

Upgrading Existing Properties

What's the best way to introduce next-generation services into old properties? Retrofits can be challenging when you don't know exactly what you'll find behind the walls. An expert panel at the Broadband Summit session "Ensuring Competitive Services – Upgrading Existing Properties and Wiring" explored the complexities of bringing older buildings up to date with fiber to the home or other high-end networks.

"A 30-year-old property is our biggest challenge," said Nathan Geick, MDU director for Suddenlink Communications. "We don't want to disrupt tenants and services, and we don't know what's in there. How you take care of disruptions is important, because they *will* happen."

Gregory Austin, a sales director for AT&T Connected Communities, identified access, riser paths, firewalls and building maintenance personnel as major issues for network upgrades. "Access to the property is easy," said Verizon's Tom Clark. "Access to the apartment is difficult – [the residents] don't understand why we need it. But coax or other pre-existing wiring may be buried in the wall."

An expert panel at the Broadband Summit session "Ensuring Competitive Services – Upgrading Existing Properties and Wiring" explored the complexities of bringing older buildings up to date.

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LET THE OWNER BEWARE

Communication is key to a successful project, said Mark Bershenyi, director of contracts at Archstone Smith. "Don't try to cover up mistakes," he advised. "Let someone know on the site. And for owners – stay involved. Otherwise you could have a disaster on your hands."

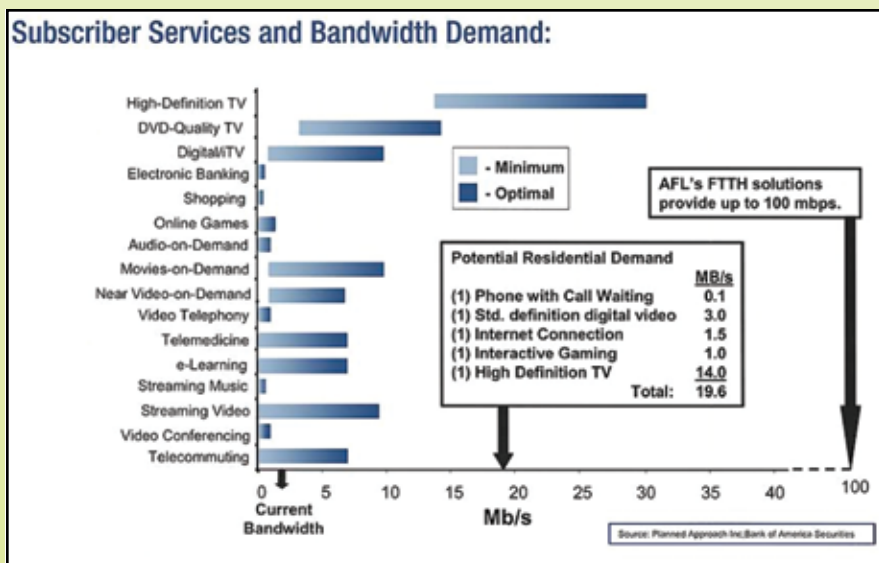
Moderator Henry Pye, representing property owner JPI Partners, agreed that owners have a responsibility to keep

a close eye on upgrades, and warned that they were liable to lawsuits if contractor errors led to fires or other damage: "If you turn your back, you deserve what you get. A FiOS overlay averages about 40 hours of work from my staff. When we didn't dedicate the resources, we learned our lesson."

Another key to success is a written planning document, said Richard Holtz, CEO of InfiniSys. Pye said planning documents should include 25 or 30 items and that all information should be verified: "What color is the raceway? What time will they install it? We had to evacuate 1,000 units when Verizon hit a natural gas pipeline because the map was wrong."

The checklist should include all of the permits needed for the work being planned, Geick said. Austin added, "Understand the fire codes. You may have to do things you don't think are necessary – there are different rules in each location, different materials required, different codes. Get into the fine details and communicate with the owner."

Both electrical and fire codes could be challenging, according to Clark. Optical network terminals must be grounded, and firestop materials have to be used when cutting holes in firewalls. "Get the inspector involved early," Geick advised. "Interpretations of the code can vary."



