

Technical Article

Cable Wars: The Future of Cables

by Rob Cardigan and Lewis White, Molex Premise Networks - December 2005

The working environment has seen quite a transformation over recent years. Where once typewriters and telex machines formed the hub of the office, servers, email and Wi-Fi now take precedence. Today, even the fax machine is considered antiquated. But while the office space of the future will be shaped inevitably by technological advances, it will also be influenced by social factors.

Facilitated by wireless networks and an impetus on a healthy work-life balance, we have already seen a considerable rise in home working. This in turn has created more space for additional staff in the office. Hot-desking is now widespread in many larger corporations where there are often more staff than there is space to accommodate them. Additionally the increase in flexi-hours allow staff to pick and choose the hours that suit them, meaning the amount of office space that is needed at any one time can be consolidated.

Office technology

Office security is already a major issue, but developments in wireless technology and biometrics means network access will become more advanced than a swipe card or key pad. Finger print recognition and electronic tags may be necessary. Work areas will also become more restricted as the ascent of Wi-Fi heightens the need for secure access.

Network points and building management systems will change the way an office is designed, with integration playing a pivotal role. Access to any building system via any network will improve the way office facilities are run. For example, it will be possible for the lift to inform you that a lighting system needs repairing, or to access email via televisions in the reception area.

Intelligent Infrastructure Management Systems that are currently installed in many organisations can monitor systems and record changes to the physical network, but they are not integrated to the building management system. The more technology develops, the more integration we can expect between all systems, and eventually there will be complete system monitoring from any point in the building.

Computers of the future

Everything is getting smaller. It's a fact. Early computers would take up an entire room to run a processor that could make miniscule calculations in comparison to modern computers. Today, we have computers and servers that are a million times faster that can sit on our desktops. But they will get smaller still. Server space will become more web-based, meaning a company's entire hard drive can be stored on the internet, allowing desktop PCs to shrink to the size of PDAs. They will be able to dock to a monitor and keyboard on the desk and be small enough to fit in your pocket, making them truly personal. This will also make hot-desking an even more appealing prospect.

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Systems will have mirrored servers, storing information without using up valuable space on the hard drive, which will run independently of the main server. The amount of space available on the servers will be limitless because it will be web-based.

Will Wi-Fi mean the end for cables?

Cabling has been the main source of power and connectivity since the dawn of modern technology, but will wireless developments and more advanced technologies signal the end for cables? In a word, no. The biggest problem faced by wireless technology is power. Power will never be wireless, it will always require cabling to ensure that it is distributed evenly and safely.

Copper cabling will continue to form an integral part of the office infrastructure for the next 10 years and beyond. Presently, Wi-Fi and cabling go hand-in-hand in many offices. The increased use of Wi-Fi in today's market has actually contributed to an increase in the volume of copper cabling being installed. Many new office buildings are installing additional cabling for the future provision of Wi-Fi access points. In addition, there is an increased incidence in the provision of other services such as Building Management Systems (BMS) over the same cabling infrastructures as traditional voice and data. And although there is no reason why the additional services could not operate over Wi-Fi sometime in the future, structured cabling infrastructures are robust and trusted. It will be a long time, if ever, before businesses migrate to a totally cable-free world for all critical services.

Recycled cables

This doesn't mean that cables will remain the same. Currently, copper is the main component in cables but it won't always be that way, as it is a valuable resource with a limited supply. Recyclable materials will be examined for potential use in tomorrow's cables. Sand is an obvious option: it has an endless supply and is easily converted into fibre. However, it is also worth investigating the reusability of existing cables. It is thought that there are currently 10,000 tonnes of unused copper sitting under New York that could be recycled. Instead of cabling over existing infrastructure, it could be removed and reused.

Converged networks are the future

Converged networks are on their way to becoming standard network solutions. One of the main benefits of the converged network is that a single voice and data infrastructure promotes standardisation and simpler equipment management. The single network also makes life easier for businesses that are looking to implement modern ways of working using Unified Messaging and Computer Telephony Integration. Obviously, the other big advantage of the converged networks and voice over internet protocol (VoIP) is the reduction in capital expenditure for businesses that provide voice and data connectivity to satellite offices.

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Modern convergence technologies make efficient use of network bandwidth, unlike earlier technologies that dedicated bandwidth to users that were not communicating over the network. Many large organisations were initially sceptical of the robustness of the converged network, but have since been convinced as the quality and efficiency improved. As a result, many smaller businesses are now embracing the concept of a single converged network.

Cost versus convenience: the final frontier

Future networks will be shaped by various factors: technological, social and financial. Necessity is the mother of invention and the need to deliver new technologies will drive development of future networks. Initial expenditure for the customer, the traditional stumbling block of many new products, is becoming less of an obstacle to the uptake of new and smarter ways of working.

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