New Jetvorks

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The Next Data Centre

UNDERSTANDING AND PREPARING FOR TOMORROW'S TECHNOLOGIES



In this issue . . .

- Fibre to the Home Will it happen in India?
- A race to the finish. Commonwealth Games on ADC structured cabling
- The Power of Convergence: KRONE is now ADC



A note from Bala...

This is our first issue in this calendar year and as you can see we have changed the look and feel of the Newsletter to reflect moving technology and to make it easier to read. Talking of the need to keep moving forward, for close to 2 decades now I have driven approximately 15 Km's to work almost every day. Obviously like many growing Indian cities, travel these days is not gauged in distance as much as it is in time. Traffic has turned from bad to worse. And I stop to think when it actually turned from Good to Bad to Worse!. Changes, growth, construction and expansions have been a constant and have often happened in a very chaotic fashion. City infrastructure development is unable to catch up with the growing influx of people and vehicles. The key question is: Are we building for yesterday or tomorrow?? Planning is the crux of any infrastructure.

Building an FTTX infrastructure is also about building for tomorrow. Planning for it meticulously, detailing the active, passive and integration elements diligently makes life easier, especially when take rates of new technologies rapidly surge. It is at this juncture that cost of operations and maintenance will be dependent on selection of an appropriate architecture. We at ADC are therefore devoting a lot of our focus to these aspects of FTTX and how product choices and designs go a long way in reducing total cost of ownerships, although upfront costs may be marginally higher.

We believe that the global demand for bandwidth offers unique growth opportunities for our customers to make strategic investments in fibre-based communications networks. Our forthcoming newsletters will carry many articles on Fibre and FTTX Technologies & architecture.

In a few months from now India will be (hopefully!!) hosting the Commonwealth Games at Delhi. Several prestigious stadia and press-rooms are being constructed and ADC is proud to be associated as one of the selected vendors for Data Cabling. Read more about it in this issue!

Happy Reading!

Bala Chandran Managing Director-India and Neighboring Markets

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Tell us your opinion and what you wish to read in our forthcoming newsletters. Write to the Editor sony.bhandwalkar@adc.com

The Power of **Convergence...**

New name, Same people, Products you Trust

For the first time in India, customers building converged IP networks can access the ADC and KRONE portfolio of infrastructure solutions under a converged Global brand – ADC.

On Feb 18th 2010, KRONE Communications Limited became ADC India Communications Ltd.

ADC India Communications Ltd is now our legally registered company name and, as part of the same change, our entire customer facing communications will now carry the ADC brand in place of the ADC KRONE brand.

This change aligns our business in India with our parent branding in the US and reflects the increasingly globally integrated nature of our business and of the telecommunications market place.

WHAT THIS MEANS TO YOU AS OUR CUSTOMER AND PARTNER?

Other than the change to our name, you should see no other changes. The same people at our company will continue to provide the same levels of service that you have come to expect from us, as your chosen supplier!

ADC India will continue to support you with innovative solutions and will continue to manufacture and supply Genuine KRONE Products as an important part of our offering to the Indian and SAARC marketplace.

IMPORTANT DETAILS FOR YOUR BUSINESS

- Please make necessary changes in your books and invoicing process to reflect our new company legal name, so that we can service your needs swiftly and accurately.
- Our new website url is www.adc.com/in. You can visit our website for a new, simplified experience of our solutions and products.
- Our email ids have changed to XXX@adc.com, however be assured that we will continue to

receive all e-mails you send us at xx@adckrone.com.

- All other points of contact and contact information will remain the same.
- All our stationery, marketing communications and product packaging will carry the ADC logo along with Genuine KRONE Products badge.
- This badge is a stamp of authenticity that ONLY ADC India manufactures and supplies Genuine KRONE Products in India & SAARC countries (excepting Pakistan)

g e n u i n e **KRONE** PRODUCTS



Sony Bhandwalkar Marketing Manager

When you see the ADC name, you can be confident of finding solutions that support migration to next-generation networks, including the full range of Genuine KRONE

products and our world leading copper, fibre and wireless portfolio.

