

# FTTH in Multi-Tenant Environments: Some Regulatory and Competitive Questions

Do the FCC's "inside wiring" rules apply to telcos delivering triple play over fiber?

By Carl E. Kandutsch ■ *Ph.D., J.D.*

The great benefit of pushing fiber outward to the First Mile – to the edge of communications networks and onto the customer premises – is that due to its unlimited bandwidth capacity, FTTH promises to eliminate the physical bottleneck between carrier facilities and the customer premises.

The danger is that given the natural monopoly characteristics of FTTH, a dearth of facilities-based competition among multiple providers could replace the physical bottleneck with a control bottleneck.

Nowhere is this danger more evident than in the multi-tenant building environment, which the FCC has sought to address by means of service-specific rules governing the disposition of cable video and telephony inside wiring. Both the FCC and the state public utility commissions should be aware of the uncertainties involved in applying those legacy rules to triple play services provided over next generation facilities, in order that the rules may be adjusted where necessary to ensure that pre-broadband monopoly behavior is not reborn from the ashes of deregulation.

## A Little History

Over the last few years, the Federal Communications Commission has taken a number of affirmative steps to deregulate providers' broadband services. These deregulatory efforts are based on the assumption that incumbent owners of "last-mile" transmission facilities once had both the ability and incentive to monopolize the services delivered over those facilities, but that they no longer do.

For example, in 2000, the FCC ruled that cable operators need not allow un-

affiliated ISPs to connect to their local cable facilities to provide Internet access via cable modem to subscribers. In June 2005, the United States Supreme Court endorsed this ruling.<sup>1</sup> Since then, the FCC ruled that following a one-year transition period, incumbent local exchange carriers ("ILECs") will no longer be required to share with competitors the facilities used to provide xDSL service to millions of subscribers nationwide.

Under these rulings, neither cable operators nor ILECs are treated as common carriers when they provide broadband Internet connectivity. The FCC's policy of deregulation is based on the assumption that with at least two wires leading to most homes, it no longer makes sense to consider first-mile broadband facilities a "bottleneck" preventing new entrants from reaching customers.

But the situation with respect to multi-tenant buildings, including MTEs and MDUs,<sup>2</sup> is more subtle and more complicated, due to the presence of a third party between the service provider and the customer – namely, the property owner. There are several factors that uniquely affect multi-tenant environments with bottleneck characteristics, and given the fact that as many as one-third of all Americans live in MDUs, competition in MDU markets is a matter of national importance.

In multi-tenant buildings, for example, the owner has the ability to control providers' access to the building, thus limiting the customer's choice among providers. Many MDU owners have signed long-term exclusive building access agreements with incumbent carriers, and such agreements may effectively block any possibility of competition for an extended time period.

Moreover, the existing wiring in older properties is often not suitable for the delivery of new broadband services. Thus, even if a competitive provider gains access to the multi-tenant building, the private cable operator (PCO) or CLEC (Competitive Local Exchange Carrier) faces the expense of installing parallel wiring or upgrading the existing wiring, when it is unclear which party (the competitive provider, the MDU owner or the incumbent) has the legal responsibility for needed upgrades. These characteristics often allow incumbents to leverage their control over in-building wiring to suppress competitive entry into multi-tenant properties.

## FCC Rules for MDU-Specific Cases

In order to ensure the existence of competition in MTE/MDU markets, the FCC has promulgated a number of rules that are specific to the multi-tenant context for both video and telephony. These rules are designed to address the bottleneck control exerted by building owners and incumbent providers over competitive access to commercial and residential customers in multi-tenant buildings. In this article, we focus on the rules applicable to residential buildings.

With regard to video, the FCC's cable inside wiring rules allow the MDU owner, in some circumstances, to gain control over the existing in-building wiring, and make it available for use by a competing video provider.

With respect to telephony, FCC rules promulgated in 2000 provide the MDU owner with the right to control the location of the demarcation point, the boundary that separates the ILEC's distribution plant from on-premises wiring under the control of the owner.

While the application of the cable inside-wiring rules and the telecommunications demarcation point rules is fairly clear when dealing with traditional video and telephone services respectively, the deployment of fiber-to-the-home (FTTH) facilities<sup>3</sup> in MDU properties to deliver “triple play” services, including digital video, voice and data, raises a host of questions regarding the possibilities of broadband competition in multi-tenant environments.

