New Networks
India Vol 1 No.2 2010

# New HighBand®
## Patch-by-Exception **Technology**

**In this issue . . .**

# *A note from Bala…*

There's a saying about India that many would agree. "Anything you say about India could be true……. and the opposite could be just as true too!!" It is the span of diversity of this country which often tears good from the bad, efficiency from inefficiency and growth from dormancy. And despite a differentiated society we are posting impressive GDP growth year-on-year and still on a continuing growth path. Drill further and you will see that the good, the efficiency and the growth is driven by that ***'jugaad'*** (improvisational) innovation and all that is bad, inefficient and dormancy smacks of a ***'chaltha hai'*** attitude (I have no equivalent word for this in English!!).

There are many new innovative business models with its inception in India and the telecom industry is not far behind in reaping success through homegrown improvisation. From the Tata Nano in Automobiles to Managed Network Services in Telecom, India has evolved effective products and business models that are unique and path breaking.

Today wireless business in India has turned unconventional through shared infrastructure. For example we see the emergence of neutral-hosts investing in reliable technology to provide in-building wireless coverage solutions that are agnostic to operator frequencies. With multiple operator tenancy this makes an effective business case by delivering quality coverage within buildings like airports & malls where footfalls are high and people want to stay connected on their mobile phones. Shared infrastructure model is now the order of the day.

To effectively improvise and innovate without compromising quality and satisfy the ethos of affordability with too much of ***'jugaad'*** can inadvertently slip you to a ***'chaltha hai'*** status!! as there is a thin line between the two.

Being a part of a global company, ADC in India has acquired the local ability to display its ***'glocal'*** capabilities in products and services. ADC can quickly adapt to local needs and business models with agility. All articles in this newsletter will reflect this ability to align with customers and partners with our offerings.

Happy reading!!

Bala Chandran
Managing Director-India and Neighboring Markets

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**Articles**



**ADC News**




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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

# High Density standalone
# Optical Distribution Frame

ADC's family of Optical Distribution Frames reflects our expertise in cable management with innovative products that ensure bend radius protection at every point in the frame application. High-density fibre frames, clear routing paths, slack storage solutions, easy connector access and simplified integration of optical components all optimize the value of the optical network.

This product family stresses modularity and flexibility well suited for today's fibre network and is capable of accommodating future growth. ADC is a market leading supplier and value producer of fibre access, termination and connectivity products designed to provide a full range of solutions for optical networks.

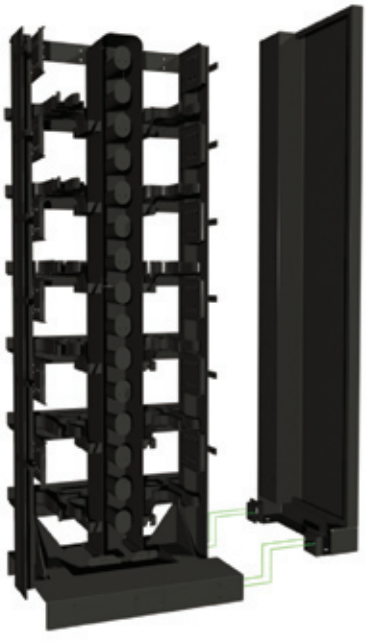
ADC's new High Density Standalone Fibre rack provides mounting locations for termination, splice and storage modules. It is a completely front-facing frame; all mounting, maintenance and cable access is done on the front of the frame. The frame is shipped with two separate lockable front doors. Top door at the patching area is a glass door and splice area at the bottom has a separate lockable door. Entire splicing is managed at the bottom level where splice technicians can access splice from floor level itself.

**Product Features**

- This modular solution provides greater flexibility for a variety of applications
- Superior cable management protects cables and connectors; reduces reconfiguration time
- Total front-access design allows installation back-to-back or against a wall
- High-density solution saves valuable floor space
- Panel utilizes an internal splicing of fan out cable & patching system that creates a compact and easy fibre management solution.
- Completely enclosed and lockable
- Separate access to splicing area where technician can work from floor level.
- Available in SC, FC and LC variants
- Accommodates up to 768F termination and splice
- Complete front access frame
- This high-density frame terminates and splices up to 768 fibres in a 600 mm by 300 mm footprint and 2200 mm height.
  Pre-configured bays are available.