Feel free to contact us at any time with regard to questions about ADC or our solutions that are integral to your business.

Thank you for your continued support and confidence.

The Next

Understanding and Preparing for Tomorrow's Technologies



Siva Kumar. Technical Manager, Enterprise Networks

What many in the IT industry thought would never come is now knocking on the data centre door. Technologies like 40 and 100 Gigabit Ethernet, Fibre Channel over Ethernet, IP convergence and server virtualisation are no longer just aspirations—they are real, and the time to prepare is now.

All data— everything from email and company information to customer accounts, transactions and medical records— must also be properly stored and archived by storage area networks (SANs). SANs enable sharing, moving and recovering information during daily operations and disaster recovery. Therefore SANs are an integral part of the data centre.

As global enterprise requirements continue to evolve, the amount of data needing to be transmitted and stored is growing exponentially. Compounding the onset and growth of these technologies is the need to lower total cost of ownership (TCO). Overall IP traffic is expected to grow to over 45,000 petabytes (PB) per month by 2012—that's more than 46 billion gigabytes of information.

X86 Server Forcast by Ethernet Connection Type (40 G and 100 G)



Source: Intel and Broadcom, April

> The need to reduce TCO is also at the forefront of concern among today's enterprise businesses. Over the life cycle of a typical enterprise, operation

costs alone can account for 50% of total costs. Therefore having solutions in place today that enable easier upgrades tomorrow can also significantly reduce TCO.

The industry is responding to these needs with advancements like 40 and 100 Gbps Ethernet (GBE), Fibre Channel over Ethernet (FCoE), Server Virtualisation and IP Convergence. These new technologies also have implications for the data centre infrastructure, including new cabling and connector solutions, higher fibre densities, higher bandwidth performance, and the need for enhanced reliability, flexibility and scalability.

40 AND 100 GBE

Standards for 10 GBE over both fibre and copper already exist, and many data centres today are running the application in their backbone cabling where large numbers of gigabit links aggregate.

COPPER

Four lanes of 10 GBE will be required for 40 GBE and 10 lanes for 100 GBE. This will likely be limited to very short distances of approximately 10 metres.

MULTIMODE FIBRE

Running 100 GBE over multimode fibre for a 100 m channel will require 20 fibres transmitting and receiving at 10 Gbps within a single 24-fibre MPO style connector or two 12-fibre MPO style connectors, with 4 fibres unused.



Represents 10 Gbps Transmit Channel
Represents 10 Gbps Receive Channel

100 GBE over Multimode Fibres using 24-fibre MPO Style Connector (100GBASE-SR10)

Data Centre



MPO MULTIMODE CONNECTORS

MPO connectors are typically pre-terminated in the factory to multi-fibre cables that are purchased in predetermined lengths. Bandwidth performance will require a minimum of OM3 laser-optimised 50 μ m multimode fibre as a minimum. With up to 12 times the amount of fibre needed to support 40 and 100 GBE, managing fibre density will be a key consideration for the next data centre.

SINGLEMODE FIBRE

Running 40 GBE over singlemode fibre will require 2 fibres transmitting 10 Gbps over 4 channels using dense wavelength division multiplexing (DWDM) technology. Running 100 GBE with singlemode fibre will require 2 fibres transmitting at 25 Gbps over 4 channels using DWDM.

While DWDM technology for running 40 and 100 GBE over singlemode fibre will be ideal for long reach (up to 10 km) and extended reach (up to 30 km) distances, it may not be the most costeffective option for shorter 100-metre distances like those in a campus or data centre environment. However, as the standards are finalised and equipment is introduced, data centre managers would be wise to examine the cost differences between singlemode, multimode and copper cabling solutions for both 40 GBE and 100 GBE. Meanwhile, the very minimum singlemode solution should be OS1 with Zero Water Peak (ZWP) glass fibre.

FIBRE CHANNEL OVER ETHERNET (FCOE)

Most data centre managers and storage equipment manufacturers have adopted Fibre Channel as a means of transmitting data for SANs. Most data centres use Ethernet for transmitting data. FCoE is a new standard to consolidate both Fibre Channel and Ethernet data transmission onto one common network interface.