These questions, involving both the legal as well as the physical characteristics of FTTH networks, provide a classic example of legacy regulatory structures lagging behind technological developments in the age of media convergence.

The great promise of FTTH is based on the fact that a single pathway can support multiple broadband services all the way to the customer premises. But that same fact threatens to render unusable the FCC’s service-specific rules developed to ensure the existence of competition in MDU properties. The benefits of media convergence finally realized via FTTH should not have to be purchased at the price of restoring the monopoly or duopoly provision of the converged services.

This article does not purport to answer the questions, but, as a first step, to identify some of the central issues involved in multi-tenant environments. We begin by providing some background on the FCC rules specifically designed to facilitate video and telephone competition in multi-tenant environments, and then attempt to identify some of the difficulties involved with applying those rules to FTTH networks in multi-tenant buildings.

### **Cable Television Inside Wiring**

The FCC’s rules governing the disposition of cable inside wiring are designed to enhance MDU competition by relieving the bottleneck created by the incumbent’s control over in-building wiring. These rules, found in the Code of Federal Regulations at 47 C.F.R. § 76.800, *et. seq.*, allow an MDU owner to force the incumbent cable television provider to sell, abandon or remove ex-

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isting home run wires (extending from the lockbox to individual subscriber units<sup>4</sup>), when the incumbent has no ongoing contractual or state statutory right to control those wires for the provision of cable service to MDU residents. By invoking the cable inside wiring rules, the MDU owner can make the existing wiring available for use by competitive video providers either on a building-by-building or a unit-by-unit basis.

To illustrate the potential competitive problems associated with FTTH in MDUs, consider first the dilemma of an MDU owner contemplating an access agreement under which one of the former Bell companies (RBOCs) would install fiber optic facilities in order to provide “triple play” services to tenants, including interactive digital television, voice and Internet connectivity. The property owner may wonder first whether agreeing to allow the RBOC access to the building would violate an existing right-of-entry agreement with the incumbent cable operator. And, in the event that the RBOC is allowed in, the owner may wonder whether down the road, he may bring in an alternative provider (such as a private cable operator or “PCO”), in the event that his tenants are dissatisfied with the RBOC’s services.

The answer to the first question depends on the precise language used in the incumbent’s right of entry agreement. If the agreement gives the incumbent cable operator an exclusive right to provide video or broadband services regardless of the technology used, the owner would probably violate that agreement by allowing (for example) Verizon’s FiOS

service to the property. However, if the existing right-of-entry agreement only applies to “cable television,” Verizon’s FiOS service *may be* permissible, to the extent that FiOS video is not “cable television.” At this time, we do not have a clear answer to this question, for reasons described below.

The answer to the second question depends on the scope of the RBOC’s access agreement with the owner (that is, whether or not the agreement gives the RBOC exclusive access), and whether or not the owner may utilize the FCC’s cable inside wiring rules to make the internal wiring infrastructure available for use by a competitor. In the next section, we address the second question.

### **Do Cable Inside Wiring Rules Apply to Telco Video?**

The legal definitions are seemingly precise.

The FCC put it this way: The rules governing the “building-by-building” disposition of cable home run wiring apply “[w]here an MVPD owns the home run wiring in an MDU and does not (or will not at the conclusion of the notice period) have a legally enforceable right to remain on the premises against the wishes of the MDU owner...”<sup>5</sup> Thus, the owner of an FTTH-wired building may rely on the inside wiring rules to the extent that the RBOC provider is an “MVPD.”

An MVPD is a “multichannel video programming distributor,” defined by the FCC as a “person such as, but not limited to, a cable operator, a multichannel multipoint distribution service,

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a direct broadcast satellite service, or a television receive-only satellite program distributor, who makes available for purchase, by subscribers or customers, multiple channels of video programming.”<sup>6</sup>

A “cable operator” is someone who provides “cable service” over a “cable system.”<sup>7</sup> “Cable service” refers to “(A) the one-way transmission to subscribers of (i) video programming,<sup>8</sup> or (ii) other programming service, and (B) subscriber interaction, if any, which is required for the selection or use of such video programming or other programming service.”<sup>9</sup>

A “cable system” is “a facility, consisting of a set of closed transmission paths and associated signal generation, reception, and control equipment that is designed to provide cable service which includes video programming and which is provided to multiple subscribers within a community, but such term does not include ... (C) a facility of a common carrier which is subject, in whole or in part, to the provisions of title II of this Act,<sup>10</sup> except that such facility shall be considered a cable system (other than for purposes of section 621(c))<sup>11</sup> to the extent such facility is used in the transmission of video programming directly to subscribers, unless the extent of such use is solely to provide interactive on-demand services ...”