Contact your nearest ADC representative to know more about ADC's suite of ODF solutions or visit www.adc.com/in

**Dileep Kumar**
**Director**
**Product Management**
**Enterprise & Carrier Networks**



**This product family stresses modularity and flexibility well suited for today's fibre network and is capable of accommodating future growth.**

# What's the fuss about **field testing of** Category 6A cabling

Bisam Jo
Assistant Manager
Technical Enterprise Networks

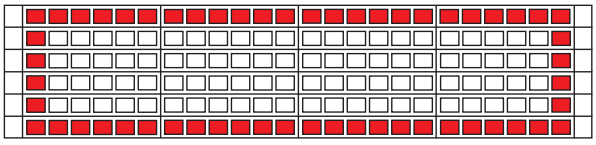
With the ratification of Cat6A standards, the adoption of Cat6A cabling in LANs and Datacentres is gaining momentum. At these higher frequencies, as well as Near End Cross Talk and Far End Cross Talk, signal jump from one cable to an adjacent cable results in a new type of cross talk known as Alien cross talk. While the basic practice for testing copper cabling remains the same for all categories, Cat6A requires additional testing for alien cross talk and testing this specific alien parameter can be quite challenging.

The new EIA/TIA 568 C.2 and ISO/IEC 11801-2010 Amendment 2, states that it is mandatory that either laboratory testing & certification is done by manufacturers OR field testing of Cat6A to measure Alien Cross Talk is carried out. At double the frequency of Category6 cabling, field testing of Cat6A cabling is challenging and requires more skill and experience. According to the standards the cable must undergo field testing for Alien Cross Talk only if the customer requests an Alien Cross Talk test report. If the size of sample cable (for testing) is not specified by the customer, then the required sample size is 32 random links for an installation of up to 500000 links and 50 links for an installation of above 500000.

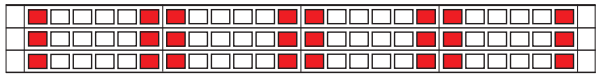
ADC's design philosophy is to develop products that always exceed the parameters laid down by the various standard bodies. ADC also invests in third party certification and has recently received third party test certificates from Delta and GHMT at a Category 6A component level to add to those already received from ETL and UL. The comprehensive list includes certificates for jacks, patch panels, outlets, cable and patch cords. Click here to know more about ADC's third party certifications

## FIELD TESTING OF ALIEN CROSS TALK

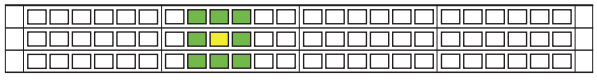
Field testing for Alien Cross Talk is different from the Laboratory test in which a bunch of seven cables are tested (one victim surrounded by 6 disturbers). With field testing as well as the cable, the connectors / patch panels are tested in order to get a link test result. Selection of the bunch is the first and foremost thing. Bunch selection starts from the lengthiest one to the shortest. Next is the selection of the victim & disturbers. All the cables in the bunch except the victim acts as the disturbers. It is a complex process to select the victim. The guide line for selecting the victim is as follows. See below



The connector in patch panel side should never be on sides or corners. Top row & Bottom Row in a set of Patch Panels in a rack are to be avoided.



There should not be any physical barricade with the next connector on any side. ADC Cat6A straight Patch Panel doesn't have barricades between connectors.



There should be a minimum of 8 Disturber Connectors around the selected connector.

system

### NEAR END ALIEN CROSS TALK TESTING

The Victim connector should be connected to a source which can measure the cross talk. The far end should be connected to a receptacle for continuity. The Disturber connector should be connected to a remote unit of the source. Here also the far end should be connected to a receptacle. The source and remote units need to be linked using a straight patch cord which acts as the communicator. The testing must be done from disturber '1' through each Disturber through to the Disturber 'n' without changing the victim.

### FAR END ALIEN CROSS TALK TESTING

The Victim connector should be connected to a source which can measure the cross talk. The other end should be connected to a receptacle for continuity. Again the Disturber connector at the far end should be connected to remote unit of the source. Similarly the other near end should be connected to a receptacle. The source and remote units need to be linked using a straight patch cord through some idle links which acts as the communicator between source and remote. The testing must be done from disturber '1' through each Disturber through to the Disturber 'n' without changing the victim.

### FIELD TESTING EQUIPMENTS FOR CATEGORY $6_A$

ADC accepts the following Level 3e or better testers for testing of Class EA (Cat 6A) performance for 10Gigabit Ethernet.