Encapsulation of Fibre Channel Frame in an Ethernet Packet

FCoE will likely be deployed using Top-of-Rack (ToR) architecture that provide access to the existing Ethernet LAN and Fibre Channel SANs and will require 10 GBE at a minimum.

IP CONVERGENCE

Voice, data, video, security, and building management systems that once operated as separate analog systems have now become digitally based, allowing all forms of communication traffic to converge over a common infrastructure using IP technology.

SERVER VIRTUALISATION

Server Virtualisation involves running multiple virtual operating systems on one physical server. This practice is increasingly being deployed to address the issue of more equipment and space constraints in the data centre. As data centre managers become more comfortable with the technology, experts predict that the virtualisation ratio could grow from 4:1 to as much as 20:1. With so many applications running on one physical server, the need for availability and bandwidth also increases significantly.

KEY STRATEGIES AND SOLUTIONS

While technologies like FCoE, Server Virtualisation and IP Convergence are aimed at reducing TCO, the reality is that the overall increase in data transmission and equipment is putting significant strain on the data centre's power, cooling and space.

LOWER TCO

Data centre managers would be wise to consider available solutions and strategies that will better support the operational costs of next data centre technologies and not just the initial capital costs. Fibre infrastructure and the right fibre cabling components can support, like MPO solutions, can produce high density cabling and connectivity, high bandwidth and performance, and enhanced reliability, flexibility and scalability—all of which ultimately lower TCO.

MPO SOLUTIONS

MPO solutions will be a must-have for 40 and 100 GBE in multimode data centres. Thankfully, data centre managers have become increasingly comfortable purchasing predetermined lengths of multi-fibre cables pre-terminated with MPO connectors including the need to properly consider the loss budgets of MPO channels.

Because MPO connectors terminate up to 12 fibres in one connector approximately the same size as a one SC-style fibre connector, they offer the highest density for maximising space savings

and managing higher port counts that come with IP convergence and the increasing number of network devices and equipment.

HIGH BANDWIDTH SOLUTIONS AND CABLE MANAGEMENT

Several imminent technologies call for higher bandwidth cabling and precise performance. If Category OM3 multimode fibre (Yes, it will eventually be called Category OM3, and Category OS1) is selected as the viable and cost-effective option for a data centre, 40 and 100 GBE will require reduced channel attenuation loss and delay skew to ensure that signals in each optical fibre arrive at a very precise time relative to each other. If singlemode with DWDM is the selected option, MPO would be replaced by direct connection with pre-terminated singlemode thereby achieving substantially lower loss budgets, higher bandwidth, longer fibre runs but at higher LASER costs. In both cases, proper cable management is required to maintain reliability, flexibility and scalability of cabling and connections in the data centre and ultimately lower TCO.

Cabling and connectivity needs to be deployed with proper bend radius protection to reduce signal attenuation, maintain fibre performance, well-defined cable routing paths, accessibility to work on connectors and cables without affecting adjacent circuits or ports, and physical protection for cables, patch cords, and jumpers.

Cable management is also critical within the pathways going to and from the various areas of the data centre, especially with the increased amount of fibre cabling that is needed to support the latest technologies.

Preparing the data centre for imminent technologies like 40 and 100 GBE, FCoE, IP Convergence and Server Virtualisation is much more cost effective than trying to unsystematically and randomly deploy solutions at a later date to accommodate a new technology. IT professionals upgrading or deploying their data centres today should therefore consider MPO solutions, highdensity solutions, higher bandwidth cabling, OS1 with ZWP, and cable management that ensures reliability, flexibility and scalability. With lower TCO as a top concern, many of the solutions available today not only prepare for the next data centre, but they also enable more efficient operations, reduced power consumption and lower life cycle costs.

The ADC white paper on The Next Data Centre can be found at www.adc.com/in

8-port SNB Surface Mount Box

Ideal for flexible and Portable Work-Stations

A t ADC we work very closely with our customers to develop products that can best address their Network Infrastructure requirements. The 8-port SMB was developed as a result of this process.

