

Zone Cabling

“Blending an old idea with new technology”

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Executive Summary

Since the early days of business communications, when the telephone was the primary communications tool, typical buildings used an older zone cabling architecture. Until recently, buildings used an open-floor office that allowed managers to peer out and watch the staff work. Cabling infrastructure design was easy and seldom changed. However, in the modern day office that reigns today (cubical cities), there are several communications devices that each worker may take advantage of in a constantly changing environment. Now office communications commonly consist of multi-line telephones, facsimile machines, dial up data modems, and computers tied to local area networks and wide area networks providing connectivity across a plethora of communications platforms.

With the advent of modern communications came the deployment of newer cabling technology such as Category-3 (CAT-3), Coaxial (RF) Distribution, Category-5/5e (CAT-5/5e), and Fire-wire to support the higher speeds and bandwidth requirements. Homerun cabling became the standard, requiring additional cabling to be installed from the distribution frames directly to the desktop every time a new service is added or developed. The type and grade of cabling used to reach from the distribution frames to the desktop became more and more important. Communications infrastructure design has now essentially become an art form with as many as six different cables distributed to the desktop.

Cabling specifications have been created or changed and developed (such as EIA/TIA 568) to standardize the future of premise cabling infrastructure design. Older institutional buildings such as schools and hospitals historically did not provide adequate space for the modern communications requirements. Ceiling and floor spaces have become intertwined nightmares of cables weighing more and more each year. This compounded with the Move, Add, and Change (MAC) requirements driven by an average employee churn rate of 30% to 60% have impacted the IT budget significantly with cabling recurring costs averaging as much as \$500 per MAC. Hence the reason for the development of the modern day zone cabling technology.

Modern zone cabling technology provides active and/or passive cabinets that allow the edge of the network to be brought very close to the desktop. In the active component

collapsed backbone configuration, hubs and switch devices are housed in cabinets that are suspended in the interstitial space of drop ceilings, typically fed with fiber optic cabling and distributed in a star typology from the zone enclosure to the surrounding desktops. Other modern zone cabling designs have active components and distribution frames built into the furniture itself such as the EthoCom product by American Access Technologies. Zone cabling enclosures have also been developed for raised floor applications basically resolving most space issues in older buildings and providing for more efficient installations in newer ones.

To further study the benefits of the different cabling technologies, an average three-story 131,000 sq.' building was chosen and it's cabling infrastructure designed and compared using both the traditional (homerun) technology, and the newer zone cabling collapsed backbone design. The technologies were compared with the benefits of each weighed and a cost analysis performed. The zone cabling technologies benefits outweighed the traditional method in installation costs, associated network downtime, and recurring costs. When compared MAC costs were \$350 for traditional cabling and \$125 for zone cabling (65% savings) when comparing 720 workstations at a 40% churn rate, the lifecycle costs could be calculated. The lifecycle savings for the cable infrastructure project were over one million dollars within the stated 15-year lifecycle.

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