Corning Carrier Newsletter

Europe, Middle East and Africa

Issue 2, 2016

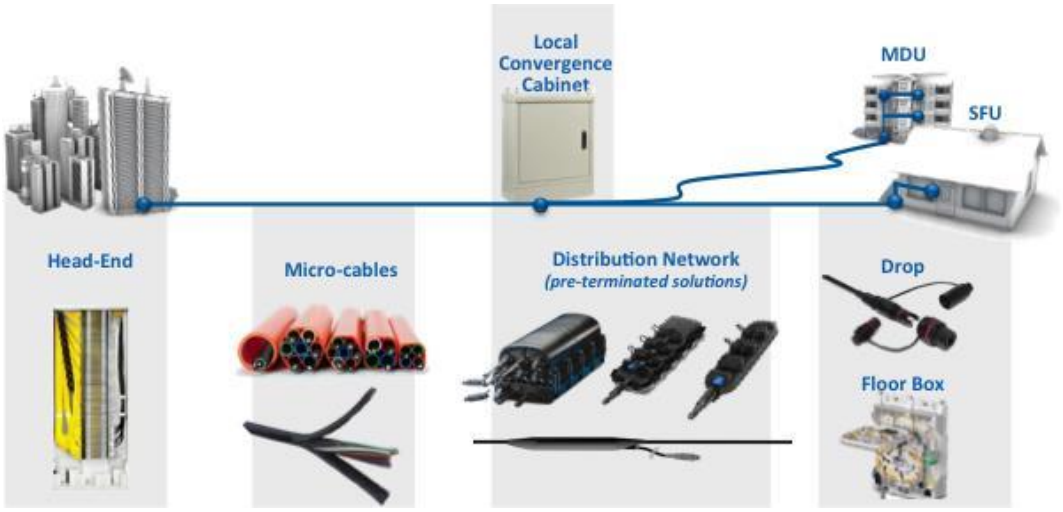
ACCESS ALL AREAS

From HFC to FTTH: The Optimised Network

Whether the underlying technology is HFC, RFoG, or xPON FTTH, the ultimate goal for any operator is to deploy an infrastructure that scores high on upgradability and as low as possible in capital and operational expenditures.

- Upgradability of cable and hardware equipment will ensure a fast transition to data over cable service interface specifications (DOCSIS) 3.1/RFoG and xPON FTTH technology.
- Easy-to-install equipment for fast deployment and a modular “pay-as-you-go” approach to reduce initial construction costs and low capital expenditure.
- Robust components to minimise truck rolls and network components that can be reutilised in different parts of the network can make a massive difference in terms of operational expenditure.

These three aspects have to be carefully considered when choosing the components for an optimal network architecture. Let’s take a look…



Solution components for the optimised network

Headend Equipment
In fibre-rich application spaces, such as headends, high-density fibre management systems with optimised cable and patch cord management are needed to manage an ever-increasing amount of fibre to cope with the demand and rollout of high-speed broadband services to customers. A headend should also be able offer a fibre management solution, which supports both granular and high-growth expansion. Superior jumper management and simple fibre routing are critical, while optimised routing paths for cables and jumpers can reduce the risk of pileup or entanglement saving in maintenance costs.

Deep Fibre Rollout and Micro Cables
Operator business models around the world are addressing the need for faster broadband services and deep-fibre rollout while addressing the challenge of shrinking infrastructure space and congested ducts.

Micro cables are designed for installation in microduct systems using air-assisted installation methods, and they offer increased fibre density when compared to standard loose tube cables in a small cable diameter. This cable technology is becoming more and more popular for its pay-as-you-go approach, its capacity to reutilise blocked or congested ducts, and for enabling new deployment techniques like micro trenching that can reduce civil costs by 70 percent.

More recent versions of these cables eliminate the use of binders, waterblocking yarns, and tapes for much faster mid-span access and reduced risk of buffer tube damage. A flame-retardant design enables seamless transition from the headend to the outside plant, eliminating the need for expensive transition points. The latest micro cable technology also enables operators to plan a rapid deployment of fibre at low cost, while ensuring that future demand can be met with the least disruption to their existing duct space.

Local Convergence Point
Modularity is the best tool for fast customer configuration and to enable grow-as-needed connectivity: Modular street cabinets can save up to 75 percent vs. fully configured alternatives.

