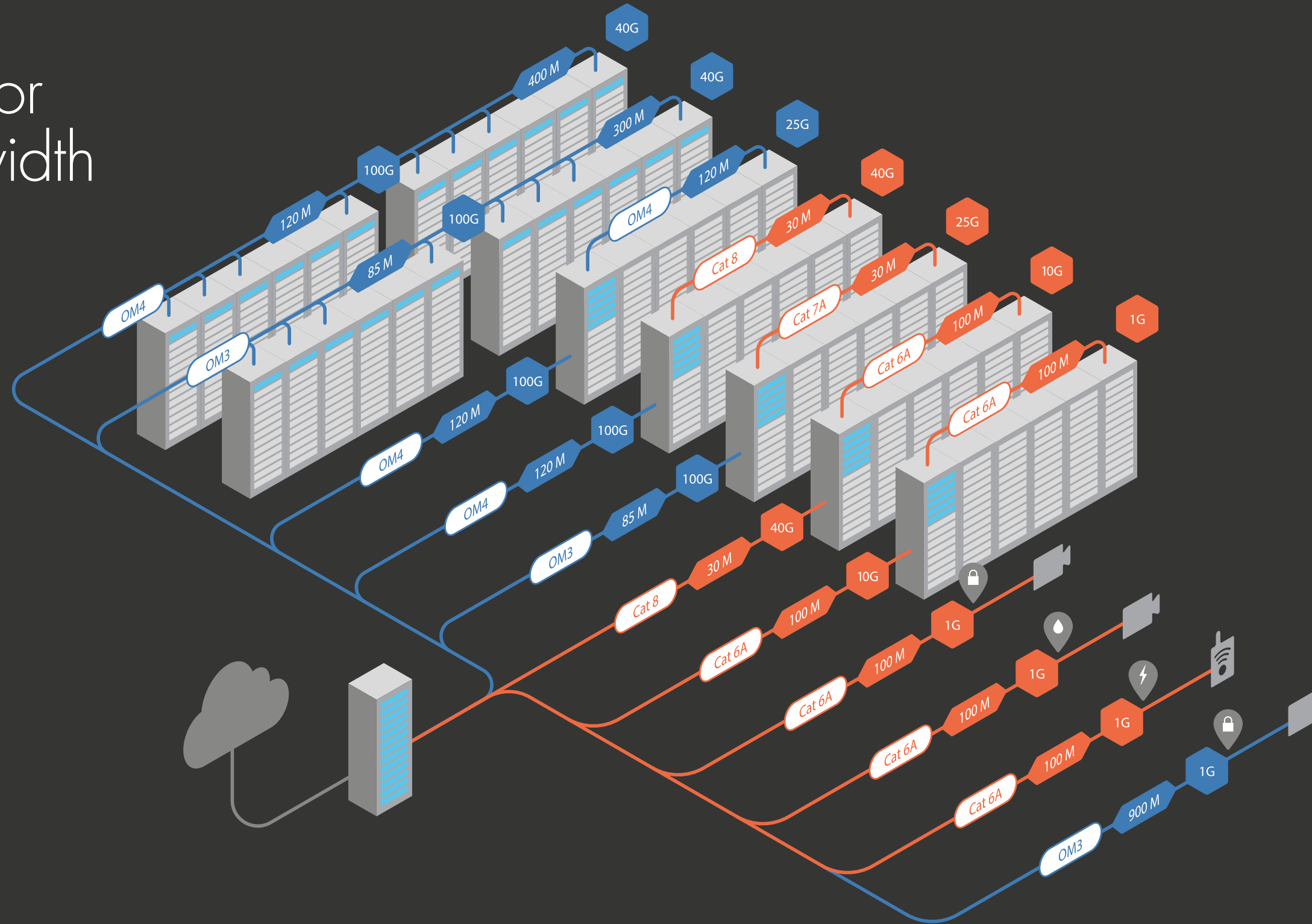
LANmark ENSPACE for fast installation

Today, we see LC connectivity moving from 10G, in which it has a proven track record, to 25G/40G. New standards developed for 25G and proprietary solutions for 40G based on duplex transmission are extending the functional lifetime of LC connectivity in data centres. High-speed protocols require parallel optics supported by advanced multi-fibre MTP connectors. Pre-installed MTP-LC modules make fast, easy 10G data centre installations possible, offering a migration path to higher speeds.