How much to upgrade? AFL quotes TechHome Builder data on subscriber bandwidth needs.

EVALUATING THE DESIGN

When property owners are presented with a retrofit design, how can they evaluate it? One way is to tap into local

knowledge. “You can’t be everywhere,” Bershenyi said. “I’ve never seen half of our properties – we buy and sell a lot. So when we get plans, we involve the local people. The regional managers should understand what’s at each site. Sometimes we hire a third party to evaluate, if the regional manager is in over his or her head.”

Another strategy is to question the

provider thoroughly. Clark, representing the provider’s point of view, said, “There’s no question you can ask that we won’t try to entertain. You can reject a molding – I’d rather you do that ahead of time than while we’re in the middle of an install.”

Austin pointed out that there is always a balance between cost, functionality and aesthetics, and owners must

be equipped to find that balance themselves: “You need a cost estimator on the project staff. There’s no such thing as a good crown molding. No one wants to live in a building that looks trashy.”

Geick suggested that owners ask to see photos of installations in similar buildings, and talk to owners of similar properties that had been through the same type of upgrade. And Pye said owners should give designs to potential contractors to uncover potential flaws: “There may be asbestos mixed with the caulk or the drywall.”

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ON-SITE COORDINATION

How do you decide who does the dry-wall cuts and who gets the trash picked up during a retrofit? Bershenyi advised negotiating a detailed agreement ahead of time that spells out who is responsible for what. Failure to factor in these kinds of costs can ruin a project: “When you do a walkthrough, don’t say, ‘We can do this,’ say, ‘Potential problem.’ Ask stupid questions. Otherwise you’re going to be in for a lot of heartache.”

Pye added that coordinating power issues can be a big problem. “New ser-

RBR Drop Cable Advantages

- 90° bends within an MDU/MTU**
 - The average drop install can have as many as 12 -90° bends
 - RBR offers dramatic performance improvement for bend induced Insertion Loss (See Figure 1)
 - Minimum allowable bend radius’ can go as low as 5 millimeters
- Slack Storage**
 - Some Conduit and molded raceway systems allow space where RBR cable slack can be stored similar to what is shown in Figure 2.
- Rugged Jacket Designs can be Stapled**
 - RBR fiber along with rugged jacket designs allow for a combination that can be safely stapled without compromising insertion loss (Figure 3)
- Network Install and Long Term Reliability**
 - Improved RBR bend performance will allow for faster more reliable drop installs by reducing Insertion Loss issues caused by tight bends within the drops path




Figure 1




Figure 2




Figure 3

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RBR Product Advantages

Improved Bend Performance and Reliability

- Opens the door for new smaller product offerings**
 - Smaller Backbone cable types can be used aiding in the congestion problems of many conduit locations (figure 1)
 - Smaller wall boxes can be developed accommodating tight wall space within many MDU’s (figure 2)
- Opens the door for plug-and-play systems to be introduced into MDU’s**
 - 12 fiber MTP connectors (figure 3) can be used to replace 12 single fusion splices and virtually all MDU splicing can be eliminated
 - RBR requires less space to store cable slack and can even be built into new wall box designs

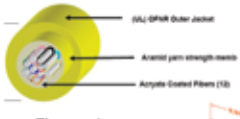


Figure 1

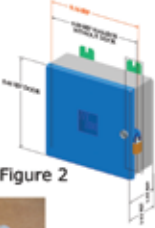


Figure 2




Figure 3

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Tom Leblanc, ADC’s product manager for FTTx and MDU products, notes that new bend-tolerant fibers allow smaller equipment footprints within an MDU.

24 Port Junction Box in Stairwell

One 24 port junction box is placed in the stairwell for every three floors. Second through 23rd floors have 7 living units each.

Fiber routed to each living unit via hallway crown molding.

Similar placement through the 23rd floor.

24 Port Junction Box

Equipment/Moldings

Interior Fiber Distribution Terminal

Splicing in progress

Splicing completed

Crown Molding in Hallway

Crown molding placed in the hallways covers the existing CATV molding.