The 8-port SMB is ideally suited for offices where workstations or work areas are portable and flexible and where the connectivity needs be equally flexible. Normally in an office with fixed workstations, connectivity points and faceplates are also fixed.

Even if only a few users need to physically move a port, this can be very limiting. Working with our engineering team we developed a product that provides cable connectivity through a flexible tube where the information outlets are fitted into a high density 8 port enclosure. The customer can now easily relocate a workstation within the radius permitted by the flexible hose.

Features

- Rugged metal back box
- High Density 8 port solution
- Terminations remain un disturbed during repositioning of the enclosure, due to external mounting points
- Ideal as a portable consolidation point without the need to re-open the enclosure
- Accommodates ADC's punchdown and tooless Information Outlets
- Labeling Provision
- Provision for gland style fixing to be used in conjunction with flexible conduit
- Multiple mounting options provides maximum flexibility for different workstation environments

Contact ADC (www.adc.com/in) to know more about this product.



Kenelm Lopes Product Manager Enterprise Networks



The customer can now easily relocate a workstation within the radius permitted by the flexible hose.

A Race Finish!

ADC's Structured Cabling Solutions at the Commonwealth Games



Neeraj Lijhara National Sales Head - Government Initiative Enterprise Networks

The 19th edition of the Commonwealth Games is scheduled to be held in Delhi, India between 3 October and 14 October 2010. The games will be the largest multi-sport event conducted to date in Delhi and India generally, which has previously hosted the Asian Games in 1951 and 1982. With 10 Venues hosting 17 sporting events the Common Wealth Games is truly going to be a sporting spectacle of immense proportions.

The stadium is a ring shaped architecture with two parallel running networks. The first network being the Games Data Network(GDN) which will handle the applications which include the entire Internet Protocol (IP) network and telephony provisions, advertising screens around the stadium, scoring, attendance, media broadcasting, ticketing systems, stand management. The second network is a Security Data Network (SDN) which will link IP based cameras for 24x7 complete stadium coverage with the feeds going to the Delhi Police Control Center to ensure maximum safety and security at the games.

THE CHALLENGE

With the background and history of this event and the need to relay all games and events to the entire world, the most critical challenge is to have a high-speed and bandwidth connectivity system that is 24/7 real-time with a reliable network. The CWG management was looking at a 100% uptime and error-free network connectivity solution for all the sports, training venues along with the games village (where thousands of athletes would be residing).

The second challenge was to Design a network that would provide virtually 100% uptime and NO network failure that could hamper the critical real time applications. It also required a convergence of voice, data and video over a robust, reliable and efficient structured cabling backbone. The demand was clear! - When the cabling system work is completed the operators MUST have a stadium with a 24/7 Real-time, Reliable connectivity system.

The third challenge was to complete the design, installation and testing of the entire solution within a short timeline which included coordinating with the various stake holders involved in this government project. To integrate all these needs and deliver would require an expert network infrastructure provider

THE ADC SOLUTION

ADC won the contract after extensive study, design proposals and a solution mix of Copper & Fibre cable and connectivity products. ADC implemented a network for more than 7000 nodes in the sporting venues: Thyagaraj Sports Complex, Indira Gandhi Sports Complex, Dr. S.P. Mukherjee Swimming Stadium, Talkatora Indoor Stadium, Major Dhyan Chand National Stadium, Siri Fort Sports Complex and Yamuna Sports Complex.

ADC first conducted a thorough site survey for all the venues and designed a network that would accommodate the bandwidth requirements of the intended applications. For the Games Data Network (GDN), the LAN is networked using Cat6 Cables for connectivity and Fibre for the Backbone cabling. In the Security Data Network (SDN),





which has an IP based security camera at every 100m interval, to cover every corner of the stadium, a fibre end to end connectivity solution was implemented.

A structured cabling system was designed for these multi-story structures in order to realize ideal connectivity and communication between all the services locations (including advertising screens around the stadium, scoring, attendance, media broadcasting, ticketing systems, stand management). The system installed was Category 6 Copper horizontal cabling and Fibre Connectivity for the backbone cabling.