1. Fluke DTX-1800 Class EA (500 MHz) and 10GBE
2. Agilent WireScope Pro N2640A - Class EA (500 MHz) and 10GBE

Always ensure that the latest software and test limits are downloaded from tester manufacturer and stored in the testers. ■

*Courtesy: Mr. Adrian Young, Sr. Technical Support Engineer, Fluke Networks who provided inputs for this article.*

# New HighBand

ADC reveals new design of HighBand®, the reliable, secure and cost effective wall mount patching solution.

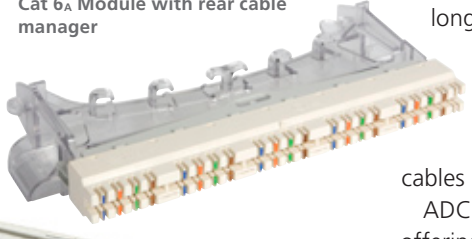
By Rhona Turnley, Enterprise Product Manager, Asia Pacific.

When it comes to planning a cabling infrastructure, 10Gbps and 100Gbps have emerged as the next steps for meeting enterprise network requirements. There always has been – and always will be – a need for more density and bandwidth. The next generation of HighBand cross-connect solutions have been released for sale in Asia Pacific. The new HighBand design allows for higher density or heavily patched installations and provides a neat, clean finish to the system. The wall mount frame; module rear; cable manager; cable management rings and cable troughs all have increased depth to accommodate Category $6_A$ bend radius requirements.

The TrueNet® HighBand cross-connect solution is the ideal cabling solution for companies who require efficiency, guaranteed perfor-mance and appealing aes-thetics. HighBand is comprised of high-performance, discon-nection modules, user-friendly cable management and inno-vative anti-snag patch cords. Based on Patch-by-Exception technology, HighBand systems provide material, installation and operational cost savings, offering a competitive alternative to traditional RJ45 products. Companies who have installed HighBand have reported significant ongoing operational cost savings, as well as the upfront installation and material savings.

12-way Basic HighBand System

Cat $6_A$ Module with rear cable manager



The innovative new HighBand design was developed by ADC's award-winning Australian research and development team, based in Berkeley Vale, NSW, Australia. The new design was developed based on customer and installer feedback that stated a need for a more slimline design, allowing more ports in a smaller space, with a polished modern look.

The HighBand Wall Mount Patch-by-Exception Solutions are flexible and can be either hard wired or patched, depending on the requirements of the network. The system utilises ADC's silver plated, world-renowned LSA-PLUS contact principle, which has become the industry standard in over 140 countries.

Adelaide University received prototypes of the HighBand product which was installed in its new Plant Accelerator building. "The new HighBand's redesigned cable troughs provide more space for jumpers in our communications room which also makes for easier tracing of jumpers," said Jerry Gibson, a network infrastructure specialist at the University. "The new cable management with left/right doors is also a vast improvement. We no longer need to lift the cable management covers off and store them while making changes, so it's a great time saver. With the redesign of the frames, the amount of flex on the modules when terminating cables has been improved."

ADC's HighBand solution is a unique design, offering the latest in cross-connect and cable management technology, delivering immediate cost savings, operational benefits, added security and guaranteed performance.

# Patch-by-Exception **Technology**

## CROSS CONNECT SYSTEM

Colour coded for ease of installation, the HighBand module allows for termination of 4-pair UTP cables. HighBand technology enables the highest performing Category $6_A$ module in the world, with transmission performance headroom far exceeding all local and international Standards.

## CABLE MANAGEMENT

The cable management rings control vertical cable management between frames, ensuring that cables do not interfere when adds, moves and changes occur.

Cable troughs mounted on the top and bottom of each frame ensure superior cable management and correct cable bend radius between frames.

## 19" RACK INSTALLATIONS

HighBand can also be used as a traditional cross connect inside a 19" rack. The recessed frame ensures that the modules sit flush with the front of the rack and other 19" equipment that may already be in place within the rack. ■

HighBand 4-way Rack Kit

HighBand 8-way Rack Kit

HighBand 12-way Rack Kit

**The system utilises ADC's silver plated, world-renowned LSA-PLUS® contact principle, which has become the industry standard in over 140 countries.**

Vertical cable management cover, cable management rings, top cable trough, bottom cable trough

# Connectorisation in the Central Office

ADC's Peter Meijer explains the benefits of a connectorised network architecture in the Central Office of a telecommunications carrier.