Cabinets should include prestubbed feeder and distribution cables and modular field-installable cassette platforms with on-board splicing. Intuitive fibre routing with no need for access tools is also important in field terminations and reconfigurations, so a highly skilled labour force is not required. In addition, if the same manufacturer supplies the local convergence points and headend equipment, the same components could be used for both network elements, simplifying construction and reducing training and inventory complexity.

Distribution Network
The distribution network needs to provide a deep spread of network connectivity points so customers can be easily connected as service is requested. This is a labour-intensive and costly process, and pre-connectorised solutions have been widely proven to offer significant speed and cost savings in this part of the network.

The time to deploy is a key challenge particularly in situations where competitive operators are deploying infrastructure in the same territory, impacting the availability of skilled labour. In these cases, pre-connectorised systems are best suited to ensure fast provisioning with fewer installation teams, shortening time to revenue and minimising network disruption.

With fully pre-connectorised systems, homes can be passed three to four times faster compared to traditional spliced solutions. In addition, connectorised products can increase capital deferment opportunities, as connection ports and splitters only need to be added as needed.

Customer Drop
The customer drop portion of the network may seem like a simple last step, but in fact has the highest degree of complexity of all parts of the network. For example, drop cables must be suitable for a wide range of installation environments such as aerial, duct, façade, or direct buried, but must also be suitable for installation inside the personal space of the customer’s living room. This application requires novel drop cable designs with fast access features and multipurpose capability.

It is in the drop where the use of pre-connectorised solutions can provide the biggest benefit. Here it is most important to reduce the time, cost, and skill level of the installers. The aim is to achieve a fibre installation process similar in speed and complexity to a coax CATV install, and a combination of hardened and field-installable connectors has made this possible. These products have been shown to double the productivity of drop installers vs. conventional spliced solutions.

Multidwelling Unit
As part of a cable network transformation, distribution boxes are needed at the basement and often floor level. Multidwelling unit (MDUs) deployments require modular housings that can adapt to various building configurations while being easy to configure and add to when increasing capacity. Modularity reduces the impact of any failure and protects work areas, but most importantly, it ensures the housing is versatile enough to allow technology upgrades by simply replacing or adding components. Optimised cable routing is again essential, as well as the flexibility to accommodate splitters, splicing, and patching applications.

Taking the Journey
Multiservice operators (MSOs*), also known as CATV operators, have several technology options to use when upgrading their networks to keep pace with growing capacity needs and to deliver new services. Choosing the optimal network components – from headend to customer drop – dramatically impacts the cost and ease of future upgrades. Modular and pre-connectorised solutions within the network infrastructure deliver low deployment costs and rapid rollout.

Corning is an industry-leading supplier of FTTH product solutions with over 10 years and in excess of 27 million homes passed of pioneering innovative, field-proven FTTH solutions. Corning's extensive portfolio of products and network expertise ensure our ability to provide solutions that address the challenges such as speed of deployment, labour costs, performance and quality cost deferment, network future readiness, and much more!

For more details, read our article "From HFC to FTTH: The Optimised Network," published in the SCTE Broadband Journal.

Alternatively, take a look at the approach taken by Spanish operator Alma. Download our case study.

For further information please explore Corning FTTH solutions.

*MSO stands for Multi Service Operators (MSO) and is also known as Cable TV Operators (CATV).

PRODUCT NEWS

FlexNAP™ pre-terminated system for the fibre distribution network

The FlexNAP system provides a cost-effective method of deploying optical fibre in outside plant distribution networks and is up to five times faster than traditional field installations. The FlexNAP system utilises standard optical fibre cables upon which network access points are pre-installed at customer-specified locations along the length of the cable.

The cable and network access points are tested and shipped as a complete distribution cable/terminal system. The increased speed of network deployment, along with the reliability of factory testing, offers significant value to operators and their end-user customers, such as reduced installation complexity, 80 percent fewer splices, reduced labour, and faster service rollout.

Visit our website for more information about the FlexNAP system.

The FlexNap brochure can be downloaded here.

Building Access Terminal (BAT) Case Studies

Corning's building access terminal (BAT) is designed to address deployment challenges and to provide highly flexible and customised solutions for MDU deployments.

This single housing can serve a multitude of purposes. Take a look at our second case study
"Customisation to Achieve Network Design Goals".

Watch out for the next case study, “Last Minute Design Change Made Easy” in Issue 3, 2016.

For additional information on the BAT, please visit our website.

