FTTH White Paper

Cable solutions
for operator diversity and lower CAPEX

February 2008

CONTENTS

Synopsis

This report is intended to give a general overview of the diverse mass FTTH market, and provide information about how Nexans is serving this market.

It opens with a few facts and figures about FTTH expansion worldwide and explains the three strategic phases of recent operator growth. Then it recounts how the diversity of players (some of them new) means diversity of needs which must be met while taking into account the CAPEX/OPEX challenge. Meeting the specialized needs of FTTH customers requires a cable partner who can unite the triple expertise of cables and components, new installation techniques, and network engineering.

The second part of the paper looks at five specific problems faced by the diverse markets: last kilometer/mile access, sharing of infrastructure assets, progressive deployment, fiber density, and merging energy and fiber cable deployment; and explains Nexans solutions for each case.

Finally, in part III, the paper restates the reasons for combining cable, component, installation and network engineering expertise, and concludes that this kind of specialization must also be combined with the ability to produce cables and components in large volumes to address the coming European and world FTTH market .

I. FTTH HEADING FOR THE MASS MARKET

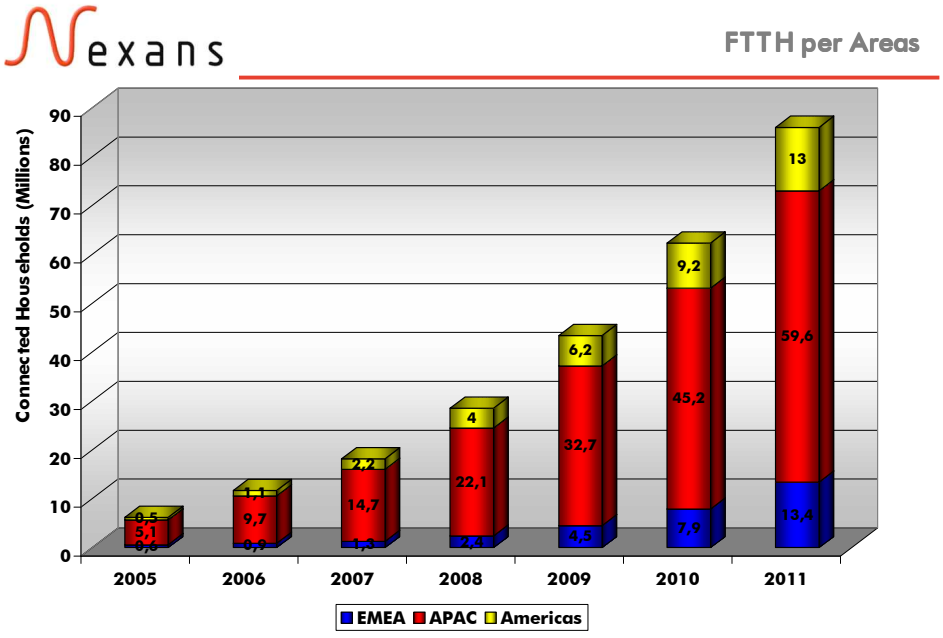
"A lot of barriers for FTTH deployment are coming down. We're getting to the stage where incumbents have to respond to FTTH competition from other players."

Joeri van Bogaert

i. The charge of the light brigade

According to the *FTTH Worldwide Market – Technology Forecast, 2006–2011*, the number of homes connected to fiber will grow from about 11 million at the end of 2006 to about 86 million at the end of 2011, representing about 5% of all households worldwide. Growth will be dominated by Asia (59 million households in the Asia Pacific Region – APAC – will have fiber by 2011). The rest of the subscriber base will be split equally between the Americas and the Europe Middle-East and Africa (EMEA) region.

The following chart dramatically shows the projected growth and the relative distribution in terms of millions of households. The 2007 RVA FTTH report sees the EMEA region accounting for about 13.5 million FTTH subscribers by 2011. More recent predictions claim that European growth will be even more exponential than this, with Europe alone counting some 20 million FTTH homes by 2015.