In all, more than 7000 nodes with over 200km of Fibre Cable and 350 km of Cat6 Copper Cabling has been deployed. ADC's innovative modular jacks (RJ45) are installed at the telecommunication outlets, along with ADC's patch panels and patch cords.

CONCLUSION

ADC managed to successfully complete the design, coordination, delivery, installation, integration and testing as per schedule and to the customers' satisfaction.

On time delivery and coordinating with various government agencies for completion of the installation was a key achievement. With the cabling installation left until the final stages of the project, the entire installation from conceptual design to final handover was done in 7 weeks.

Experience ADC's New Website! adc.com/in



You will find the most up-to-date information on our products and services with some new improvements to make it easier for you to quickly locate information.

New to our home page is the Quicklinks menu, offering an easy, one click link to our most frequently accessed pages. Use this to navigate directly to the Structured Cabling searchable online catalogue, Next Gen Networks Virtual Tour, or the Literature search.

Don't miss our NEW exciting interactive content including the Data Centre Capabilities Video a brief overview of ADC's Data Centre innovations.

adc.com/in

Fibre management: Does it really



Dileep Kumar Director - Product Management Enterprise & Carrier Networks

In a difficult economic climate network managers are bound to be concerned with costs, however, when it comes to optical fibre, if they try to cut costs by compromising fibre management, they are playing a high risk game. Good fibre management is about network reliability, and with some 70% of downtime attributed to the physical layer it should be obvious why it needs to be properly managed. This is increasingly important, as technology developments such as VoIP and other IP applications mean that more data is sent down each fibre. Good management practice is not just about avoiding down-time. It affects how quickly new services can be turned on and how easily a network can be reconfigured. Many companies are starting to see reliability as a rival to cost as their critical concern. But even today, many tend to concentrate on individual hardware components like panels or frames - the performance they offer and their cost. Instead, the network industry needs to aim for a complete end-to-end, managed fibre solution. Simply adding elements together, possibly coming from different sources, in an ad-hoc way is risky. Without guidance on factors such as routing paths, the methodology of management,



scalability, or thermal issues, you can find yourself in a situation where down-time becomes all too common. The cost of a typical fibre cable management system can be a tiny percentage of the overall network cost yet even now some see it as an unnecessary extra – even though the initial cost is only one part of the total cost of ownership and does not give a true indication of the other factors that go into the real cost. A 15% difference in fibre cable management system price will result in negligible savings in the overall network cost, but it could cost hundreds of thousands in lost revenue and higher operating expense.

WHAT DOES FIBRE MANAGEMENT PROVIDE?

At ADC we base it on four Golden Rules, which relate to:

• Bend Radius Protection: maintaining the recommended cable bend radii reduces signal attenuation and enhances long term reliability.

• Cable and Connector Access: to ensure bend radius protection easy access to installed fibres is vital, allowing any fibre to be installed or removed without causing a macrobend on an adjacent fibre. Good fibre accessibility can cut network reconfiguration time from 90 minutes per fibre to just 20.

• Managing Routing Paths: yet another factor affecting bend radius protection is improper routing of fibres by technicians. Routing paths should be clearly defined and designed so technicians have no option other than to route the cables properly.

• Physical Protection of the Fibre Network: the fibre cable management system must ensure all fibres are protected from accidental damage by technicians and equipment.

WHAT DO THESE GOLDEN RULES MEAN IN PRACTICE?

Take cable and connector access: people will go to market with a super high density panel, say 96

matter?



fibres in a 1U panel, believing this offers the best possible value for money. But the crucial point is to strike a balance between sheer density and the performance and reliability that good management can ensure. As panel density rises, so do the risks of damage. Good fibre management does not rule out use of high density panels, rather, it says: make sure you realise that increased risk may be incurred and take it only when it is strictly necessary. Panel density is significantly affecting another aspect of networking today: thermal issues and the whole question of energy use and carbon footprint. Here, impending footprint targets are going to make compre-hensive fibre management vital, building on the concept of 'managed density'.