MiniXtend® Cable for Microduct Applications

Corning’s micro cable solution is designed for installation in microduct systems using air-assisted installation methods, with the capability to support installation distances greater than 2000 m at speeds up to 150 m per minute.

Standard MiniXtend cables have a loose tube construction with 12 to 144 fibres.

- Up to 50 percent smaller than standard loose tube cables
- High fibre counts in a small cable diameter footprint

MiniXtend HD cable is our highest-density micro cable featuring Corning® SMF-28® Ultra 200 fibre and delivering up to 288 fibres.

- 20 percent smaller and 30 percent lighter than standard MiniXtend cables
- 33 percent greater fibre density vs. standard design

MiniXtend™ cable with binderless FastAccess™ technology has the same dimensions and fibre counts (12-144 fibres) as the original MiniXtend cable, but also features our timesaving binderless FastAccess technology.

These cables deliver the fastest possible deployments and time-to-revenue. Operators that need big, well-skilled fibre install teams to roll out their large-scale network deployment projects can now realise significant savings on these expensive resources. Each cable features an innovative jacket that is easily peeled open without sharp tools to reveal binderless buffer tubes ready for immediate use, eliminating the use of binder yarns and waterblocking tapes.

- Up to 70 percent faster cable access and reduced risk of buffer tube damage

Micro cables offer increased fibre density when compared to standard loose tube cables in a small cable diameter footprint. This cable technology is becoming more and more popular due to its capacity to reutilise blocked or congested ducts, while also enabling new deployment techniques like micro trenching that can reduce civil costs by 70 percent.

FOCUS ON

...CORNING wins Technology Innovation Awards

For more than 160 years, we have been collaborating with customers to solve tough technology challenges. In this issue, we focus on four recent awards for our innovative products and industry-leading performance.

Award-Winning EDGE8™ Solution for the Data Centre

Our EDGE8 solution has been awarded two top honours this year:

On 20 April, we triumphed at the German Data Centre Awards 2016 (Der Deutsche Rechenzentrumspreis) with the “IT and Network Infrastructure Award” for EDGE8 solution, the industry’s first fibre cabling system with a Base-8 design.
Der Deutsche Rechenzentrumspreis honours products and projects that enhance the efficiency in the data centre with a special focus on innovative and visionary solutions.

An independent jury of business and scientific experts evaluated the products of 58 companies in a total of eight categories. The judges were particularly impressed by the innovative design of our EDGE8 solution, with the easiest migration path to 40 to 100G and beyond.

On 12 May, we won “Data Centre Cabling Product of the Year” for the EDGE8 solution at the Data Centre Solutions (DCS) Awards 2016 in London. This year was our fourth consecutive DCS Award, underlining the clear added value of Corning’s structured cabling solution in the evolving data centre market. EDGE8 solution is also the third new product in the last three years to be recognised within its first year of being available on the market.

The DCS Award is voted on by data centre operators and owners, so it is a recognition that clearly demonstrates how our culture of innovation and close customer collaboration solves tough technology challenges in the data centre.

The EDGE8 solution is a modular, pre-terminated optical cabling system featuring a Base-8 cabling design that has received good uptake globally across multiple industry sectors.

Technology road maps clearly indicate that transmission speeds ranging from 4 to 400G will be based on either 2- or 8-fibre connectivity solutions. EDGE8 solution uses 8-fibre MTP® connectors that make it easy to match the fibre count in the backbone of data centre networks and SANs using today’s Base-8 QSFP transceivers. This results in 100 percent fibre utilisation, streamlined 1:1 port mapping, and up to 50 percent reduction in link attenuation through the elimination of conversion modules.

In addition, EDGE8 trunks are pinned allowing for a single pinless patch cable deployment for all installations, reducing deployment complexity and inventory. In particular, a 40G port disaggregation capability provides a cost-saving approach now for 10G deployments, while being future ready for 40G.

Find out more on EDGE8 solutions for the data centre.

Individual Achievement Award and Technological Innovation Recognition
At the recent Society of Cable Telecommunications Engineers (SCTE) gala dinner in London, Corning received recognition for its innovative solutions that enable faster, revenue-generating infrastructure deployments.

Dr. Merrion Edwards, director, Market and Technology Development, Corning Optical Communications, won the “2016 David Hall Award for Best Presentation” for her lecture titled “Smaller Cables: Bigger Possibilities,” in which she showed how smaller cable form factors can simplify networks and increase capacity robustness. This individual award recognises exceptional achievement in the broadband industry.