Source : RVA 2007

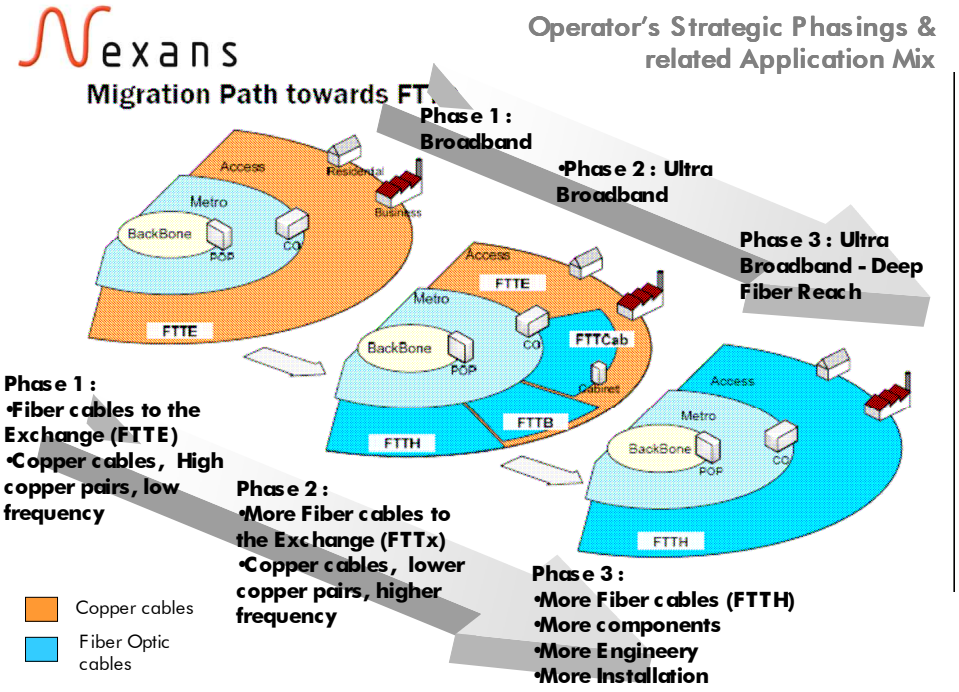
Until about 2005–6, various xDSL solutions were providing a stopgap solution to insatiable consumer demand for more bandwidth. 2008 will no doubt see the first real beginnings of a massive move to replace most copper access networks with fiber over the next two decades.

ii. Three phases of operator growth

So far, operators' recent strategic growth has gone through three basic phases. The first phase was the upgrading of the operator's offer to deploy xDSL broadband services on an all copper infrastructure. This required the installation of Fiber to the Exchange (FTTE), then copper cables and pairs to the home.

Then came the Ultra Broadband phase which was aimed at meeting the Triple Play challenge which saw more fiber cables to the exchange, and the movement of fiber progressively outward: towards the enclosure, the cabinet, the building and partially to the home.

Since nothing moves faster than light, the third phase is the ultimate one. Fiber will reach deep into homes, businesses, factories and administrations. This involves a quantitative and a qualitative shift. More optical fiber cables of more types will be needed to adapt to the varied landscape of cities, suburbs and the countryside. However, cables alone will not solve the transition. More components (both active and passive), more network engineering (to find optimal designs) and new installation methods will be needed to mass deploy FTTH.



Nexans has the industrial capacity to meet the quantitative challenge, and the proven expertise to meet the qualitative one. However, before explaining how, in practical terms (in the second part of this paper), it is necessary to consider some of the basic problems facing operators in Europe and elsewhere in the world.

iii. Diverse players mean diverse needs

More than ever before there is a diversity of players, who share the same objective: how to provide maximum bandwidth to the maximum number of subscribers.

Today, local collectivities, like city councils and municipalities, are very interested in bridging the digital divide, often for political reasons, but also to support education, increase the public service offer, and create new employment opportunities. This is leading them to set up their own FTTH networks and then lease their capacity to other players.

Power utilities, too, are getting into the telecom business. Realizing the potential that their infrastructure offers, they are hoping to combine electricity with broadband, and thus increase their subscriber base and revenues.

Finally, Competitive Local Exchange Carriers (CLECs) and Traditional Incumbent Local Exchange Carriers (ILECs) are making the transition from copper to fiber, followed by cable TV companies. Everyone concerned is also keenly interested in moving from Triple Play to Quadruple Play, where broadband merges with mobile services.

This plurality of players gives rise to diverse needs.

1. Communities and municipalities face certain disadvantages. For example, they often need experts in complementary advanced telecom technology who can give advice, and then design and install the kind of network(s) they need. However, they may have a definite advantage in controlling certain right-of-ways, like sewers and sub-surface tunnels and access areas. That is why they are looking for turnkey solutions which cover everything from initial feasibility studies to installation, long-term maintenance and eventual upgrades.