Features such as overhead raceway systems, guality training for installers, definition of best practices, and dedicated instruction literature will play a vital role in enabling users to meet their footprint targets. All too often today, a scenario is that people will buy a rack and make a quick density calculation based on cross sectional areas. But frequently the reality is that they end up with a density that proves to be unmanageable. This is not rare: an estimated 60% of fibre installations are such that there is a high risk of disturbing adjacent connectivity when MACs (moves, adds and changes) are required, potentially causing significant and extremely expensive down-time. There are techniques that can help, which are gaining popularity in both LAN and Data centre markets. These include angled fibre patch panels,



which promote effective management of patch cord bend radii, helping to reduce stress and minimize insertion and return loss.

The crucial importance of the physical layer and managing it properly is now being reflected in evolving industry standards, such as BS EN 50173. Future standards will recognise different grades of network install – a hospital network being an obvious example where down-time can be positively disastrous. The aim is to better reflect the different scales of networks, so that for example, a system with more than 1000 ports may need a form of automated

labeling or identification process. The message is clear: however great the pressure to cut expenditure as the economy struggles, doing without good fibre management is a strategy to avoid – at all costs.

For more details, visit www.adc.com/in

Fibre to the Home WILL IT HAPPEN IN



Sumit Bhatia Director- Sales Carrier Networks

GLOBAL SCENARIO

Before I get to India, let me briefly share with you the global scenario on FTTX. Currently, APAC leads with approximately 38 million FTTH subscribers compared to 3.6 million in Europe and 3.4 million in Americas. According to market reports it is expected that APAC is likely to grow to 130 million subscribers by 2013. Korea is a good example where 50% of homes are served by FTTH. Another example to show the progress of adoption is that of China. Not too long ago China was classified as a 'Tier 3' (planning stage) country in the FTTH adoption rate charts. Today it is a Tier 2 country considered to be advanced in FTTH alongside Singapore and Taiwan. It's a clear indication that India, which is currently classified as Tier 4 'low priority' for fixed broadband along with Thailand and Taiwan, will by its sheer population base and demand, soon move to Tier 3 and probably will move even more rapidly to Tier 2.

INDIAN SCENARIO

The average broadband speed in India is 256 Kbps with, 512 kbps broadband connection through a copper line being offered in few cities. Clearly these speeds and bandwidth won't allow services such as VOIP, IPTV, Music distribution and Interactive TV. Fibre and FTTX demand is mainly driven by the need for such services.

Although India stands as a shining example of wireless growth, wire-line broadband will also be a necessity as some web based applications, for example citizens services, will require devices which are just not mobile focused. Historically, FTTX deployments show almost a 30% reduction in CAPEX in locations where FTTX is deployed in high dense environments as compared to low density geographies. The Indian metros are a classic example of dense environments with multidwelling structures. In such a mix, there is a high probability of delivering high quality broadband where close to 90% may be FTTB, with the balance 10% being FTTH.

Eventually everything will be IP based; Voice, Data, Video and even wireless, completing the "IP Quadruple Play" but the impact on existing and future networks is going to push the need for more bandwidth & speed. With India's large population and its strong hunger for communication, the telecommunication sector is frantically upgrading its networks by rolling out 3G, NGN and FTTH. FTTH will soon meet subscribers' inexhaustible requirement of bandwidth-hungry applications thus changing our way of life - The way we work, live and play!.

Market statistics indicates that by 2013 India is likely to have 5 million subscribers on FTTX. This indicates that both incumbent and competitive carriers will require the same focus on wireline broadband as they have had on wireless coverage.