Presentation of awards at the SCTE gala dinner

Corning’s MiniXtend® cable with binderless FastAccess™ technology was named as runner-up for the “Best Broadband Network Transmission Solution” award. The award is given for technological innovation in the broadband arena for a product, system, or concept. The product enables fast, low-risk cable access, helping customers deploy optical fibre deeper into access networks.

We continue to explore new ways to reduce the complexity and increase the speed of customer fibre deployments. Having a respected industry body such as SCTE acknowledge this accomplishment is extremely rewarding.

Three-Minute Interview

...with Vanesa Diaz, Market Development Manager, Carrier Networks EMEA

We caught up with Vanesa Diaz, Market Development Manager, Carrier Networks EMEA, to discuss how important network component design is to MSO network transition.

What do you feel are the biggest challenges for MSOs?
Deciding the network upgrade strategy is one of the biggest challenges for MSOs. It is very complex as it depends on many factors, including: the areas that will have the best return on investment, the demographics, competitive market dynamics, the capabilities of their existing network, and the evolving needs of their customers. Once this has been worked out then decisions can be made on what architecture should be deployed to support this strategic roll-out of superfast broadband and advanced services. Whether the underlying technology is RFoG/DOCSIS 3.1, or xPON FTTH the cable and hardware components must be selected to best fit the strategy. Corning believes in working alongside each MSO to help design the network components that truely meet their unique needs.

How can manufacturers help?
There are many things that manufacturers can do to help MSOs design and roll-out an infrastructure. This includes reducing deployment and maintenance costs, while ensuring a seamless transition to a future-ready network. MSOs have a large variety of options that can be used for network components within their architecture from the headend through to the customer premise. A manufacturer can help the MSO to identify the solutions that best fit their specific needs and strategy. However, there will always be scenarios where a readily available solution will not fit the circumstances. This is where a manufacturer with a culture of innovation can work with the MSO to develop a solution that addresses these specific challenges.

What about investment protection in the mid to long term?
Technology evolution and applications development is moving along at a fast pace, so the network has to be ready for whatever comes around the corner. MSOs need to be prepared for the future today so that more capacity and more customer take-up can be provided easily when demand requires. As such, network upgradeability is one of the most important aspects of the network and component design. It can have a massive impact on OPEX and CAPEX in the mid-to-long term.

What else can be done to help with superfast broadband roll-outs?
With any large scale roll-out, the scope and size of the network inventory can be significant. By looking at what synergies can be achieved at the component level across the network architecture, CAPEX, component storage and management overheads can be reduced. For example, utilising the same components in different parts of the network such as in the headend and cabinet solutions.
However, one of the biggest areas is addressing what I call “the human factor” – reducing complexity, the number of installation processes, and simplifying/de-skilling the installation. This speeds up the training of field personnel, reduces the installation time and leads to a more reliable infrastructure. Above all it lowers deployment costs (CAPEX), reduces maintenance expenditure (OPEX), and enables quicker customer connections and service upgrades.

CONNECTED CONTINENTS

Fibre news snippets from across EMEA

KENYA
12,000 homes in Nairobi are set to connect to a new FTTH service as part of a 12-month pilot scheme involving telecom operator Safaricom and state-owned utility Kenya Power. The partnership will see Safaricom, which already operates its own 3,200 km fibre network reaching around 7,000 homes, lease Kenya Power's fibre infrastructure to provide additional homes with last-mile broadband connections. According to the Daily Nation, Safaricom believes the project will reduce the inconvenience caused by digging trenches to lay the underground fibre optic cable grid and speed up connection times.http://www.nation.co.ke/business/corporates/Safaricom-to-manage-Kenya-Power-fibre-optic-/-/1954162/3147204/-/37wq7pz/-/index.html

UNITED KINGDOM
BT has increased its ultrafast broadband target and now aspires to reach 12 million UK premises by 2020. This effort includes an increased focus on FTTP, with the aim being to reach two million premises with the technology, mainly in new housing developments, high streets, and business parks. The news follows cable company Virgin Media's announcement that it plans to roll out FTTP to one million premises by 2019. Elsewhere, specialist provider CityFibre has unveiled Leeds and Bradford as its latest "Gigabit cities."
http://www.computerweekly.com/news/450295662/BT-pledges-to-pass-two-million-homes-with-FTTP-by-2020http://www.fibre-systems.com/news/story/cityfibre-delivers-gigabit-services-leeds-and-bradford