2. Power utilities, on the other hand, have energy networks that are already reaching right into the home, and their question is: how can I combine fiber with my existing infrastructure so that I can better satisfy the needs of – and widen the bundle of services to – my existing customers and generate new subscribers? Since in many countries there is an ongoing renewal of the aging energy infrastructure, power utilities are looking for technical innovations which can allow them to deploy fiber with new electrical cables, both for medium-voltage trunks, and low-voltage (230 V) drop lines.

3. Most CLECs have already deployed fiber in the loop to support DSL. Now they may wish differentiate themselves from ILECs by offering one or even two fibers per customer in a point-to-point solution (as distinguished from multipoint GPON).

4. Traditional telecoms (ILECS) already have an existing copper infrastructure and a certain amount of optical infrastructure, as well. Significantly, they have a direct route into homes, buildings and businesses through long-existing conduits, pipes and ducts. So, they are naturally concerned with re-using physical assets, while upgrading them for broadband. This could lead them to choose a GPON (Gigabit Ethernet Passive Optical Network) solution so as to reduce the density of connections to Central Office which may already be very saturated, and optimize the optical network by installing splitters on the premises which could provide service to 64 subscribers on a single fiber.

iv. Meeting the CAPEX/OPEX challenge

Diverse players with diverse needs call for diverse cable solutions, and this implies a certain amount of customization for each type of specialized customer. However, with mass deployment, all of the above players want their capital expenditure (CAPEX) to keep pace with actual fiber network growth, so that they can "pay as they grow" or "invest as they earn." They would also like to see operating expenditure (OPEX) optimized as well, to maintain long-term profitability. CAPEX and OPEX are two sides of the same coin, one dealing with the problem of space (expansion), the other with the problem of time (continuity).

Optimizing the CAPEX/OPEX equation and combining the diversity of needs gives rise to a number of expectations that operators expect of a cable company like Nexans, which can be resumed in a number of pertinent questions that potentially involve all players.

How do you?...

- design the most cost-effective fiber network possible (in terms of cost per subscriber)?
- optimize the solution engineering to achieve cost effectiveness?
- design fiber networks to meet the optical budget in various configurations (to avoid additional line optical loss per subscriber)
- avoid expensive construction and civil engineering costs?
- take advantage of existing infrastructure?
- create new infrastructure where it does not exist?
- deploy fiber progressively and pay as you grow?
- resolve the space problem in manholes, connection points, cabinets and rooms?
- combine fiber with other kinds of cables, like MV and LV energy cables?
- assure cable and component "mutuality" for competing players?
- make the right equipment choices: GPON or point-to-point Ethernet?
- keep costs low by using Commercial Off-the-Shelf (COTs) solutions?
- guarantee interconnectivity and headroom for the future?

To conclude, although it is important to customize according to the diversity of players in the new expanding world of FTTH, there is also a need to find common solutions for specific parts of the network, incorporating generic designs to achieve volume production and reduce costs.

Nexans is a proven cable expert and cabling solution provider. Combining these two strengths with vast network engineering expertise, Nexans can fully optimize end-to-end FTTH solutions to achieve required CAPEX savings. Moreover, its industrial strength, local presence and commitment to innovation make it a key player in creating and sustaining the FTTH mass market.

II. NEXANS SOLUTIONS: CUSTOMIZATION PLUS ENGINEERING

The five Nexans solutions that follow take into account the two business models prevailing in Europe. Vertically Integrated Operators (ILECs and CLECs and some power utilities) usually build and operate their own networks, while "open access" models are usually built by an infrastructure owner who leases broadband capacity to Service Providers. Ethernet point-to-point technologies still dominate in Europe; however, major new deployments are starting to use GPON (widely prevalent in North America). Ethernet Passive Optical Networks (EPONs) are still the solution of choice in most Asian countries.

i. Solving the problem of basic access: adapted cabling solutions

For CLECs and ILECs, providing FTTH means covering those final few hundred meters to the private detached home or building complex from the nearest node. The most straightforward solution would be to open the sidewalk or street. However there are a multitude of attendant problems: the high cost of civil work, the difficulty of obtaining city permits, traffic congestion and disruption, noise and pollution that result from opening new trenches.

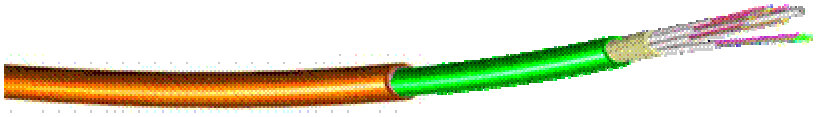
Nexans has a full set of integrated fiber access solutions to deal with everything from detached urban and rural housing units to vast apartment blocks and office buildings in the suburbs or the dense city center.