INDIA'S GRAND PLAN

India's grand plan is to reach 375,000 villages with 1.5M RKM of Fibre. With the recent commencement of India grants with many applications ranging from education, medicines and citizen services, it is expected that 6000 gbps of more bandwidth will be required by 2014 with a contention ratio of about 1:50. This is because rural India with a low literacy rate will have higher demand for visual media than text. If one were to roll back one's memory to approximately 20 years ago, no one would have predicted the impact of growth in wireless in the Indian market. We are probably at the same cross road when it comes to FTTH. However, like any other infrastructure

India?

developments, FTTX is as much to do with planning as it is to do with execution, especially in a market like India, where touch points for FTTX will cut across service providers, OEM vendors, corporations and real estate developers. There has to be a comprehensive approach to the FTTX opportunity, encompassing active elements, passive elements, channels and system integrators.

REACHING THE MASSES

The telecom sector will see tremendous growth in India's rural and urban areas in the years to come. The main drivers for this trend being, 'affordable' pricing plans for the 18 to 40 years age group as well as for the sizeable market of middle-class Indians — A critical mass for the telecom services. India is one of the low-cost markets which has

Next Generation Network Solutions



Fibre Here



Fibre to the Home

successfully broken the mvth that 'high-end technology products or services can't be made available at an affordable price to the masses'. With its sheer volume, customer base and opportunity India has managed to bring down costs dramatically. Additionally, as many technologies have niche benefits for users, FTTH also will find its own niche market in India. Very soon as the cost of services falls, users will be able to more easily afford Triple play services delivered through FTTH service.

NEW NETWORKS NEW WAYS

While service providers are definitely gearing up to provide these services to the subscribers they need to take care of 3 aspects of the network if it is going to be Fibre all the way to the home -Central Office, Outside Plant and Fibre-To-The-Home. On a more technical side, while the central office is migrating and adopting a lot of fibre solutions for the networks, FTTX in the outside plant is at a nascent stage with each operator trying to work out various permutations for



arriving at the most optimal cost vs benefit solution. FTTX deployments have a lot to do with ease of installation and maintenance in a large nascent market like India. With an optical fibre plant that extends its reach, service life, and bandwidth to serve more than a generation of customers, the expected return for Fibre-to-the-X (FTTX) projects is impressive. Yet margin and customer satisfaction can easily erode if the central office and the Outside Plant are not reliable, are not appropriately scaled for growth, or if installation and maintenance costs escalate. New networks require a new way of thinking.

ASK THE EXPERTS

It is no secret that businesses and consumers worldwide are becoming more dependent on bandwidth-intensive, multiservice communications for a wide range of daily activities. At ADC, we recognize that with this dependence comes the need for broadband network infrastructure solutions that help our customers offer advanced, differentiating services. And we are committed to providing our customers with reliable, cost-effective solutions that help deliver high bandwidth and valued content to their high-revenue residential, business and mobile subscribers. Regardless of the price sensitivity of the market, we believe that the global demand for bandwidth offers unique growth opportunities for our customers to make strategic investments in fibre and wireless communications networks. In this environment, companies are increasingly in need of state-ofthe-art, next-generation networks that deliver more effective and efficient communications. To meet these demands, service providers and enterprises must continue to upgrade their networks to fibre to deliver high-bandwidth experiences. As more people rely on these services to manage their businesses and lives, carriers are finding themselves at a tipping point - upgrade their networks or lose competitive ground. As a global fibre leader, ADC is providing innovative, quality products and services to the world's leading carriers, enterprises and original equipment manufacturers (OEMs) as they invest in infrastructure that delivers essential broadband services.

Call us to discuss your FTTX plans. We can make your plan a reality!

A Gripping Story

Uptime Performance Starts at Cable Connections

With ADC 's LSA-Plus® contacts, connections will never be the source of system weakness. Cable connections and terminations within data centres are subject to vibrations and mechanical stresses not seen elsewhere within the enterprise.

- 70 percent of network downtime is
- attributed to the physical layer, or cables and connectivity equipment.
- The patented LSA-Plus Insulation
- Displacement Contact (IDC) is the highest performing, most reliable IDC in the industry.
- LSA Plus technology is used throughout
- ADC's line of structured cabling products - in jacks, panels and termination blocks.

For more information on ADC's IDC Technology and KM8 Jack visit www.adc.com/in



ADC's Interactive NextGen Virtual Tour at your fingertips...





visit www.adc.com/in