To return to our example, is the RBOC using FTTH to deliver triple play services to MDU residents subject to the FCC's cable inside wiring rules?

Clearly, the FCC's inside wiring rules are agnostic as far as the technology used. The fact that home run wiring may consist of fiber optic cabling rather than traditional coaxial does not in itself exempt

those wires from subjection to the FCC rules, because those rules are triggered by the nature of the service being provided. Specifically, the rules apply only if the RBOC in our example is a “multichannel video programming distributor” or MVPD. Parsing through the labyrinth of definitions, an RBOC can be an MVPD if it is offering video programming directly to “multiple subscribers in a community,” unless the offering consists of “on-demand interactive services.”

In other words, a common carrier such as a Bell Company may offer video services to subscribers without being regulated as a cable operator to the extent the offering consists of “on-demand interactive services.” The FCC's cable inside wiring rules do not apply to an RBOC's inside wiring, as long as it is used to provide such on-demand interactive services.

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Current RBOC video services, such as Verizon's FiOS, bundle traditional cable television programming with IP-enabled services including digital cable, video-on-demand, digital video recorders, interactive programming guides, and, in the near future, other interactive video features.<sup>12</sup>

Verizon and SBC (now AT&T) have each filed petitions urging the FCC to declare that broadband services provided via fiber to the premises will not be regulated as a “cable service,” such that firms offering such services need not negotiate with local governments for a cable franchise. FCC chairman Kevin Martin has indicated that the commission will act to classify IP-based television for regulatory purposes during 2006.<sup>13</sup> It seems likely that IPTV will be classified as an unregulated “information service,” along with most other broadband services such as high-speed Internet activity (via DSL and cable modem) and VoIP.

If IPTV is classified as an information service, the FCC should consider the implications of that classification upon competition in MDUs, and adjust the cable inside wiring rules to preserve that competition.

### Telephony Demarcation Point Rules

If it is unclear how the FCC's cable inside wiring rules may apply to FTTH facilities in MDU properties, it is no more clear how the FCC's demarcation point rules for telephony might apply in the same context. The question is whether and how an MDU owner might use the demarcation point rules to gain control over on-premises FTTH wiring in order to make it available for use by a competitor.

The FCC's involvement with the regulation of telephony inside wiring has a long history going back to pre-divestiture AT&T's resistance to the use of non-AT&T equipment in connection with AT&T networks.<sup>14</sup> These disputes were ultimately resolved by promulgation of Part 68 of the FCC's rules, allowing telephone customers to connect non-proprietary equipment to the publicly-switched-telephone-network (PSTN) in the mid-1970s.

As a part of that effort, the FCC established the concept of a "demarcation point," defined as the boundary between deregulated inside wire, controlled by the building owner, and regulated ILEC facilities at the edge of the public switched telephone network (PSTN).

While the demarcation point was clear in single-family dwellings, multi-tenant buildings presented problems, where, for example, the customer premises might be on the tenth floor, but ILEC wiring entered the building through the basement.

To address these problems, the FCC defined the Minimum Point of Entry (MPOE) as either the closest practicable point to the location where the wiring crosses a property line, or the closest practicable point to the location at which the wiring enters a multi-unit building.<sup>15</sup>

A key point: The FCC did not require that multiple subscriber demarcation points within an MDU or MTE be located at the MPOE. Rather, the demarcation point for multi-unit buildings was to be located according to the ILEC's "reasonable and non-discriminatory practices."

In buildings built after August 13, 1990, the ILEC was permitted but not required to "establish a reasonable and nondiscriminatory practice of locating the demarcation at the" MPOE. The ILECs were able to exploit ambiguities in the rules by refusing to clarify exactly where their MTE/MDU facilities terminated and the owner's dominion began.

As long as the location of the demarcation point could not be determined with certainty, CLECs could not negotiate directly with building owners for the use of on-premises wiring.

The Telecommunications Act of 1996 allowed CLECs to lease unbundled loops from the ILECs, and defined the local loop according to the location of the network interface device (NID) at the customer end of the loop. But ILECs were still able to deny CLECs' access to MDU/MTE riser cables because in many buildings, ILEC equipment did not include a NID.