In cities, conventional **duct cables** can either be pulled into already existing ducts, or blown into position using compressed air. The former solution requires a cable of high tensile strength, while the latter floats the cable into place, imposing less stress on the cable.

If no ducts are available, **direct buried cables** are an alternative. Due to forces acting perpendicularly to the cable axis, this type of installation requires armored designs with greater crush resistance. In a suburban or rural environments (in loose soil or under lawns), these cables could be buried manually. However, for city pavements, either a new trench would have to be opened by a pneumatic drill, or a special saw must be used to cut a small 10 cm trench into which a new duct is placed, or a cable directly buried.

Nexans provides a wide range of optical cables for tunnel, duct or direct buried installation for business centers or high-density multi-dwelling areas. The most common design consists of loose tubes (up to 24 fibers per tube) stranded around a central strength element. There are other alternatives: lightweight FlexTube cables, Unitube or UniRibbon cables in which a central tube contains up to 144 fibers, and Slotted Core cables in which optical fiber ribbons are stacked in helical slots.

A more practical solution is to fill existing but often under-optimized ducts with **mini-ducts and micro cables.** Nexans has developed a new generation of fiber-optic micro cables that can add up to 7 cables of 96 fibers each to an existing 50 mm duct without extra civil work. Nexans also proposes 144-fiber-optic micro-blown cables that can be installed in 10mm internal diameter micro-ducts. These small cables can be easily blown into place progressively as new subscriber needs arise without the tearing up of roads or sidewalks. For smaller housing units, a 4-fiber micro-cable can be blown directly to the end user in an appropriate direct-buried micro duct.



Fiber-optic micro cables provide operators with a way to optimize the occupation rate (i.e. the number of cables in an existing duct), while providing their networks with maximum flexibility. Since there is progressive deployment, Capital Expenditure can therefore always be in line with current earnings. In other words, CAPEX can be easily adjusted to actual revenue per user (RPU). As RPU rises, new capacity can be deployed rapidly; as new capacity is deployed, additional customers are added to the network. Above all, this means that both CLECS and ILECS can improve their broadband and service offer in cities without having to massively deploy optical fiber at the initial stage.

A fast and effective alternative for building drops is **aerial short span cables**, when they are aesthetically compatible with the urban or rural environment. These circular, non-metallic, self-supporting cables (containing 144 or more optical fibers) carry their own weight in free spans which can withstand stress, high winds and harsh conditions. Pole and building mounting is fast and easy, using Nexans own compact watertight closures as splicing and connection points. The main cable is then stepped down to 24 fibers for multi-drops and eventually 2 fibers per home delivered by a pre-terminated subscriber cable.

Large cities offer further opportunities for subscriber access through the sewer system without expensive civil engineering required. Nexans has developed a new generation of **man-entry and non-man entry sewer infrastructure cables** which can survive in the corrosive sewer environment and pioneered new ways a installing them. Within a waterproof barrier and metallic protection up to 72 bundles of six fibers each (a total of 432 fibers) are available. In a large sewer, the cable is attached directly to the wall using special collars. Once a bundle (or bundles) are extracted in a straight or in-line midspan using a special Nexans tool, they are then run some 35 meters through the building's private branching corridor to connect with the Building Basement Terminal (BBT).

For smaller sewer pipes, Nexans has developed optical fiber cables that can be laid by specialized robots. After high-pressure pipe cleaning, and TV inspection of pipe geometry and obstructions, a robot introduces a main tube to be positioned by expanding steel rings at predetermined spots between two manholes. Once positioned, the rings are expanded and the tube is tightly fixed to the top of the inner sewer pipe. Then empty or filled mini-cable ducts are pulled through it, and manholes are equipped with splice boxes. This technique avoids all dangerous drilling, milling and gluing in sewer canals. Moreover, once installed, the empty mini-ducts can receive additional fiber at a later date.

ii. Solving the problem of shared infrastructure: mutualization

For decades now, many carriers which were once monopolies, have been obliged by regulation authorities to share parts of their outside plant. However, mass FTTH deployment means that an entirely new medium must be installed near or on customer premises. Since neither building managers nor city regulations will allow competing telecoms to install multiple vertical fiber risers in apartment blocks and buildings, the riser must be shared as well. This is called "mutualization."