LANmark GG45 for easy migration

In addition, LANmark with GG45 connectivity provides a solution for 25G to 40G. Shielded LANmark-7A cable enables a clear and easy migration path from 1G to 10G to eventually 25G, LANmark-8 offers support up to 40G.

Having a clear migration path simplifies installation and upgrade, lengthens the usable life span and reduces the total cost of ownership.

Bandwidth	10G	25G	40G	100G	1G	10G	10G
Copper	LM6A	LM7A	LM8		LM6	LM6A	LM7A
	100M	30M	30M		100M	100M	100M
Fibre	OM3	OM3	OM3	OM3	OM3	OM3	OM3
	350M	85M	300M	85M	900M	340M	340M
	OM4	OM4	OM4	OM4	OM4	OM4	OM4
	550M	120M	400M	120M	930M	520M	520M
Roll-Out Technique							
POE+/++Support							

LANmark

Flexible architectures for any environment

More ports, more connections, longer links and cost-effective bandwidth

LANmark cabling systems allow you to optimally balance copper and fibre, in line with the performance you need, for any number of ports and any bandwidth. High-performance LANmark fibre connectivity with minimised insertion loss allows for greater lengths and more connections without sacrificing quality or reliability.

Nexans connectivity solutions exceed the requirements of all relevant standards, ensuring your data centre performs better and more reliably. What's more, Nexans experts are available to share their expertise and far-reaching involvement in the development of new protocols and data centre and cabling standards. This means Nexans experts find the right solution every time.

Finding the perfect balance

For each distance and each transmission rate used in the data centre, there is an ideal copper or fibre solution. When designing computer rooms, it is vital to optimise cabling layout and bandwidth according to performance needs. Nexans provides a variety of support options for End of Row (EoR), Middle of Row (MoR) and Top of Rack (ToR).

Top of Rack (ToR)
• Less cabling
• More switches
• Server connection using short patchcord (Cu or FO)
• Risk of oversubscription, more unused ports
• Higher upgrade cost

End of Row (EoR)
• More cabling
• Fewer switches
• Server connection using copper structured cabling
• Lower upgrade costs

Well-designed data centres utilise a well-balanced mix of copper and fibre. Traditionally, switch-to-switch connections are mainly fibre, but LANmark-7A and LANmark-8 make it possible to use copper in that capacity. Uplinks between switches may require speeds as high as 100G, while the switch-to-server downlinks require a lower capacity of 10G up to 25G or 40G. Compared to ToR design, this can be more cost-effectively provided using copper structured cabling. LANmark-7A and LANmark-8 allow connections up to 30 metres in EoR or MoR configurations, providing an upgrade path for switches without recabling.
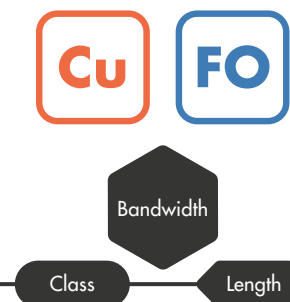
ENSPACE

Optimising space usage and cable management

In today's fast expanding and changing data centres, space is at a premium. The less space is taken up by cabling, the better. With high-density racks featuring vertical cable management and angled panels, larger volumes of copper cables can be accommodated – typically up to 1,000 cables in a 45U patch rack. Nexans can advise on smart choices when it comes to issues related to cable diameter.

LANmark ENSPACE: room for scalability in fibre cabling solutions

Nexans offers smart solutions for reducing fibre cabling hassle and density. ENSPACE panels feature three individual sliding trays per 'U', which can be pulled forward for fingertip access when installing or disconnecting patch cords. This approach allows 144 LC connections in a 1U panel and up to 576 connections in a 4U without compromising the operational efficiency of patching. ENSPACE cables have a smaller diameter and bend radius than comparable solutions, which means more cables per tray or even allowing for smaller trays saving cost and space.