In this situation, ILECs could claim that the demarcation point was located at the subscriber's individual premises, forcing CLECs to lease extended lengths of in-building cable in order to reach any customers, no matter how few, who chose the CLEC's services.

In its 1999 *UNE Remand Order*,<sup>16</sup> the FCC attempted to redress this situation by (1) defining the NID as a function-

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## ***The salient question surrounds the extent to which an MTE/MDU owner can rely on the FCC's telephony rules for inside wiring, once the building is wired for FTTH. As with video, the answer to that question is less than clear.***

ality rather than a specific device, and designating the NID as a stand-alone network element available for leasing by CLECs; and (2) requiring sub-loop unbundling of on-premises wire, whether owned or merely controlled by the ILEC.<sup>17</sup> With regard to (2), the FCC re-defined the loop to extend from a distribution frame in the ILEC central office to the demarcation point.

Following the *UNE Remand Order*, the FCC's next step in freeing up telephone competition in MTEs occurred with the *Competitive Networks Order* in October 2000.<sup>18</sup> Among other accomplishments, the *Competitive Networks Order* simplified the process for relocating the telecommunications demarcation points.

The *Competitive Networks Order* is intended to address the MDU/MTE bottleneck described at the outset of this article:

"The record ... indicates that incumbent LECs are using their control over on-premises wiring to frustrate competitive access to multi-tenant buildings. Competitive LECs report that they have encountered difficulties with incumbents when attempting to arrange for interconnection or lease unbundled network elements."<sup>19</sup>

Most of the "difficulties" referred to stem from the CLECs' inability to access that portion on the on-premises wiring between the MPOE (generally located at the NID) and the point where ownership or control of the wiring is clearly in the domain of the building owner. Access to that portion of the on-premises wire is seen as crucial to competition in MTE buildings, under one of two CLEC business models:

CLECs leasing ILEC sub-loops (or reselling ILEC services) as a network element under Section 251 of the Telecommunications Act prefer that the riser cable in multi-tenant buildings remain an ILEC responsibility all the way to the subscriber premises. CLECs providing DSL services, for instance, depend on the ILEC for loop conditioning that is unlikely to be provided by the building owner.

On the other hand, CLECs using their own distribution facilities prefer that the demarcation point be located at the MPOE, either outside the building or at a single central location such as the basement, allowing the CLEC to negotiate with the building owner directly regarding the terms and conditions of access to subscribers.

The *Competitive Networks Order* revised the FCC's demarcation point rules in order to give the building owner more control over the on-premises wiring. Specifically, the *Order* requires that the ILEC relocate demarcation points to the MPOE when requested by the MTE owner.<sup>20</sup>

By relocating the demarcation point to the MPOE (located at the property line), the building owner can (in theory) assume control over all the on-premise wiring, including the distribution plant between commonly owned buildings, and make it available for use by competing telecommunications providers.

The *Order* also attempts to deal with the ILECs' exploitation of ambiguities surrounding the location of the demarcation points. In buildings where neither the owner nor the ILEC knows exactly where the demarcation points are located, the ILEC is required to produce this information within ten business days of the owner's request. If the ILEC fails to provide the information, the building owner may presume that the demarcation point is located at the MPOE.<sup>21</sup>

Furthermore, the FCC rejected arguments that building owners should be required to negotiate with ILECs regarding relocation of the demarcation points. Rather, an owner's request to move the demarcation points immediately triggers an ILEC obligation to comply with the request in a "reasonably timely and non-discriminatory manner."

Although the rules do not establish a specific deadline for relocation of the demarcation points, the parties are required to complete negotiations (regarding the terms and procedures for relocation) within 45 days after the owner's initial request.<sup>22</sup>

Once again, however, the FCC considered but did not adopt a uniform rule equating the demarcation point for all buildings at the MPOE. The commis-

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sion was concerned that such a uniform rule would disadvantage CLECs that rely on leasing unbundled MTE sub-loops for access to tenant customers. UNE-based competition might be threatened if ILECs were uniformly relieved of responsibility for on-premises facilities such as riser cable, thus having owner control over inside wire began in the basement or at the property line.

On the one hand, "placing the demarcation point at the MPOE would eliminate the potential for [ILEC] abuses by permitting competitive carriers to obtain access to inside wiring by dealing solely with the premises owner."