In the past we have seen trench sharing, duct sharing, and even tube sharing (with each operator renting its own dark fibers). However, to meet the mutualization challenge within buildings, Nexans has developed a family of integrated Building Basement Terminals (BBTs, or

in French: PRIs, for “Point de Raccordement d’Immeuble), ranging from compact boxes which can handle 12 subscribers up to large cabinets that can handle over 1,000 connections

Through their modular design, these boxes and cabinets fully meet the stipulation imposed by the regulator, i.e. the “mutualization” of the Vertical Riser. It means that various carriers can deploy their own infrastructure as far as the basement of the building, and offer their bundle of services using a building infrastructure that may have been previously deployed by someone else during the initial phase.

Nexans BBTs serve as an interface between a proprietary network and a shared vertical riser, and offer telecoms some definite advantages:

First of all, they were designed with current telecom regulations in mind and fully respond to the competitive environment, allowing up to four (4) carriers to share the same basic equipment when they enter into the building. Using its longstanding expertise in interconnection, Nexans took a fully modular approach to create a multi-operator solution. The first carrier to install the box and the riser is also the first served, not only by being able to provide fiber to its own customers, but also by being able to lease space within the box to competitors. Each telecom lessee has its own separate zone, with private access.

A second advantage is operational flexibility. Not only can the BBT provide a multipoint GPON solution (often favored by incumbents) where one fiber using a splitter can serve up to 64 subscribers, it can also be configured to deliver one fiber per client (i.e. point-to-point connections, largely favored by independents). Thus, it not only serves as a splitter base providing an interface between incoming network fibers and the building’s own network, it also functions as a distribution point using convenient splicing and coupling modules. It can also adapt to any FTTH configuration. This capacity, which is unique to Nexans equipment, makes it possible to both optimize and share the network. The ultimate beneficiary is the subscriber who obtains enhanced broadband services if and when it’s needed.

Thirdly, the BBT has an extraordinarily large capacity within minimum space. Whether in a wall-mounted box in a small building or a large OpteaStar cabinet in a large housing complex or office building, the modular approach facilitates maintenance and accessibility. The modules and capacity to store and manage “pigtails” may differ, but the solutions are always universal, and fully respect the separation between operator zone and subscriber zone. In fact, since they can easily accommodate large splitters, rather than a series of smaller ones, they provide significant cost savings.

A fourth benefit is that the mass production of this product in an upgradeable series of boxes and terminals (largely sharing the same modules, splitters, splicers and couplers) means availability, expandability, easy maintenance and parts replacement.

France Telecom’s recent listing of Nexans BBTs as part of its ongoing rollout of FTTH has certainly encouraged new carriers to seriously consider this solution for CAPEX optimization and progressive deployment. In fact, 1,000 units were recently sold within a four-month period.

iii. Solving the problem of progressive deployment: straight vertical risers

After having brought fiber from the street to the house, and localized it in a Building Basement Terminal, the next challenge facing CLECS and ILECS is to keep initial Capital Expenditure low while progressively deploying the building cabling infrastructure as new subscribers sign up. In other words, the vertical riser should require low initial investment, be flexible, and offer permanent fiber access if subscribers are to be hooked up easily and incrementally.

There are two ways to cable a multi-storied building. The most costly way is to install vertical and horizontal fiber on every floor and then hook up subscribers at a later date. A more intelligent and cost-effective way to prepare for fiber is to install a straight vertical riser with minimum coiling and interconnections and with no horizontal cabling at the initial stage