LANmark Pre-Term Units

Pre-terminated fibre and copper cabling for faster deployment

LANmark Pre-Term Units significantly reduce installation time and risk by eliminating on-site connector termination. Connectors are mounted and assemblies are tested in Nexans facilities, allowing realisation of very large-scale cabling deployments within very short time periods. Each assembly is labelled with a traceability number and a link reference specified by the customer.

- Fast, straightforward installation
- No on-site termination required
- Significantly reduced installation time
- No field termination risk
- Consistent and reliable
- Support for multi-connectors channel configuration
- Labelling on each assembly (customisable)
- Factory test results available on request

Guarantees

Nexans LANmark Pre-Term Units are covered by a 25-year parts and labour warranty, if performed by a Nexans Certified System Partner, as described in the Nexans Certified System Warranty. When installed in combination with LANmark patch cords of the same category, a channel warranty may be obtained, providing Nexans Design Guidelines are respected.

*LAN*sense

Protecting and optimising performance with LANsense

Automated Infrastructure Management solution with intelligent management hardware and software

In addition to LANmark brand cabling systems, Nexans also specialises in LANsense Automated Infrastructure Management (AIM) products. The LANsense management platform helps monitor and control all connected equipment and manage changes. This reduces operational costs, improves asset management and utilisation and simplifies deployment of new services.

LANsense facilitates management of important cabling links and offers change control as an integrated part of the Configuration Management Database. The solution can provide automated work orders for cabling and non-cabling tasks, saving time and hassle on a daily basis.

FIBREROUTE

Fibre protection for high-density data centres

Today's data centres must realise the highest possible density and accommodate more cabling and patching in the smallest possible space. Complex pathway systems need to support copper and fibre data cabling, cooling services and power. However, vulnerable fibre cabling must be protected whilst remaining accessible and obstacles along the path need to be avoided. TIA and ISO recommend containing fibre cabling in dedicated pathways, away from permanent cabling. Even bend-insensitive fibre can be affected where large volumes of cables are used. Exceeded bend radii or localised stresses can result in optical signal loss – or downtime. Excess cable needs to be stored safely, too.