On the other hand, "the record indicates ... that establishing the demarcation point at the MPOE would disadvantage those competitive LECs that rely on leasing unbundled loops, including most DSL providers, by limiting the availability of the inside wire as part of the loop element. Currently, where the demarcation point is at or near the customer's unit, competitive LECs may obtain access to the incumbent LEC's existing inside the building as part of the unbundled loop (or as a separate sub-loop element). Relocation of the demarcation point to the MPOE, however, would result in a decrease in the amount of wiring within the building that is available to competitive LECs as part of the loop, which by definition ends at the demarcation point. Thus, competitive LECs that rely on unbundled loops would have to negotiate with both the incumbent LEC and the building owner for each building they seek to serve, thus increasing their costs significantly."<sup>23</sup>

For these reasons, the FCC decided to leave demarcation point relocation to the MPOE within the discretion of the building owner, to be exercised on a building-by-building basis.

Before leaving the *Competitive Networks Order*, it is worth noting that in addition to revising the demarcation point rules, the FCC took other actions to enhance competition in multi-tenant buildings, including banning exclusive access agreements in commercial MTE buildings, prohibiting private and gov-

ernmental restrictions on users' ability to use fixed wireless antennas to receive telecommunications, and requiring electric utilities and ILECs to provide non-discriminatory access to ducts and conduits within MTE/MDU buildings.

### Application of Telephony Demarcation Point Rules to FTTH in MDUs

Similar to the video context, the salient question surrounds the extent to which an MTE/MDU owner can rely on the FCC's telephony rules for inside wiring, once the building is wired for FTTH. As with video, the answer to that question is less than clear.

The FTTH architecture being deployed by RBOCs to single-family homes generally involves laying fiber to distribution hubs, typically serving fewer than 10 multiple homes. From there, the fiber runs to a fiber distribution terminal, and then to an optical network terminal (ONT) located at the customer premises. From the ONT, signals are sent over separate wires for voice, video and data respectively.

Verizon has been using the same ONTs used for single-family homes in multi-tenant residential buildings. Depending on the location of the power source, the carrier strings fiber from fiber distribution hub (FDH) cabinets on the building's exterior (for smaller MDUs), or in the basement or attic (for larger buildings), and then to the customer's unit, placing ONTs in wiring closets or bedroom closets. The fiber runs inside wall-mounted channeling from one closet to the same closet on the next floor.<sup>24</sup>

Verizon is currently testing new MDU-specific ONTs that don't require fiber extending to each customer's closet. These MDU ONTs will each serve sixteen units and be located in the building's basement and connect to customers using existing wires: twisted copper pairs for voice and DSL data (or 10/100 Ethernet if the wiring is available) and coaxial cable for video. There are reports that in some over-build situations, at least one RBOC is removing the existing copper wiring from MDUs as they install fiber facilities.<sup>25</sup>

As described above, competition in MDUs has historically been primar-

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## ***With regard to fiber installations in MDU buildings, the RBOC is in almost complete control over the demarcation point. As long as the RBOC is deploying customer-specific ONTs at or near the residential unit, the demarcation point is located at the customer premises.***

ily based on either of two models: The CLEC can lease the MDU sub-loop as an unbundled network element, or the CLEC can connect its own facilities to the MDU-controlled on-premises wire at the MPOE. It was in order to preserve the first model that the FCC decided not to establish a uniform MDU demarcation point at the MPOE in the *Competitive Networks Order*.

In its 2003 *Triennial Review Order*, however, the FCC ruled that ILECs' FTTH loops are not subject to the unbundling obligations of Section 251 of the 1996 Telecommunications Act.<sup>26</sup> In 2004, the commission extended that unbundling relief to fiber to the curb (FTTC) loops,<sup>27</sup> holding that fiber deployed to MDUs qualifies as an FTTH loop, and is not subject to unbundling requirements.<sup>28</sup>

The rules specify that in overbuild scenarios, the ILEC must either provide unbundled access to a 64 Kbps transmission path over the fiber loop, or unbundled access to a spare copper loop if the copper is not removed. However, that capacity is not nearly sufficient to allow the CLEC to provide triple play services, which typically require 60 to 100 Mbps. For hybrid copper/fiber loops, ILECs need not unbundle the packet-switched capabilities of these loops, but must provide unbundled access to any TDM (time division multiplexing, the way carrier phone lines carry multiple voice streams) features, functions and capabilities for requesting carriers seeking to provide broadband services. When a requesting carrier seeks access to a hy-

brid loop to provide narrowband service, the ILEC may either provide unbundled access to an entire hybrid loop capable of voice grade service *via* TDM technology, or provide unbundled access to a spare copper loop.