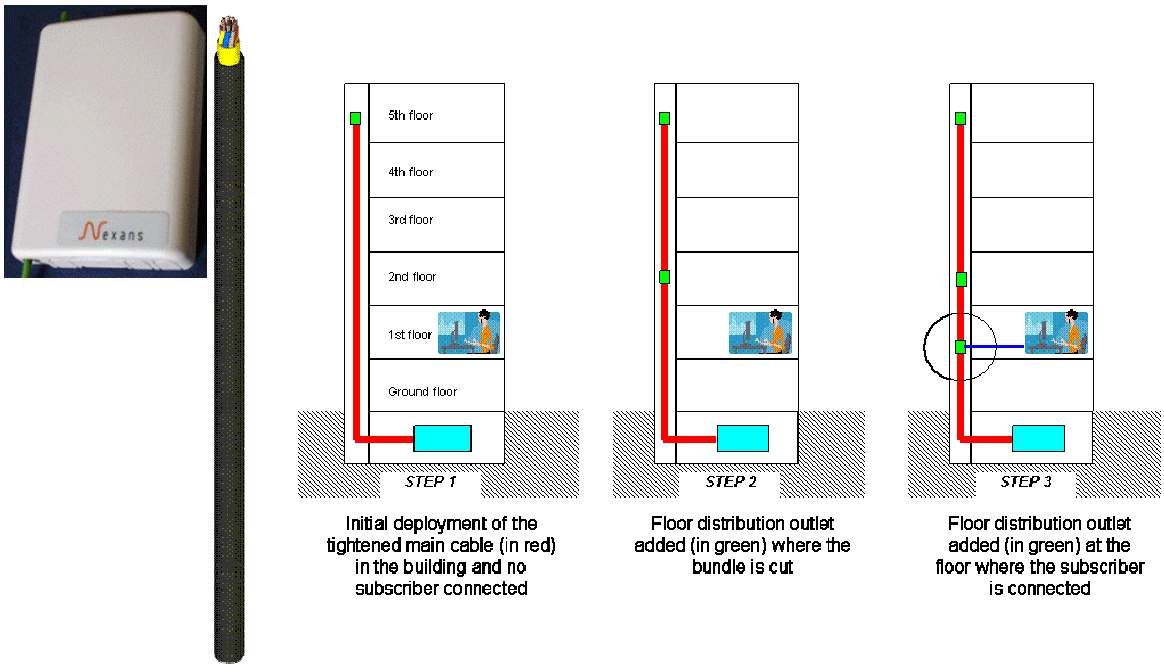
By combining the right innovative cable design with the right innovative components design, Nexans reduces initial CAPEX and lowers financial risk while making it possible to “grow” the FTTH building network progressively

For maximum optimization, Nexans recommends a Halogen-Free Flame-Retardant (HFFR) vertical cable with an appropriate number of bundles (depending on building size) containing 6 fibers each. For example, a riser of 6.1 mm containing eight tubes would be adequate to provide a single fiber to 48 flats in the same building, or two fibers to 24 flats. HFFR provides exceptional fire-safety for inhabitants, while the compact reinforced circular structure makes it easy to fit into limited vertical duct areas or already occupied duct areas with multi-pair copper cables

The fact that the cable has a “dry” structure with no messy gels makes it a very easy cable to handle for installers. Also, the fiber bundles are easily accessed and extracted by a special Nexans tool which makes two splits on each opposite side of the sheath. Another strong point is that this straight solution does not require overlengths, or reserve midspans of intermediate coiled bundles at each floor for customer branching. This significantly saves cable length, and simplifies installation.

However, the winning argument is that the Nexans solution allows for progressive deployment, once again allowing telecoms to fine-tune CAPEX to the actual number of subscribers and available revenues.

Lighting up an apartment block or business building with optical fiber is done in a number of simple steps. What facilitates the process is the “extractable bundle.”



1. The vertical main cable is initially deployed straight through the floor with no intermediate coiling at each floor. This installation is called straight mid-span. It reduces the CAPEX, since neither micro duct nor cable coiling is required.

2. Prior to customer connection, the cable is open and a bundle is cut at the floor above the projected customer connection.

3. On the floor level where the customer is to be connected, the same bundle is extracted from the cable and coiled and then connected to the drop cable in the suitable Floor Distribution Outlet.

Thus, lower CAPEX is achieved at initial deployment phase thanks to an optimized engineered solution based on combined innovative design of both the cable and the outlet.

Complementary Nexans subscriber equipment includes:

- Home-networking connectors with 4 ports, each delivering 100 Mbit/s for Triple Play and 2 analogue phone lines
- FiberSwitches for business center areas which support VoIP telephone, wireless access points and terminal equipment connection, and a Power-over-Ethernet option
- Subscriber wall-mounted outlets offering up to 2 fiber connections. In a hybrid configuration, it can also offer xDSL connection

v. Solving the problem of density: Nexans Space Saving Solution (N3S)

Whether a full-time telecom serving administrations, businesses and the public, or an "operator's operator" leasing dark fibers to any carrier who needs them, the problem is how to efficiently and economically manage, route, light up and turn off fiber in the most compact space possible.

The Nexans Space Saving Solution, or N3S, is a complete system for a fiber-rich environment. It allows telecom operators to deliver fiber to the home or office by cross-connecting all fibers cables, patch cords and harnesses in compact and easy to access cabinets.

