



TURBOCHARGED NETWORKS

When Powerhouse Logistics asked Comptel Australia to design a super-fast comms infrastructure they had one thing in mind – performance. This was a network that had to be able to handle the pressure of high band traffic – including live video streams. The answer was a Class F Cat-7 copper solution capable of supporting 10 Gigabit Ethernet.

ACCORDING to Peter Immerschmitt, director of Comptel Australia, his client, Powerhouse Logistics, required an open office type cabling environment with modular work-stations and offices around the periphery of the building. The cabling installation was expected to be flexible and capable of re-configuration to suit changing requirements. Powerhouse Logistics' IT manager, Julian Bakarich, insisted on a communications cabling network that would see the company well into the future.

Powerhouse Logistics is an established freight forwarding company that was moving into new premises near Australia's busiest airport – the company needed to expand and move into a new building closer to the hub of their operations. The new network needed to reflect this demand.

The applications that needed to be supported included the usual Microsoft Office Works and Email as well as VoIP and video conferencing in the future. The company also required fast connections to various external companies and government departments. The premises are located in an industrial area subject to electrical noise and heavy traffic, on the ground and in the air.

Immerschmitt's first task was to assess his customer's requirements to come up with the most appropriate cabling solution. He says that after the criteria were analysed the most practical and appropriate cabling solution was a Class F copper cabling solution. This network would meet all the client's needs while providing the lowest risk for the customer and the installation company.

Class F cabling technology is capable of

supporting all the known networking protocols including the forthcoming 10 gigabit Ethernet. After reviewing the Class F solutions available on the market, Immerschmitt selected the AMP NETCONNECT shielded twisted pair ACO solution. The Class F installation is a shielded balanced pair cabling system that is slowly gaining acceptance in the Australian market place as a future-proofed copper cabling solution.

PROJECT OVERVIEW

The ACO solution provided a number of unique advantages for this project. The solution consists of category 7 (individually and overall screened) cable, high bandwidth edge connectors rated at 2 GHz and end-user interface connectors capable of re-configuration without re-cabling. The

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distributor is a modular patch-panel that matches the flexibility of the work area interfaces.

The ACO system is compliant with AS/NZS3080:2003 Clause 5.7.5.1 which states that “for balanced cable, 2 pairs per TO may be used as an alternative to 4 pairs. Pair reassignment by means of inserts is allowed.” Furthermore, AS/NZS 3080:2003 Clause 9.3.1 states “This subclause covers cabling system implementations that may lead to the presence of multiple signals on the same cable...In the horizontal cabling subsystem, when multiple telecommunications outlets are served by a single cable, ... shall meet the requirements of 9.3.3.”

Immerschmitt says the ACO system offers maximum cable efficiency by utilizing all 4 pairs, instead of wasting half or more of the available pairs, as standard RJ-45 solutions invariably always do. ACO also offers the installer the ability to reduce termination and testing time, resulting in higher productivity.

The ACO system provides a wide range of options for the customer. These include the ability to share multiple applications on the same cable that cover voice, data and video. The individually screened pairs provide immunity from cross-talking between pairs transmitting different services as well as external electromagnetic interference. The ACO inserts are connected to external devices using standard, off-the-shelf copper patch-cords, rather than proprietary interface cords or external media converters.

Another key reason Immerschmitt selected the ACO cabling system was easy reconfiguration of the cabling system to suit changing situations. The ACO connecting hardware always presented a punch-down interface to the installer, reducing complexity, improving electrical transmission performance and utilising standard termination equipment.

A major benefit for the customer is the ability to reconfigure the work area outlets without installing new cabling or requiring specific technical support to re-terminate.

INSTALLATION REQUIREMENTS

The cabling reticulation was done using cable baskets in the main areas and catenary wires to drop into the work stations. The ACO system allowed Comptel to halve the number of cables, thereby reducing the congestion on the pathways, especially in the workstation channels and skirting ducts. The minimum bending radius of the category 7 cable (72mm) was taken into consideration by the selection of appropriate pathways.

Having fewer cables helped in reducing a potential over-crowding problem. Terminating the shielded cable on the edge connectors in the work stations was made simple by the fact that the ACO connector provides for right angle entry,

eliminating the minimum bending radius issue. The ACO outlets were terminated onto Legrand single port faceplates, specifically designed to suit these housings.

Normally, the installers view a shielded cabling system with apprehension and try to talk a client into installing an unshielded cabling system. They bring all sorts of reasons (mostly uninformed, sometimes misleading) against the shielded cabling system. These include such excuses as earthing being difficult or causing earth loops, the cable is too large requiring excessive minimum bending radii, cable termination is too complex and takes too much time and so on.

Immerschmitt maintains that testing the ACO system was a unique experience. All housings were tested using a category 7 insert. The test instrument used was the Ideal Lantek 7 Level IV device with a maximum bandwidth sweep of 750 MHz.

The customer only decided at the last instance the type of interfaces required at the work areas. Since there was no need for a 600 MHz bandwidth at the initial installation, the customer decided to install in most places a triple ACO insert consisting of a 100 Mbps port, 1 phone port and one spare port for an additional phone or facsimile if desired. All these ports were present on one ACO insert, using one, four pair category 7 cable. In other areas, a dual 100 Mbps ACO insert was installed. All these services required standard RJ-45 terminated patch-cords, rather than special plugs!

At any time, the customer could decide to change the set-up by simply replacing the insert with a simple screw-driver, without re-terminating the cables, keeping the cabling intact and eliminating the need for re-testing.

“This was our first experience with the AMP NETCONNECT ACO solution,” Immerschmitt explains. “We think it’s the best engineered cabling solution on the market and we expect to selectively implement it as the need arises.

“The client has valued the fact that they have a very flexible, reliable and maintainable cabling system that will last them for many years to come.”