Distributed Design: MDU ONT in Riser Closet

RESIDENTIAL Unit

Floor Plan

FDH (Fiber Distribution Hub): Optical splitter cabinet interconnecting F1 & F2 fibers.

FDT (Fiber Distribution Terminal): Interconnect for F2 and fiber drop/riser to MDU ONT.

MDU ONT: Installed in riser closet. Composite metallic drop placed from ONT to NID (Network Interface Device).

F1 (Feeder)

F2 (Distribution)

FDT

NID

Riser Closet

MDU ONT

Fiber Drop Riser

Cell 3, Se. Case Drop

MDU ONTs in Basement

Centralized Design: MDU ONTs in Basement

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Floor Plan

FDH (Fiber Distribution Hub): Optical splitter cabinet interconnecting F1 & F2 fibers.

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MDU ONT: Installed in basement. Composite metallic riser and drop placed from ONT to NID (Network Interface Device).

F1 (Feeder)

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FDT

NID

Riser Closet

MDU ONTs

Fiber Drop Riser

Cell 3, Cell Se and Case Drop

Verizon offers several MDU upgrade technologies; in some, each ONT serves an individual unit and in others an ONT serves multiple units. Note the care in planning – both for the overall design and for the detail work.

idents – they may hit power or water in the subfloor.”

Pye said, “Don’t say, ‘We’ll deal with it as it comes up.’ This will multiply the costs and cause delays.”

UPGRADING NETWORK WIRING

Should owners upgrade wiring at their own expense? Sometimes there is a good argument for doing this, the experts said. Bershenyi: “If bandwidth is lim-

ited by the wiring, you’re in trouble.”

And Pye: “I’ve rewired where I would get returns in bulk fees.”

The owner may have to rewire if the telecom operator feels it is too risky or

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cost prohibitive. Austin said AT&T was cautious about rewiring buildings for U-verse installations because it had no way of knowing how the wiring was run.

Geick pointed out that conditions like asbestos in the walls discouraged telecom operators from touching the wiring. In cases like this, Suddenlink hires the building staff after hours, or a local contractor who is more familiar with the building.

And if the building is being rewired, should installers avoid electrical problems by using fiber instead of copper? "We would love to do that – it's better technology," Austin said, even though AT&T's official policy is that fiber to the node is good enough. "But some owners don't want it," he added.

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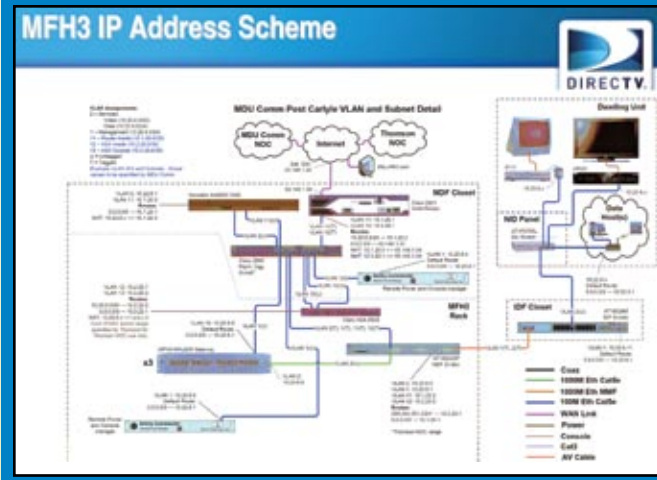
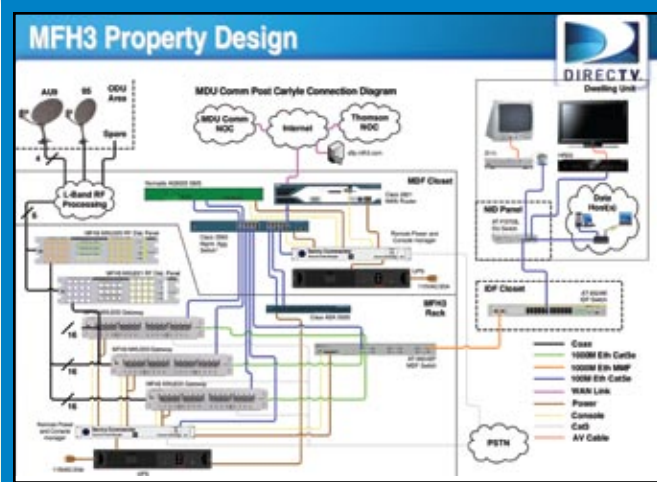
Geick agreed: "Go as deep with fiber as possible. You don't want to have to come back again to [improve the network to] sell additional services."