These regulatory changes mean, in effect, that the first model for MDU competition mentioned above – leasing MDU on-premises wiring as an unbundled network element – is not viable where the ILEC installs on-premises fiber in an MDU building.<sup>29</sup>

What then are the prospects for MDU competition under the second model?

It is fair to say that with regard to fiber installations in MDU buildings, the RBOC is in almost complete control over the demarcation point. As long as the RBOC is deploying customer-specific ONTs at or near the residential unit, the demarcation point is located at the customer premises.

Whether or not the use of the MDU ONTs will alter the competitive landscape by restoring some measure of control to the building owner remains to be seen. What is clear, however, is that MDU owners have little bargaining power when dealing with RBOC proposals for the installation of FTTH

facilities in their buildings, and CLECs have even less.

From a practical and competitive standpoint, the best solution would be for the RBOCs to deploy MDU ONTs in the riser or building communications closets (also known as the intermediate distribution frames) at every building in a garden style or on the floors in a high-rise building.

This is the functional equivalent of what, in cable parlance, is called the lockbox – the point at which the cable home run wiring begins, distributing the signal from there to individual residential units.

The prospects for competition would be enhanced if uniform demarcation points were established for FTTH-wired MDUs, either by industry custom or by regulation if needed, at the location where the home run wiring begins, vesting in the MDU owner over the home-run and inside wiring from that point to the customer premises.

The competitive problems associated with fiber to the MDU may not be obvious for the moment. Negotiating with the RBOC to bring fiber into a building is easy; the difficulties will arise later, once the building is wired. The problem is that the technical and legal terms on which fiber is installed may leave the owner with few options for getting the incumbent out, and bringing a new provider in, should the RBOCs services prove any reason unsatisfactory. **BBP**

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### **About the Author**

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## ***CLECs providing DSL services... depend on the ILEC for loop conditioning that is unlikely to be provided by the building owner.***

## References

<sup>1</sup> See, *National Cable & Telecommunications Ass'n v. Brand X Internet Servs.*, 125 S.Ct. 2688 (2005). The *Brand X* decision is summarized in Kandutsch, "Supreme Court's Brand X Decision Raises Questions," published in the August 2005 issue of *Broadband Properties*.

<sup>2</sup> "MTE" refers to "multiple tenant environment," and "MDU" means "multiple dwelling unit." The FCC often uses the term MTE when discussing telephony, the term MDU in connection with cable television. In this article, we use either or both terms as appropriate. Our focus is on residential buildings as opposed to commercial properties.

<sup>3</sup> "FTTH" as used in this article does not refer to any particular network architecture, but generically to designate a number of distinct strategies carriers use to deploy fiber at or near the customer premises. These strategies continue to evolve.

<sup>4</sup> As used in this article, the term "home run wiring" is defined in 47 C.F.R. § 76.800(d).  
<sup>5</sup> 47 C.F.R. § 76.804(a)(1). The rules for "unit by unit" disposition of home run wiring apply when an MVPD lacks a "legally enforceable right to maintain" home run wires extending to particular residential units in an MDU.

<sup>6</sup> 47 U.S.C. § 522(13).

<sup>7</sup> 47 U.S.C. § 522(5).

<sup>8</sup> The term "video programming" means "programming provided by, or generally considered comparable to programming provided by, a television broadcast station." 47 U.S.C. § 522(20).

<sup>9</sup> 47 U.S.C. § 522(6).

<sup>10</sup> Title II refers to 47 U.S.C. § 201, *et. seq.*

<sup>11</sup> 47 U.S.C. § 541(c).

<sup>12</sup> Verizon's all-optical FTTP pathway uses three light beams, and all three beams are used to support the FiOS video, one beam for downstream video delivery, a second beam carrying voice, data and instructions upstream from the customer, and a third beam delivering voice, data, and video-on-demand downstream to the customer.

<sup>13</sup> "Martin: FCC to Classify IP Video," Light Reading, June 9, 2005.