ITALY
A flurry of recent fibre-related activity has taken hold in Italy, kick-started by the news of state-controlled utility provider Enel's €2.5bn plan to build and operate an ultra-broadband optical fibre infrastructure for businesses and homes across the country. In other developments, Italian prime minister Matteo Renzi has announced the timescales for the national "Broadband Everywhere" project, which aims to exceed European Union digital targets, with initial rollouts starting in May 2016. Meanwhile, Telecom Italia has reported that its aggressive infrastructure activity is laying 250 km of fibre per hour, as it continues to target 20 percent of premises with FTTH.
http://www.globaltelecomsbusiness.com/Article/3539927/Enel-to-invest-25bn-in-broadband-rollout.html#/.VwYqHuIrJhE
http://www.globaltelecomsbusiness.com/Article/3544205/Italian-fibre-project-launching-in-May.html#/.VzWUn2bUTaYhttp://www.totaltele.com/view.aspx?ID=493633

LEBANON
The Lebanese Ministry of Telecommunications has released new figures showing the progress of its strategy to revolutionise national network infrastructure with fibre broadband by 2020. 78 exchanges are now equipped with FTTC and VDSL technology, while xDSL subscribers as a whole have increased by 69 percent in the last two years to over 535,000 nationwide. The country's long-awaited high-speed fibre optic access network is functioning and has been extended to large institutions for the first time, with a view to connecting homes and businesses in city areas soon. https://www.telegeography.com/products/commsupdate/articles/2016/03/23/new-statistics-show-strong-xdsl-user-growth-in-lebanon-fibre-access-rollout-begins-with-institutions/

MOROCCO
Meditel, the Moroccan telecom provider backed by Orange, reportedly plans to invest MAD3.2bn (approximately €300m) in its fibre optic network in 2016 to increase market share in the corporate sector. Last year the operator invested less than half that amount rolling out 5,000 km of fibre, focused around 10 cities. https://www.telegeography.com/products/commsupdate/articles/2016/04/06/meditel-to-invest-mad3-2bn-in-network-upgrades-in-2016/

FINLAND
Finnish operator DNA has launched a new fibre optic network – DNA Valokuitu Plus (DNA Fibre Optic Plus) – providing broadband speeds of up to 1 Gbit/s. The rollout will eventually cover more than 600,000 premises, with the first phase covering 300,000 households in Helsinki and its surrounding region. According to DNA, speeds will be increased to 10 Gbit/s in the coming years, which is 100 times faster than the average connection DNA subscribers currently receive. http://www.thefastmode.com/services-innovations/8067-dna-finland-rolls-out-gigabit-broadband-on-fiber

RUSSIA
Russia is planning to launch five new telecom satellites by the end of 2020 and another six by 2025. The news comes amid reports that the Russian government is carrying out a project to create a backup internet system as a contingency against the worldwide web being disconnected by political sanctions.
http://www.telecompaper.com/news/russia-mulls-back-up-in-case-sanctions-cut-off-worldwide-web--1143262
http://sputniknews.com/science/20160421/1038375744/russia-satellites-2025.html

STAY INFORMED

Meet us in the future, today

ANGACOM 2016, Cologne, Germany
7-9 June 2016 in Hall 10.2 at booth K31

Corning will showcase its solution to the challenges around the migration to FTTH networks.
Corning's end-to-end solutions, from the headend to the subscriber premise, enable forward-looking MSOs to migrate seamlessly from HFC to FTTH networks. Visitors to Corning's booth #K31 will have one-on-one time with Corning experts to discuss their network challenges, and they will have hands-on experience with specific products that can help solve those challenges.

In addition to Corning's presence on the exhibit floor, company experts will also speak in technical forums about the short-term and long-term benefits of optical fiber in access networks. Presentation details follow:

- **Speakers' Corner – 7 June from 16:00-16:20**
  - Presenter: Vanesa Diaz, market development EMEA, Carrier Networks
  - Topic: Optimizing Evolution: From HFC to FTTH Networks
  - Location: Hall 10.1

- **FTTx Stepping into the Gigabit Society technical program – 9 June from 11:30-12:45**
  - Presenter: Manuel Silva, market development EMEA, Carrier Networks
  - Topic: Fiber Innovations to Reduce Installation Costs
  - Location: Room B, Congress Center East

Talk to us about your challenges, needs and projects. We will help you evaluate your options and project deployment to prepare your infrastructure for the future today.

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