FIBREROUTE provides a dedicated, rigid fibre optic pathway that protects cables and links, helping maintain high-speed transmission. The solution prevents damage, improves access, ensures reliability and reduces cost of ownership. Moves, Adds & Changes and expansion and interconnection with channels of different sizes can be realised rapidly and easily.
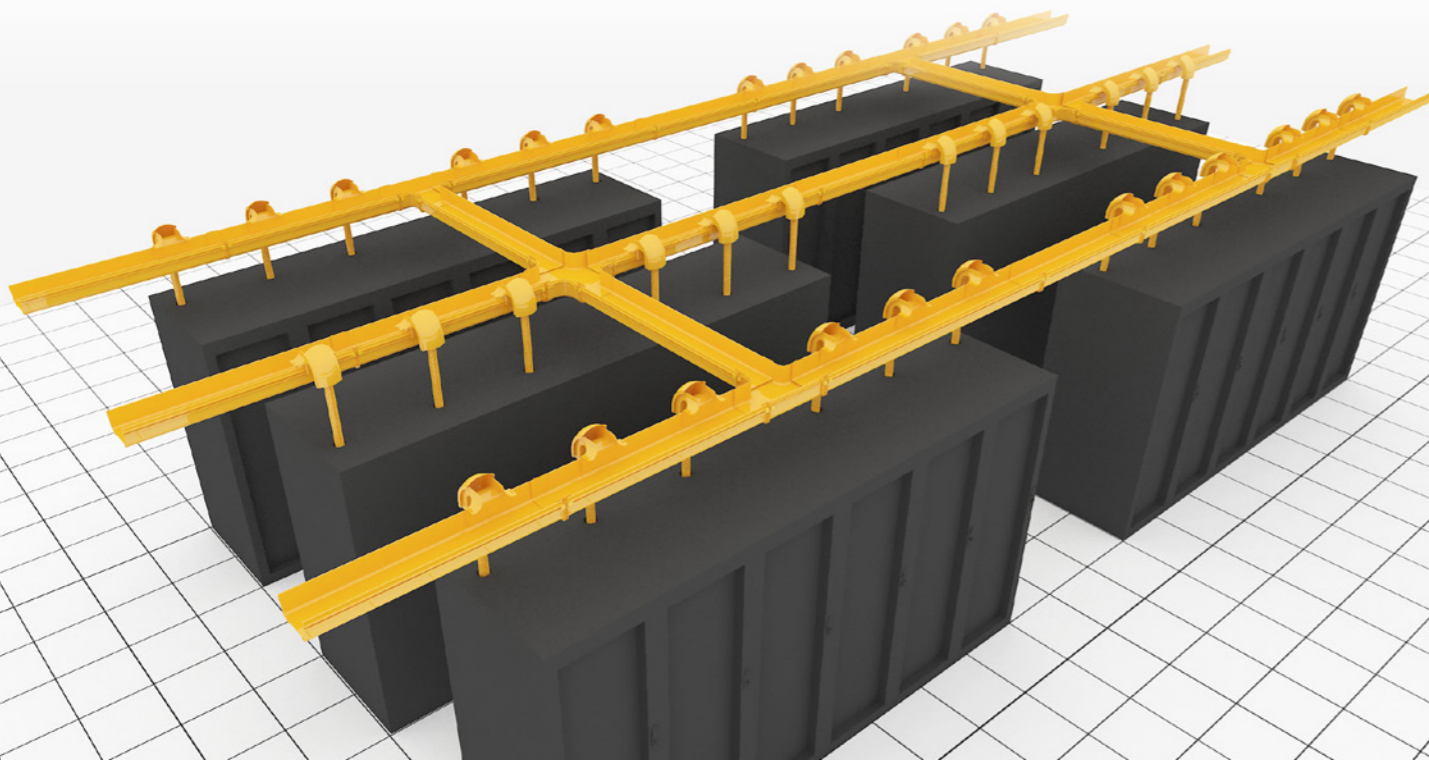
engage

Supporting you at every step of building an agile, digital infrastructure

Nexans is making its expertise available to Key Accounts through the Engage program. This provides a variety of support types throughout all stages of even the most complex projects, from scoping and defining solutions to deployment and the operational phase. Nexans analyses your requirements and recommends the best solutions, either 'off the shelf' or specially customised.

Your Key Account Manager acts as a single point of contact, providing instant access to Nexans full range of experts and advisors around the world. Nexans can provide valuable support right across the board – from planning and design optimisation to logistics and on-site technical support.
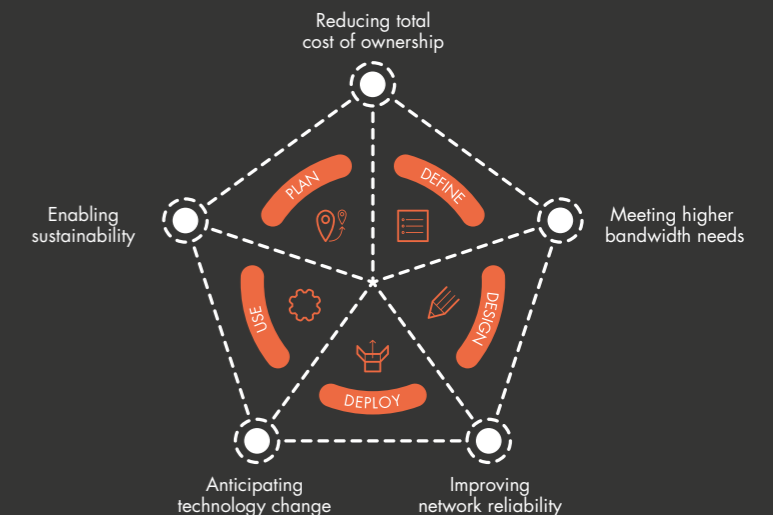
Nexans solutions can optimise your network to meet today's challenges and enable significant CAPEX and OPEX savings. Proposals are based on decades of experience in designing and rolling out advanced networks of all shapes and sizes, for all applications. The result: faster, more efficient roll-outs, solutions that perform exactly as specified, optimised TCO, enhanced energy efficiency and systems that will remain in business for years to come.