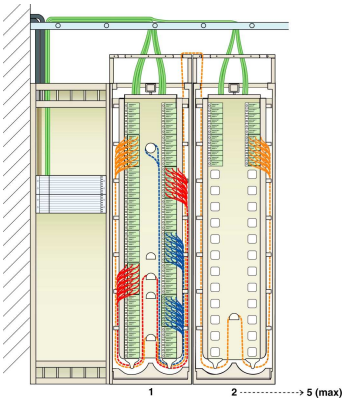
N3S consists of patching-frame and splicing-frame cabinets which contain patching and slicing modules. Most Optical Distribution Frames require a 20 m^2 area today. N3S requires only 5 m^2, a fourfold gain for operators faced with high office rents.

The largest, 2.2 meter high splicing cabinet can handle of handling 7,680 splices, which is approximately 40 times more than previous systems.

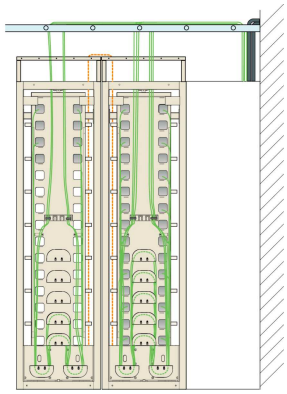
The solution once again draws on Nexans' ability to integrate cables, components and network design factors, and uses several important features for installer and operator convenience. For example, interior racks are extractable and can turn 45°, which means that cables can be easily accessed without disturbing neighboring fibers and connectors.

Nexans N3S

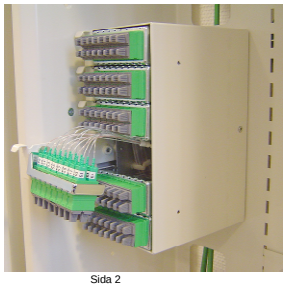
Modularity: patching frame, splicing frame, splicing module, patching module and a complete solution for cables and patch cords management.



Front view



Rear view



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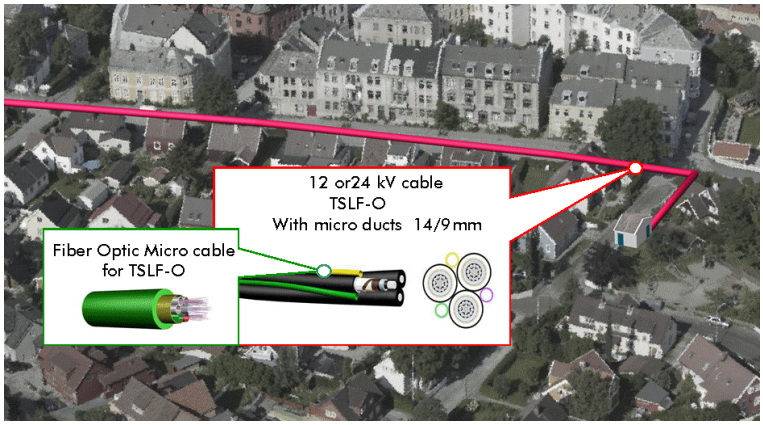
N3S cabinets were developed by Nexans primarily for the Swedish market, and it is widely used by Telia, the incumbent carrier, and Stokab which is an operator's operator owned by the City of Stockholm. Stokab provides over 740,000 km of fiber to 90 operators and Service Providers, and 450 other customers, including the city's schools and administration. Among others, Hong Kong Broadband is already considering this solution.

v. Solving the problem of merging energy and fiber: hybrid power-fiber cables

In many communities around the world, the only other utilities (besides water) which reach right into the subscriber home are the power companies. In fact, their last kilometer infrastructure often parallels telecom infrastructure since it relies on overhead, duct and buried cables. While Broadband Over Power Lines (BPL) is a proven possibility, radio interference issues and a lack of government regulations has so far prevented it from becoming a reality. However, another way to ride the power line into the private home is to combine power lines with EMI-impervious optical fiber.

Nexans has done just that by developing two new kinds of fiber-carrying power cables that can reach all the way from Central Office into homes, often in remote rural areas.

A large three-phase copper cable of from 12 to 24 kV carries three fiber tubes in its interstices. These tubes can both be empty (for future deployment) or contain up to 72 micro-fibers each. The hybrid cable carries both medium-voltage energy from the grid and fiber from Central Office to the node. This supplies the node with power, while the fiber feeds the nodes active equipment.