EXPANDING CHOICES

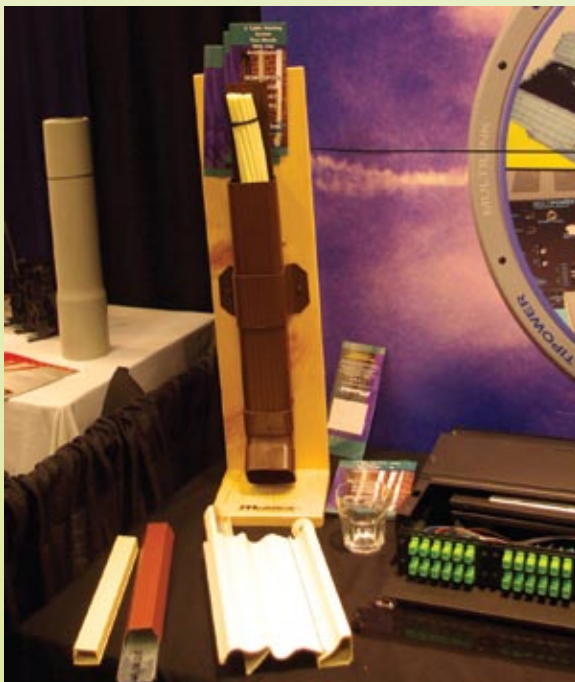
How important is it to bring multiple competing providers to a property? "Our approach is to expand choice," said Bershenyi. But Pye warned that choice is not always possible: "Most properties more than seven years old probably have to be upgraded for cable, too. We have to make sure we can deliver at least one triple-play service." **BBP**



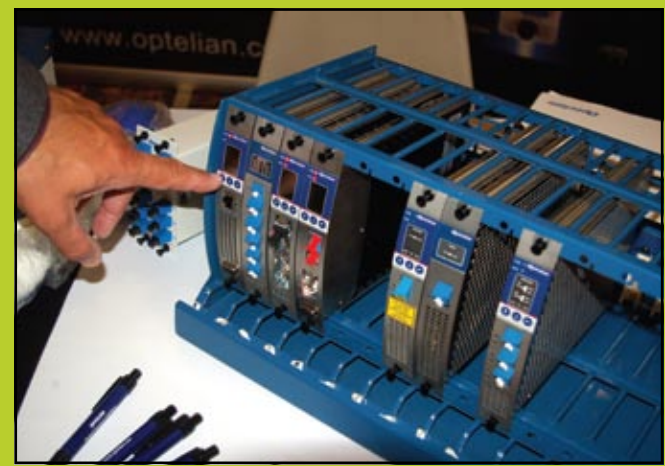
Full-function optical mini-nodes like these can be mounted almost anywhere in an MDU.



DIRECTV MFH3 solution for Post Carlyle Square luxury highrise in Alexandria, Virginia, installed early last year and upgraded last June. This is a three G/W solution delivering all available DIRECTV services (HD, SD, VoD, Media Share, etc). Multimode fiber carries the signal between the headend and each IDF closet; from there Cat 5e Ethernet connects to a 5- or 8-port Ethernet switch inside each unit.



Multilink has many tricks for hiding cable inside and outside the MDU.



Modules now fit into very little rack space; these are from CableTronix and Optelian.



A small glimpse of Telect's new modular solution for MDU wiring.



This tiny 1x8 cassette splitter from Montclair Fiber Optics finds its way into FTTB and FTTH inside and outside plant.



Active electronics are also getting smaller. This ATSC/QAM demodulator is from Blonder Tongue.