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Wiremold

Infrastructure Solutions for Wireless LANs

The wireless boom, which has taken hold in education and home networking, is poised for a major push into the enterprise environment. According to a TIA survey, wireless LAN technology is growing at an annual rate of 17.4%. As wireless networking becomes more prevalent, several issues relating to how components are deployed must be considered and balanced against the requirements of a system that relies on radio signals.

In a typical wireless LAN, a transceiver - known as an access point - connects to the wired network using Ethernet cable. The access point receives and transmits data between the network and wireless-enabled equipment like laptops, printers, and handheld devices. An access point functions within a range of 30 to several hundred feet, and can be installed anywhere as long as radio coverage is maintained.

Clearly, wireless LANs do not function entirely independent of wires and cables. In fact, connecting one user via wireless requires just about as much cable - and cable management - as a hard-wired LAN. Where wireless enjoys an advantage is in eliminating the need for multiple plug-in connections, and allowing users the freedom to connect to the network anywhere the radio signal is available. A wide variety of new mobile applications and the convergence of voice and data communications offer business opportunities than can only be met by wireless technology.

Wireless Challenges

In many settings, providing wireless networking involves a tradeoff between optimal placement of one or more access points and issues like flexibility, accessibility, physical security, and aesthetics. In retrofit projects, the question is how to best integrate wireless LAN technology. In new structures, this technology must be considered along with other systems during the planning process. Complicating the matter somewhat is the fact that the choice is usually not between a wired or wireless approach to business networking. Concern about security, speed, file size, reliability, and the number of potential users means that a wireless system may be used as an overlay with a wired system.

When considering wireless LAN technology in a new building or retrofit, building professionals should consider several factors relating to how the system integrates into the space.

<u>Wiring.</u> A wireless system actually requires a good deal of wiring. The only part of the system that is actually "wireless" is the gap between the access point and the computer, printer, or other device. Although access points can sometimes be added directly to an existing cabling system, very often the optimal placement requires at least some new cabling. Wireless systems that do not employ the power over Ethernet protocol also require that power be provided to the access point.

<u>Security/accessibility.</u> The physical security of wireless components, as opposed to security concerns posed by having data transmitted over the air, should also be a priority. Because wireless access points must be installed where they deliver an optimal signal, they may be exposed to inadvertent damage, tampering, and even theft. Complicating the need for security is the requirement that wireless access points remain accessible to IT personnel for possible trouble-shooting or maintenance. Also, access points may need to be relocated as space is reconfigured. Unlike many components of a wired network, wireless access points can not be permanently hidden behind walls or tucked away in remote closets.

<u>Flexibility.</u> The number of access points needed, and where they will be placed to provide optimal wireless coverage is determined by the wireless vendor/integrator. But because of factors that can affect signal transmission, including building materials, it is usually not possible to pinpoint exact access point locations until the workspace is nearly finished. For this reason, it is best to specify a flexible infrastructure to support access points.

<u>Aesthetics.</u> Because their position is determined by signal strength considerations, wireless access points represent a potential intrusion on workspace design. And concealing them above a drop ceiling is not always possible.

The Wireless Infrastructure

Wireless access points do not require extensive infrastructure, but the selection of the right infrastructure to support them reduces their impact in both new and existing buildings. In order to maximize effectiveness, wireless access points are often installed as high in a space as possible.

In a typical installation, the goal of maximum signal coverage may mean locating the access point in or above a drop ceiling. Locating it high on a wall is another option. Specially designed enclosures allow the access point to be integrated into a ceiling or placed on any wall surface. These enclosures are designed to conceal the access point, while not interfering with the signal. They combine easy accessibility with a key lock for security, and reduce the visual impact of the access point. Yet another infrastructure option is to conceal the access point in an architectural column.

Although wireless LAN systems are designed and installed by specialized vendors, specifying engineers, who bear overall responsibility for systems integration, and architects, who are tasked with creating a physical environment that conforms to

particular aesthetics standards, must be concerned with how to incorporate wireless technology into buildings.