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Centralized Telecommunications Rooms
Offer Economy, Security, Serviceability



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Connecting People and Places

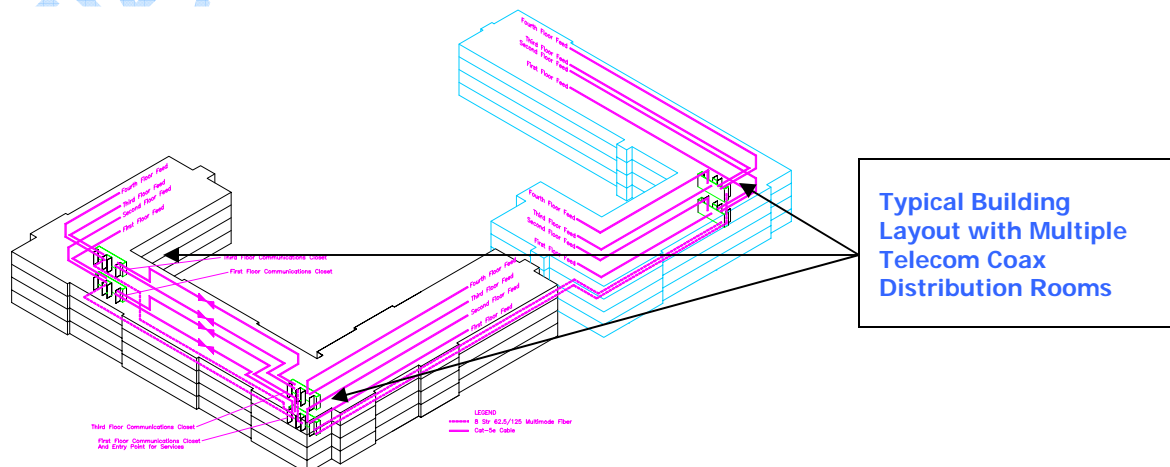
Centralized Telecommunications Rooms Offer Economy, Security, Serviceability

The Information Age's effects on Multi Dwelling Unit (MDU) Architecture have been drastic. Changes in the services delivered over cabling infrastructure have led to changes in building design and construction. Although conventional telephone and analog video systems could be distributed from pedestals, utility closets, and even the exterior walls of buildings, transition to high-speed Internet access and digital High-Definition Television (HDTV) has forced architects and builders to give up significant amounts of rentable space for "Telecommunications Rooms" and distribution equipment. These services, and all of the accompanying equipment, are now required for all types of MDU properties – Apartments, Condominiums, Hospitality, and Student Housing.

These changes are due to distance limitations caused by the higher bandwidth of new technologies, as well the requirements for active power devices at the end points of the cabling that cannot withstand temperature and environmental conditions of outdoor locations. Traditional copper data and video communication cables take up space in the limited distribution pathways available in traditional MDU construction, and they must be kept away from power wiring to minimize interference.

Signal loss and degradation in RG-6 coaxial cable limits cabling runs to 150 feet. Lower-loss cabling, such as RG-11 or rigid "hard-line" cable is very expensive, and difficult to run within an MDU environment. Therefore, many larger MDU buildings require multiple distribution points for digital and satellite video sent over copper. Internet data has a distance limit of about 300 feet over copper cabling, so multiple distribution rooms for data are generally also required.

Property Developers and Managers have resisted the need for multiple telecommunication distribution rooms, as they usually take up valuable rentable space and increase construction costs. For example, a typical floor or building level Telecommunications Room is 8' x 6' or more. This takes up 48-50 square feet of space, which could be worth \$2.00 or more per square foot per month. That means that an average room costs the owner as much as \$1,200 per year in



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lost rental income. In the condominium market this is even more pronounced as the “for sale” footage is worth upwards of \$300 per sq foot, or \$15,000 for the typical Telecommunications Room. In addition, there are costs of power, HVAC, lighting, security and maintenance.

Although fiber cabling overcomes most of these limitations, the high cost of interfacing with fiber, plus the uncertainty about fiber Standards, has made it generally impractical to use fiber for connections within a building. (Fiber has been used for many years for underground connections between buildings, particularly in areas where surge and lightning issues make copper cabling a poor choice.)

InfiniSys now has a practical solution to eliminate many of the Telecommunications Rooms, as well as improve performance and reliability.

FTTA™

The key to the new design is the Fiber to the Apartment (FTTA™) system. FTTA is an evolutionary new design that brings the capability for high-bandwidth fiber cabling directly to every Unit, offering virtually unlimited bandwidth for both video and data, as well as offering VoIP telephony, IP-based alarm security and many other new capabilities.

One of the pieces of the FTTA puzzle that finally makes it a cost-effective solution is InfiniSys' innovative use of air-blown fiber. The BloLite™ air-blown fiber system from NextGen Fiber Optics utilizes miniature tubing, about the same size as a Category 5E cable. This tubing is easy to install, as it requires much less drilling, resulting in less costly firestopping, and is immune to electrical power interference. The BloLite™ tubing is run from a single Telecommunications Room to each Unit, where it terminates in a NetworkedApartment Communications Gateway™ (NACG™).