When the 12 to 24 kV power is stepped down by a transformer to 230 volts for domestic distribution, a second smaller type of hybrid cable carries a fiber messenger on its back to feed all street cabinets. This cable also contains 72 micro-fibers. The later hybrid cable is available in three different cross-sections (4X95, 4X150 and 4X240) according to the amount of power it needs to carry.

A special Nexans cabinet at main cabling nodes clearly divides all fiber from all energy cables, and smaller cabinets provide further separation between the two functions. The final step is to push or blow micro-cables into the subscriber residences, with some micro-ducts left purposely empty for future deployment.

This solution offers a power utility a double opportunity. Not only can it lease dark fiber to potential carriers; it can also create another foot to stand on by earning revenue as an ILEC in its own right.

A strong selling point is the fact that many power utilities are now being pressured by governments and the public's environmental concerns to bury cables, including MV and LV distribution cables. Since some power cables have been in operation for nearly a century, the time is ripe for this type of solution. The cost of installing energy-fiber cable adds a mere 5% to overall renovation and renewal costs, making it an extremely attractive solution, requiring minimal Capital Expenditure at the outset.

To reduce the cost of getting micro-ducts and cables over the last average of 140 meters to the residence, Nexans has also developed a new method of pushing micro cables into micro-ducts which is far cheaper than traditional blowing methods. Since compressed air is not needed for short distances (up to 500 meters) a new "bicycle" pushing machine can cost-efficiently push cables from the cabinet to the customer. It has been found to be adequate for up to 85% of all final meter installations.

Among other examples, Nexans has energized and provided fiber to a complete cottage community in cooperation with Troms Kraft, a power utility located in the far north of Norway. The installation has provided some 1,500 cottages with power and broadband within a 70 km radius, creating new opportunities for the power utility and holiday-makers. Weekend cottage residents not only enjoy 32 television channels and high-speed broadband connections, they can also equip their homes with webcam video surveillance and keep a close watch on their cottages while they are far away in the city.

Wind turbine farms are another group of power producers who are increasingly interested in combining the local provision of energy with FTTH broadband capability, thus expanding their earning potential with minimal CAPEX.

III. NEXANS OTHER CAPABILITIES

1. Combining cables, components and network engineering

Today the client is searching for a global solution to the passive fiber network. This means not just a cable or a component, but the most appropriate cable, the right components and the best network design. The combination of all three brings CAPEX savings much more than the use of individual cheap elements requiring more installation time and introducing risk later on in terms of OPEX.

Nexans does not offer just one cabling concept to address the multiplicity of FTTH challenges, but a full choice of cable products: from extractable bundled cables for fiber permanent access and micro cable solutions for optimizing existing infrastructure to ribbon cables for high density networks and loose tube for duct and direct buried installations. Aerial cable solutions allow for fast service expansion, combined with the overhead energy distribution network.

Moreover, Nexans has the right cable to suit any environment, whether indoors or outside. Fiber count, cable size, layout and insulation type are can meet various customer parameters: for example, waterproofing, anti-rodent protection or Halogen-Free Fire-Retardant (HFFR) for fire safety.

As a complement to its cables, Nexans also designs all passive components: interconnection technologies, such as splicing, cross-connecting and termination outlets. Media converters, Customer Premises Equipment (CPE) and fiber switches are also an expression of the Nexans network expertise.

More than just manufacturing the cable and matching component(s), Nexans offers its customers global expertise on a complete infrastructure, so that layout design, engineering and installation can be harmonious and efficient.

Assistance for Network Engineering does preliminary feasibility studies to establish rules for deployment. Network Passive Infrastructure Layout Design takes a city plan and draws up a detailed plan for physical infrastructure. Cost Modeling calculates the ultimate cost per subscriber according to the option chosen. And finally, a Bill of Materials provides a full list of all cables and components to simplify the procurement process.

2. Serving the mass market worldwide

Nexans is not only dedicated to customizing intelligently so as to meet the special needs of its FTTH customers; it also has the R&D and production resources to produce truly generic, future-proof fiber cable and components designs in significant volumes. Wherever possible, it strives to create economically-priced, easily available Commercial Off-the-Shelf (COTs) to simplify FTTH procurement for its customers.

A strong local presence in the APAC and the EMEA regions and the Americas, supported by a world-wide logistics organization gives it the ability to serve not only the European FTTH market, but the mass FTTH market worldwide.

Its solutions are fully integrated, multi-functional and interconnective, and they fully conform to European and world standards.