Technical Article

Tackling the Problems of Controlling the Network Infrastructure

by Krzysztof Ojdana, Product Manager, Molex

The network has evolved into an essential service within the business environment, on a par with utility services. When the network goes down in the modern office the whole workplace grinds to halt and the resultant loss can be extremely costly. With this in mind it is surprising that the average local area network (LAN) fails 20 times a year, for an average of four hours, affecting 40% of network users.*

It is a widely accepted statistic that 70% of LAN failure is attributed to cabling**. This does not mean organisations are purchasing faulty systems, on the contrary, modern cabling is a stable system which seldom fails and is backed in most cases by comprehensive long term 25 year warranties. Network failures attributed to cabling are effectively management failings in the form of poor control and documentation practices that must be addressed.

Manual paper-based or electronic systems for the documentation of network connectivity information vary in size and complexity, but as with anything relying on human discipline, they are prone to error. They all need to be updated manually but tight resource budgets and heavy workloads mean that doesn't always happen. Without an easily readable and accurate record of patching connections, fault tracing and disaster recovery in the event of a network outage can be difficult, time consuming and can delay the implementation of business continuity procedures.

Change control and the auditing of moves, adds and changes (MACs) also becomes a headache for network managers without a reliable documentation system. Network managers are often so daunted by the time and cost involved in auditing MACs that they sub-contract the whole process to a cabling installer along with a periodic network audit to establish the entire communications infrastructure connection pattern. If such an audit is not carried out regularly, it is common to find patch leads left connected to hub or switch ports even though they have no ongoing connection to the work area. With no clear way to see what circuits are in use, expensive hubs and switches are often added to a network rather than risk disconnecting a vital service.

Intelligent Infrastructure Management (IIM) systems are the latest evolution in automated documentation systems for structured cabling. IIM systems feed accurate connection information back to a software package that automatically updates records held in its database. Generally, IIM systems suit networks with around 1000 connections or more. Fewer connections than this are generally simple to manage with traditional methods although the value of data on any sized network may still make IIM systems a viable option.

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Any business with a high price associated with downtime of its network will benefit from an IIM system. A key market area includes datacentres where IIM is used successfully to prove service level agreements are being met. In financial institutions, the high cost of financial connectivity makes IIM particularly a valuable tool for infrastructure control and business continuity. In hospitals, universities and other campus setups with multiple comms rooms, IIM systems allow centralised control and the ability to see problems more quickly for an improved speed of service.

An IIM system provides the network manager with complete and 100% accurate visibility of physical connections in the communications room and uses an auto-discovery system to document network connectivity, in real time, using a centralised database. The database may be interrogated by technicians, to identify circuits accurately, speed up the MAC process and provide confirmation of accurate patching. They can be set up to inform the network manager automatically of any undesired changes to the network infrastructure.

By identifying active connections to network equipment, IIM systems can provide visibility of equipment utilisation. Spare network capacity can be tracked, so unused patch cords may be removed safely and available hub and switch ports are clearly identified, preventing both unnecessary spending on expensive network hardware and accidental disconnections.

IIM systems significantly reduce service outages and downtime by providing accurate information on network connectivity. The network manager can be notified immediately of any faults such as the precise location of a removed lead and the time it happened - making troubleshooting far more efficient. Good IIM systems also provide extended security features meaning unauthorised connections or disconnections can be reported to the network manager within seconds - by email, pager or text message. A camera can also be positioned near the patching frames to photograph the culprit. In a disaster recovery situation IIM can provide a snapshot of the full connectivity requirement of the affected organisation meaning business continuity plans may be enacted quickly and accurately.

“In business terms IIM systems add significant value to the organisation. Time not spent doing the patching paperwork can be productively spent elsewhere, in the knowledge that the automated centralised database is always accurate,” explains Rob Cardigan, Global Technical Director, Molex Premise Networks. “Accurate MACs with feedback to the technician result in the delivery of a higher level of service by the network department to the business. Automatic change notifications created by IIM systems can be customised, prioritised and integrated with existing management tools such as helpdesks, reducing response times and enhancing security. Reducing the expenditure on network hardware, and the time taken to implement it, leaves more money in the budget to spend elsewhere.”

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"Within a two-year period, most users of IIM systems will see a return on investment followed by ongoing cost savings," Rob Cardigan continues. "Furthermore, leading IIM systems such as the RealTime® solution from Molex Premise Networks ensure integration with current and future network and cabling infrastructures to protect users' investment." --

The addition of intelligence to structured cabling turns it from a flexible network resource to a powerful controlled infrastructure with benefits in terms of downtime avoidance, disaster recovery, change control,MAC processes and asset management. An IIM solution with real time feedback can make a significant reduction in the cost of ownership of communications cabling and effectively eliminate human error from the systems administration.

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