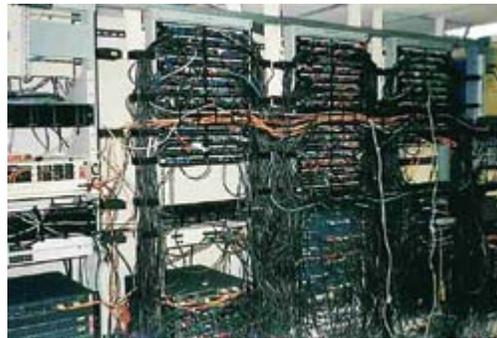




## Does cabling need intelligent monitoring?

**Maintaining control of physical layer components can be made simpler, less costly.**

*by Andre Mouton and Richard McNeese*



Most of the new mission-critical technologies, such as IP telephony and e-business, significantly impact enterprise networks, making impeccable quality of service and physical network security mandatory.

### **INFRASTRUCTURE**

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One glance at any medium-sized IT room would concern anyone having to maintain a high level of control among rows of active components, racks of patch panels, cables coming from floors and ceilings, and a jungle of hundreds of multicolored patch cords. Even more daunting is the constant change in these complex systems, with a multitude of people performing the update procedures.

Managing this constantly evolving, complex system requires accurate and rapidly available information. Therefore, cable-management systems are becoming a necessary part of the equation.

Intelligent cable-management systems (ICMS) are based on sensors embedded in the structured cabling system. The sensors forward information into a centralized database in real time. As changes are recorded, the database gathers and analyzes the information, then takes appropriate action. ICMS remove the serious limitations previously associated with managing a modern network.

A primary benefit of ICMS is real-time management of the structured cabling. At any time, accurate information is reflected during move, add and change (MAC) activities. Users can follow up on "planned MACs" by comparing them to "monitored MACs."

In an intelligent network environment, the system automatically detects items connected to the physical network, and correlates them with a log of connectivity changes and a record of device locations. By predefining the escalation process, network administrators can determine when to receive instant notification about network issues and the notification process, and detect unauthorized changes from authorized ones.

ICMS can be a useful tool when managing multiple IT rooms in dispersed geographic locations. MACs performed in remote areas on a subcontracted, ad hoc basis can compound the task of managing an IT network that spans hundreds of miles.

Asset management is another ICMS feature. Discovering the physical location of end-user devices and the status of active network equipment can enhance the end-to-end infrastructure management of an entire IT network.

Since an automated, intelligent, self-updating application is more accurate than a manual system, it can document network changes without manual intervention, detect authorized and unauthorized patching changes, and instantly alert system administrators of connectivity problems. An intelligent solution can facilitate change control and disaster recovery by self-discovering a network's patching and end devices, and detecting and documenting MACs. More efficient network management occurs from the reduction of troubleshooting, documenting, tracking, logging and reporting activities.

By having accurate, up-to-date documentation of the entire network physical layer, including all connected assets, connectivity information and status, an automated system serves as a planning tool and forms the basis for operational continuity and disaster recovery.

An ICMS should first have retrofit capability. For a cost-effective solution, the existing patch panels should accommodate the sensors, without replacing any existing network devices.

To handle specific IT network requirements, such as space, security, topology or other criteria, the ICMS should accommodate both cross-connect and interconnect environments, so the user does not have to add unnecessary patch panels. Implementing a cross-connect solution where an interconnect is required means more capital expenditure and 50% reduction in density.

An estimated 40% of the data circuits in a network require a MAC or servicing annually, with an average cost of \$300 per. The average MAC or service call takes about 90 minutes to complete, with 80% of the time spent identifying the problem and 20% actually performing the repair. By integrating an ICMS, a reduction in planning, troubleshooting and network documentation activities can be expected.

Additionally, an estimated 70% of network outages and downtime are related to cabling issues. A typical large network experiences an estimated 1.76 outages a month, at a cost one research firm determined at from \$1,000 per hour to more than \$50,000 per hour.

At the heart of an intelligent network-management system is a sophisticated database software application that discovers, maps, documents and reports the status of the network assets—from end-to-end. This network-management solution can provide: increased productivity/reduced operating costs; decreased troubleshooting; an automated network-maintenance process; management reports; enhanced service levels; reduced unscheduled downtime risk; improved network utilization; decreased response times; fewer errors; heightened security; and end-to-end network-management control.

Such a system can also track assets in real time; identify and track unauthorized changes; maintain audit logs; generate alarms or alerts upon connectivity changes; improve asset utilization; increase return on investment; utilize legacy equipment and applications; integrate existing network-management tools; detect SNMP asset status; identify unused network capacity; ensure business continuity; facilitate centralized management; develop disaster-recovery plans; and document physical-layer activity.

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