By Peter Meijer, JP BE MSc.,RCDD, Technical Manager Industry Support.

Building a next generation fibre network that is flexible, reliable and long-lasting requires service providers to balance three factors: technology, finances and operations. One of the basic technology decisions is whether to use splicing or connectors when creating junction points in the network, and that choice is especially critical because it directly affects long-term financial and operational considerations as well. After comparing the capital/operating expenditures (CAPEX/OPEX) incurred by both strategies, and after gaining some experience with both splicing and connectors in terms of moves/adds/changes, service turn-ups and troubleshooting, more and more service providers are opting to use connectors throughout their fibre networks, beginning with the central office (CO).

Connector interface points inside the CO have been delivering operational and financial benefits to service providers for more than a decade. These include the ability to:

- quickly deploy flexible, reliable fibre infrastructures
- reduce the number of splices, splice technicians and splice crews required for installation and maintenance
- lower their operating expenditures (OPEX)
- turn up services quickly
- deliver bandwidth cost-effectively
- speed up return on investment

## COMPARISON OF UPFRONT COSTS AND LONG-TERM OPEX

Despite the demonstrated advantages of using connectors throughout the network, some service providers around the world still prefer fusion-splicing, arguing that it is less expensive in terms of CAPEX. While it is true that splicing can be less expensive in terms of initial equipment costs, it does entail significant CAPEX of its own. For example, a splice machine carries a price tag of $25,000 to $30,000 and may have additional maintenance and operational costs associated with that purchase. In the long term, service providers have discovered that splicing's upfront savings are not sustainable because splicing related issues often incur greater OPEX than connectors, including higher labour costs. Equally important, splicing reduces the network's overall flexibility, and that can translate into even more costs, both financial and competitive.

## CONNECTORS ENHANCE FLEXIBILITY IN THE CO

One of the most dynamic segments of the next generation networks is the CO, where service providers constantly need to make changes—removing or adding components and upgrading both passive equipment and active electronics, such as the optical line terminals (OLTs). Higher fibre densities in the OLTs mean service providers have to manage more fibres; they also have to add more frames to the bay line-ups to support those higher densities. As a result, operational flexibility and rapid scalability in the CO are crucial, as is the need to conserve physical space whenever possible. "Plug-and-play" connectors help service providers achieve all those objectives.

One of the most valuable aspects of a connectorisation strategy within the CO is the multi-fibre push-on (MPO) connector. Using an MPO connector, a technician can terminate multiple fibres with one connection, rather than needing an SC connector to terminate each individual fibre. Although the MPO connector first appeared several years ago, its use generally was limited to multimode fibre applications within

data centres. It is relatively new to the CO, in part because of the higher initial costs of connectorisation, relative to splicing. However, as mentioned earlier, these higher up-front costs often are offset by the lower OPEX that results from having to make fewer splices and needing only one MPO connector to make multiple connections on the back of a panel. The MPO connector now is an industry standard, and the Telcordia GR-1435 specification defines the baseline requirements for MPO performance levels.

Because of the CO's limited physical space, which necessitates singlemode applications, service providers are looking for a small form factor footprint. In response, vendors such as ADC produce 12-fibre MPOs, thereby making high-performance connectorisation possible for much of the active equipment. The interconnect cables, which typically contain 12 fibres, function as single-ribbon patch cords. Original equipment manufacturers (OEMs) use MPO connectors as well, including inside the passive panel used for fibre management and in a termination panel on a large frame containing a switch or router.

Another plug-and-play strategy in the CO involves a "breakout style" assembly, which is a more rugged cable that plugs directly into the active equipment on one side, with the frame on the other side. Resembling a patch cord, the breakout cable assembly offers a fibre count up to 24 fibres. Because it plugs directly into a transceiver or fibre blade, such as with video equipment, with only one cable required for each shelf, this connectorised approach makes it very easy to configure the fibre network.

## EMERGING TRENDS IN THE CONNECTORISED CO

As technology advances and Connectorisation becomes more prevalent in the CO, service providers will have more options for using connectors—options which will deliver additional benefits. For example, with higher fibre counts going to the active electronics, service providers now are turning up more circuits at a given time. Rather than running 24 individual patch cords between the active electronics and the ODF frame to bring up a service, they can run one or two multi-fibre cable assembly and use MPO connectors to bring up multiple fibres/circuits at a time.