Systems	People
Challenges	Solutions
Technology	Outcomes

Nexans experts are involved in data centre standardization from protocol (IEEE) to infrastructure design (EN 50600 series) to cabling and installation (ISO/IEC CENELEC and TIA) enabling us to help you.

How Engage can help

PLAN
Keeping you up-to-date on the latest innovations and helping plan for future changes.

DEFINE
Sharing expertise in defining state-of-the-art specifications and solutions.

DESIGN
Supporting the design of robust, flexible and scalable systems.

DEPLOY
Blueprinting infrastructure for cost-effective and accurate installation, assisting on-site and ensuring warranties.

USE
Offering training, monitoring and fast repair, replacement and third-level support.

Reducing total cost of ownership

Enabling sustainability

Meeting higher bandwidth needs

PLAN DEFINE USE DESIGN DEPLOY

Anticipating technology change

Improving network reliability

A world of Nexans solutions

Nexans complete range of services

LAN Systems

In the field of LAN Cabling Systems, Nexans offers a complete range of products and value-added services providing improved reliability and reduced cost of ownership for data centres, offices and campus networks. These LAN infrastructure solutions are provided to a global customer base through an extensive network of regional offices and Key Account Management team.

Solutions include:

- Copper and fibre structured cabling systems
- Active network switches for Fibre To The Office (FTTO)
- Automated Infrastructure Management

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One of the world's largest banking and financial services companies

For day-to-day operations across 3,000 sites, a leading French bank introduced high-quality networking infrastructure, based on both copper and fibre pre-term solutions, boosting effectivity, bandwidth and density. Disruption during installation of thousands of connections was minimal and all requirements were met or surpassed.

Global European / Asian TV news channel

A major broadcaster opted for a solution combining LANsense AIM, LANmark copper and fibre for its new studio complex incorporating offices, studios, news rooms, storage facilities and two data centres. According to the client, working with Nexans 'saved months'.

Leading European utility

Nexans supported a major water and sanitation services company to create a new data centre. State-of-the art copper cabling with GG45 connectors allows potential future bandwidth migration. OM3 fibre optic cables connect the server room with back-up cabinet switches.

Major European mobile phone, ISP and IPTV company

Nexans solutions provided a migration path to higher bandwidth, helping meet current and future mobile application requirements while supporting the company's environmental requirements.

World leading nuclear research facility

A complete fibre and copper solution for a new data centre had to provide a migration path from 10G to 40G or 100 G. Over 80,000 meters of fibre and copper cables were deployed as part of the installation.

Data centre in Korea

To ensure sufficient capacity and reliability in a complex, mission-critical environment, a key Korean data centre opted for a high-density solution incorporating Nexans LANsense Automated Infrastructure Management (AIM).

Central bank of high-income economy Middle East country

The bank that issues the national currency and manages foreign exchange reserves of a key Middle Eastern country has implemented an integrated Nexans system for daily operations. This incorporates a full range of Nexans copper and fibre solutions.

Leading Middle Eastern military

In support of its operations, the military of one Middle Eastern country that has tripled its budget over the past 10 years has invested in state-of-the-art IT systems, including seven data centres. The Nexans offering included consulting to help make smart choices for their particular needs.

Major security and intelligence agency in the Middle East

One of the world's largest IT and consulting corporations and a key provider of enterprise, security, cloud and analytics services approached Nexans to develop and implement a solution for a top level security data centre and building project for a client in the Middle East. This featured hundreds of kilometres of Cat.6A and Cat.7A 1500MHz copper and OM3 and OS2 fibre, as well thousands of patch panels, modules and pre-terms.

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