After construction is complete, the required fibers are easily “blown” into the tubing using compressed air. Fiber can be added, removed, or replaced at any time in the future without opening walls. If the tubing is damaged during installation, it can be easily spliced with no degradation in quality.

Video Over Fiber

The second unique component of the system is a new Multi-Satellite Fiber-to-Video converter, developed jointly by InfiniSys and Foxcom, that allows multiple channels of HD video and off-air video to be delivered to each Unit over a single fiber at a practical cost.

As the demand for HD video rises, providers such as DirecTV are installing additional satellites and transponder channels, which require far greater bandwidth than coax can handle. The current systems require at least two runs of 2.2GHz RG-6 coax to each Unit. 3GHz coax is now being specified on current installations, and even that will soon be insufficient. Fiber cabling has virtually unlimited bandwidth, so property owners will no longer have to worry about obsolescence of their installed infrastructure.

Data Over Fiber

In a similar way, the increasing demand for Internet bandwidth means that Category 5E cabling may eventually be replaced by Category 6, 7, etc. InfiniSys now has practical solutions for delivering nearly unlimited bandwidth over fiber, so that applications such as VoIP, alarm monitoring, video streaming, video-on-demand and others will no longer be constrained by cabling limits.

The cost of delivering high-speed data over fiber is now competitive with the cost of copper systems, and future generations of higher-bandwidth services will make it even more attractive, since the cost of installing and terminating copper cabling is going up as bandwidth increases.

Security Over IP

Security has become a priority for residents in every type of MDU property. Alarm systems are now a required amenity in most areas. Traditional alarm systems have relied on a resident's telephone line to monitor and respond to emergencies. However, many residents no longer have hard-wired telephone service, preferring to use their cell phones. This has meant that their alarm systems could no longer be monitored.

A new generation of alarm systems uses the Internet to provide not only monitoring, but also programming and system diagnostics. Since current MDU data networks are very reliable and constantly monitored, Internet-based alarm systems are particularly attractive in MDU spaces. Servicing is much easier as well, since most programming and maintenance can be performed remotely. Alarm systems can also monitor environmental conditions, including energy management and moisture detection to prevent mold damage. Vacant Units still have alarm monitoring, without requiring the property to provide telephone service.

FTTA™ Lowers Construction Costs

The best part is that fiber can support data and video over distances of several miles, rather than the 150-300 foot limits of copper cabling. This means that a single Telecommunications Room can conceivably support an entire building, or even an entire property. Ugly pedestals and vaults can also be eliminated.

Since fiber is immune to electrical interference, surges, lightning, ground loops and other forces that can compromise copper cabling, the overall reliability of the entire system is improved.

If the fiber is accidentally damaged, the tubing can be easily repaired and new fiber blown. As needs change, additional fibers can easily be added and current fibers be re-routed.

Finally, all of that space that formerly was dedicated to distribution facilities can now be used for rentable space. This lowers construction costs, as dedicated power, HVAC, lighting and other construction costs will be reduced. Security and maintenance costs are also reduced, as all system maintenance can now be performed from a single Telecommunications Room.

FTTA-capable architecture can be added to conventional NetworkedApartment™ designs for very little more than copper-only designs. This provides the FTTA-capable BloLite duct, in addition to our standard twisted-pair and coax architecture to each Unit and all-fiber distribution between buildings. The fiber signals are converted within the NACG in each apartment and distributed throughout the apartment over coax and twisted-pair cabling.

"BloTwist" FTTA™

InfiniSys adds another twist to the FTTA architecture with "BloTwist," which combines a Category 5E cable bundled with the fiber duct under a common jacket, to allow conventional telephone service over copper cable. Since Category 5E cable will support voice services over several thousand feet, this allows minimization of Communications Rooms and a single cable pull to each Unit. This is for long-term projects, once the fiber conversion devices are in full production.



Strategic Partners

InfiniSys prefers to work with “Best of Breed” partners to develop new technology for the MDU market. For the FTTA system, InfiniSys is working with Foxcom, the leader in video distribution over fiber, NextGen Fiber Optics division of General Cable Corp. for their Blown Fiber System, OnQ Home for the structured wiring hardware, and GE Security for the IP Security products. InfiniSys Service Provider partners include Verizon Avenue and Fusion Broadband for Internet, DirecTV for satellite video and SentryNet IP Security Monitoring.

InfiniSys is currently offering both FTTA and FTTA-Ready designs.

InfiniSys is the leader in creating broadband communications and low-voltage designs for MDU properties, including student housing, luxury apartments and condominiums.

InfiniSys’ services include: Technology Assessments, Market Positioning, detailed Engineering and Design, including CAD drawings and specifications, Service Provider Contract Negotiations, Installation Project Management and Support, Quality Assurance and Post-Installation Support, including Sales and Maintenance Training.

InfiniSys is headquartered in Ormond Beach, FL, with Engineering Offices in Daytona Beach, FL and Woodland Hills, CA. For more information about InfiniSys, please visit www.electronicarchitect.com or call Mike Whaling at (386) 238-0072.

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