This Connectorisation strategy significantly reduces the time required to turn up fibres—or to turn up the CO as a whole. That translates into lower OPEX and, with faster service turn-ups, it also enhances the service provider's ability to attract and retain customers. Further, if a problem occurs—for example, if a fibre breaks in the CO—the service provider does not have to call a technician to bring a splice machine and splice in a new pigtail. By simply running a jumper cable and plugging it in, the service provider can have the system back up and running much faster than with a splicing approach.

To obtain additional flexibility and to conserve physical space, service providers are beginning to use multifibre cable assemblies and MPO or MTP (mechanical transfer pull-off)

connectors much more widely in the CO. For example, in a point-to-point active-Ethernet FTTP architecture, the connectorised multi-fibre cable assembly, rather than individual patch cords, provides the connectivity between the OLT and the ODF. This configuration allows the service provider to run one cable, rather than multiple single fibres (single or dual jumpers); it also eliminates the need for a dedicated fibre management system, allowing the service provider to route the cable through a dedicated ladder system.

Another emerging connectorisation trend in the CO centres on an MPO bulkhead application, in other words, a tie-panel application in which the service provider establishes a cross-connect in the ODF and an interconnect panel in the active-equipment bay. From the front of an MPO bulkhead panel, the service provider runs a shorter cable assembly to the active equipment. This configuration can support a grow-as-you-go approach because it only requires a cable assembly for the circuits which the service provider actually is turning up. A standard assembly available off the shelf, a bulkhead panel with the MPO connector supports very high-density rack units, up to 288 fibres.

**By adopting a grow-as-you-go approach, many service providers now plan to use connectors not only in the CO but plan to extend that connectorisation strategy into the OSP.**

## RELIABLE CONNECTORS HELP BUILD A RELIABLE FTTP NETWORK

In addition to their concerns about the higher initial costs of connectorisation relative to splicing, some carriers have been worried about its potential impact on their loss budgets. However, technology advances in the connectors themselves have persuaded many to change their strategy.

It is true that for every connector in a fibre network, there is a small loss, yet as FTTP equipment volumes increase, vendors have significantly improved connector quality and performance in the network. More stringent performance standards, such as the Telcordia GR-326-CORE specification, combined with improved manufacturing processes, have resulted in:

- lower insertion and return loss
- automated tuning


- superior endface workmanship and
- vastly improved factory-termination methods.

ADC, for example, does the same performance testing on indoor connectors as it does on those destined for the OSP. With connectors today proving their reliability in the OSP, which obviously is a more extreme environment than the temperature- and humidity-controlled environment of the CO, they clearly can deliver the reliability that service providers demand throughout the network.

## SPLICE WHERE IT MAKES SENSE TO DO SO

For service providers around the world that have used a splice-only approach in their existing COs but now are aware of the benefits of using connectors, it is important to stress that the choice between splice and connectors should be made on a case-by-case basis. Although using connectors at many locations within the CO definitely adds value in terms of flexibility and lower OPEX, there is one location where splicing is the necessary option: at the CO's fibre entrance facility, specifically between the outside plant (OSP) cable and the indoor cable. That Inter Facility Cable (IFC), which runs between the splice point and the back of a pre-terminated panel on an optical distribution frame (ODF), generally is considered permanent cabling.

Except for this particular application, more and more leading service providers have concluded that connectors are a more cost-effective and flexible solution within the CO. Of those that have used a splice-only approach in the past, most now have begun to migrate toward a connectorisation strategy. By adopting a grow-as-you-go approach, many service providers now plan to use connectors not only in the CO but plan to extend that connectorisation strategy into the OSP. ■

# Efficient Data Centres through Effective Cabling

- **Halve** your data centre real estate by reducing network footprint
- **Save** space, time and money through managed density
- Pay as you grow and **save** on OPEX
- **Improve** network performance

A well designed physical infrastructure can deliver a dramatic reduction in the floor space required in the data centre. With fibre optics as the medium of choice for 40/100 Gig technologies, ADC is working with the world's top organisations to engineer fibre networks designed for reliability, speed and performance.

## ADC Fibre Plug-and-Play Solutions

Optical networks achieve peak performance with ADC's fibre solutions featuring integrated cable management and bend radius protection.

Fibre Management System

NGF

Tracer Light

MPO Cassette

Physical Layer Management

## Boost your data centre density

**To learn how it's being done today by companies around the world, download the free white paper: Designing the Optimised Data Centre at www.adc.com/in or call 1-800 425 8232**

ADC (formerly ADC KRONE) continues to be the only manufacturer of genuine KRONE products in India & SAARC

# ADC concludes 3 city workshop

Helping the Channel to approach customers as a solution provider.

Sony Bhandwalkar
Marketing Manager

ADC prides itself on the strong relationship we share with our partners. The role of a channel partner is critical to build reliability in systems integration and deliver value in a cost-effective manner. To help facilitate and share this value, ADC recently concluded a 3 city (Ahmedabad, Pune & Nagpur) work-shop for System Integrators and Network Integrators. The workshop was a great success with the participation of around 200 Delegates.

Since Ahmedabad, Pune & Nagpur cities are in a growth phase, companies across all sectors in this region are gearing up quickly to participate in the next wave of development. Network Infrastructure is unquestionably a key element that will drive and sustain this momentum. Therefore some of the value propositions ADC discussed during this workshop were;

- Implementing Effective Cabling for Efficient LAN and Data Centres
- Understanding latest Technologies and Trends in Structured Cabling
- Offering the Correct Solution and Making a Difference
- Working knowledge of ADC Products, Solutions and Differentiators

ADC also discussed the latest trends and technologies in the Structured Cabling industry and the increasing acceptance and importance of Fibre. One of the topics that saw a high level of interest among the audience was how a channel can approach a customer as a solution provider offering cost-effective, future proofed solutions that will result in faultless deployment, right from the beginning.

# for partners

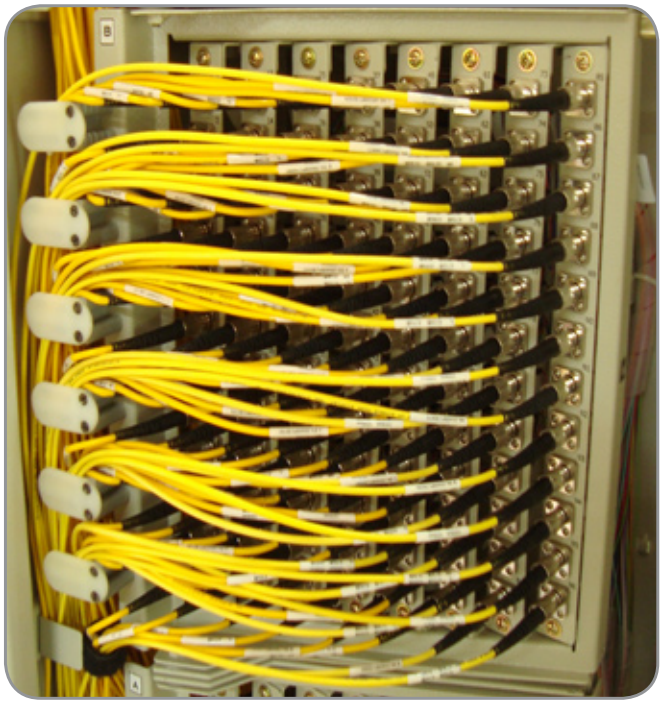
"Channel partners have always played a significant role in meeting and solving the needs of our mutual customers," says Navin Jacob Mathew, Sales Director (Enterprise Networks) for ADC India who was ecstatic with the positive response from the road shows. "We are very happy with the response and quality of in-depth discussions with partners during these workshops".

The ADC team encouraged partners to leverage ADC's strengths and emphasized the need to follow best practices during installation and deployment - Which is simple once they have become an ADC Certified Integrator.

"The sessions were very informative and it was great to meet the whole team from ADC once again. The knowledge gained would be very useful for my team to reach greater heights along with support from ADC" said Mehul Badiyani(MD, Ultima Infotech).

Whether you provide products, services, or solutions, a partnership with ADC is a major step forward in ensuring your continued business success. To know more about our Channel Partner Program, contact your nearest ADC sales representative or visit www.adc.com/in

**"...The knowledge gained would be very useful for my team to reach greater heights along with support from ADC"**



# Saving millions effective cabling in the

Navin Jacob Mathew
Director- Sales
Enterprise Networks

Any network is only as good as its weakest link. By the same token, today any business is therefore only as good as its network. Reports claim that at financial brokerage and credit card firms an hour's network downtime can cause an impact of over $15 million (have we go a source for this?). It's not a question of just uptime or downtime, but slowtime! In a cabling network data signals are extremely sensitive pulses of electrons. Basically these are a series of "on" and "off" indicators sent as a "1" or as "0". Data distorts every time the slightest error occurs. In other words if the distinction between the "on" and the "off" is unclear, the receiving equipment is unable to read the message and the transmission has to start again. It is these retransmissions which kill efficiency and cause slow time. Imagine if just 5% of data in a 100MB/s network gets re-transmitted. This nework would then have the equivalent speed of a 0.032MB/s network without any retransmissions (have we got the calculation to support this?). Defining the needs, choosing the appropriate solution, ensuring best practices during installation and testing, eventually decides how efficient your network and therefore your business is going to be.

There are few industries where the IT infrastructure is as critical as in the finance sector. For example in trader environments, a single floor can be trading in millions of Rupees every hour. Downtime can cost `millions, MACs (Move, Adds and Changes) are needed in minutes, not days. Milliseconds can make all the difference to a trader's competitive advantage. Bandwidth and low latency is key to success.

High-density solutions are also crucial, with traders needing up to 16 outlets each, maybe more, often with 10,000 outlets per trader floor. Easily re-locatable multi-outlet under-floor units are essential to facilitate rapid physical desk moves. Security is another key issue, as is the ability to generate full audit-trails of network connections and network access – helping to comply with "good governance" and legislation such as Sarbanes-Oxley and its international equivalents.

## SOLUTIONS

Category6 is the minimum standard our engineers recommend for financial services installations. With 250 MHz bandwidth, it enables video distribution as well as Gigabit Ethernet. Category$6_A$ cabling supporting IEEE802.3an 10 Gigabit/s, in both unshielded (UTP) and shielded (S/FTP) formats, gives 10 times the data capacity and video up to 500MHz. It is ideal for the comms room and data centre as well as high capacity horizontal networks.

In the financial services data centre, Category$6_A$ solution handles all data rates from 10Mbit/s right

# through Solutions Financial Sector

through to 10Gigabit/s with no reconfiguration necessary – facilitating the use of everything from legacy equipment to 10 Gigabit/s active equipment – all with a single solution. Network managers can bring all active equipment ports out onto patching frames so that active equipment like switches can be left un-touched in locked cabinets – greatly reducing the chances of accidental disconnections and potentially disastrous downtime.

In comms closets and the comms room, Glide high capacity patching frames for copper and fibre, together with FiberGuide® fibre management, provide high levels of patching-density and cable management. OM3 / OM4 multimode fibre delivers 10 Gigabit/s capabilities, while OS1 singlemode CWDM-ready fibre will allow for up to 80 Gigabit/s when the need arises. The Fibre split patch panel, with two independent 12 duplex port patch-panels in 1U housing, means that expansion capacity can be built-in without working fibres ever having to be disturbed.

For many financial services organisations only ADC can offer the true global partnership they need with a full range of shielded and unshielded solutions to meet all local country needs. Local and international support is always to hand.

To know more about specific ADC Enterprise solutions visit www.adc.com/in


**Single Family | Multi Dwelling Units | Business**

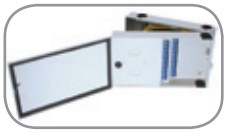
# You are here. So is ADC.

The race is on to deploy fibre deeper into the access network and deliver true 'multi-play' services.

By building network infrastructures using ADC's Fibre solutions, service providers worldwide are accelerating deployment timescales and maximizing operational efficiency from the Central Office, throughout the Access Network and all the way to-the-Home.

Implementing FTTX in India requires great attention to physical connectivity and to efficient network architecture. Operator requirements for reliable and scalable networks that easily adapt to changing customer demands can be economically delivered with flexible ADC Fibre solutions for *urban* or *rural*, *Fibre to the Cabinet* or full *Fibre to the Home* network deployments.

**Customer Premise outlet**



**Fibre Distribution Terminal**

**Joint Closure**

**Fibre Distribution Hub**

**Plug N Play Optical Splitters**

**FDMS**

To learn how it's being done today by operators around the world, download the free white paper **"Creating a Cost-Effective Plug-and-Play FTTX Architecture"** at **www.adc.com/in** or call **1-800 425 8232**