<sup>14</sup> See, *Hush-A-Phone Corp. v. U.S.*, 238 F.2d 238 (D.C.Cir. 1956); *Use of the Carterfone Device in Message Toll Telephone Service*, 13 F.C.C.2d 420 (1968).

<sup>15</sup> 47 C.F.R. § 68.105(b).

<sup>16</sup> *In the Matter of Implementation of the Local Competition Provisions of the Telecommunications Act of 1996*, 15 FCC Rcd 3696 (1999).

<sup>17</sup> On-premises wiring is the same as "inside wire," meaning, "all loop plant owned by the incumbent LEC on the end-user customer premises as far as the point of demarcation as defined in § 68.3, including the loop plant near the end-user customer premises." 47 C.F.R. § 51.319(a)(2)(A).

<sup>18</sup> *Promotion of Competitive Networks in Telecommunications Markets*, First Report and Order and Further Notice of Proposed Rulemaking in WT Docket No. 99-217, Fifth Report and Order and Memorandum Opinion and Order in CC Docket No. 96-98, 15 FCC Rcd 22983 (2000).

<sup>19</sup> *Competitive Networks Order*, ¶ 19.

<sup>20</sup> *Id.* at ¶ 54.

<sup>21</sup> *Id.* at ¶ 56.

<sup>22</sup> *Id.* at 55; 47 C.F.R. § 68.105(d)(3).

<sup>23</sup> *Id.* at ¶ 51.

<sup>24</sup> Ed Gibbons, "Verizon's FTTP 'Moving on Up' to Tackle Tough MDU Market," Telephone Online, Sept. 5, 2005.

<sup>25</sup> <http://gigaom.com/2005/10/14/verizon-fios-insures-future-monopoly/>

<sup>26</sup> Report and Order and Order on Remand and Further Notice of Proposed Rulemaking, *Review of the Section 251 Unbundling Obligations of Incumbent Local Exchange Carriers*, 18 FCC Rcd 16,978 (2003), ¶ 285-297.

<sup>27</sup> Order on Reconsideration, *Review of the Section 251 Unbundling Obligations of Incumbent Local Exchange Carriers*, CC Dkt. No. 01-338 (Oct. 18, 2004).

<sup>28</sup> Order on Reconsideration, *Review of the Section 251 Unbundling Obligations of Incumbent Local Exchange Carriers*, CC Dkt. No. 01-338 (Aug. 9, 2004).

<sup>29</sup> In a similar context, the U.S. Department of Justice has alleged that the proposed SBC/AT&T and Verizon/MCI mergers would violate antitrust laws by substantially reducing competition in markets for Local Private Lines to commercial buildings where either one of the two merged firms owns the majority of last-mile connections to those buildings. See, DOJ Press Release (Oct. 27, 2005) at [http://www.usdoj.gov/atr/public/press\\_releases/2005/212407.htm](http://www.usdoj.gov/atr/public/press_releases/2005/212407.htm).

# When You Need

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# Glossary

## Structured Cabling

**Facilities** are that part of the wire, cable, fiber, and equipment on the premises that connects and delivers low voltage services from each provider's off premises network to the Point of Entry, usually at the Central Communications Room.

**Point of Entry (POE)** for the purposes of providing services to the Premises is the single point where each provider's Facilities interconnect with the Distribution Plant (DP), usually at the Central Communications Room.

**Central Communications Room (CCR)** is the main distribution point for the site. The Facilities connect to the Distribution Plant in the CCR. The CCR is also commonly referred to as the main distribution frame (MDF).

**Distribution Plant (DP)** is that part of the cable/wire, fiber, and equipment on the premises. The infrastructure (cable/wire and/or fiber) are usually home-run in a conduit pathway to deliver low voltage services from the CCR to each Building Communications Room.

**Building Communications Room (BCR)** is an intermediate distribution point located at each garden style building or separate locations/floors throughout a high-density building. The DP connects to the Home-Run Wiring in the BCR. The BCR is also commonly referred to as the intermediate distribution frame (IDF).

**Home-Run Wiring (HRW)** is that part of the cable, wire or fiber in each building that is home-run and delivers low voltage services from the corresponding BCR to the Apartment Distribution Panel in each unit. It may include additional passive or active electronic equipment

**Apartment Distribution Panel (ADP)** is a centralized distribution point in each unit. The HRW connects to the Inside Wiring in the ADP. The ADP is also commonly referred to as a junction box.

**Inside Wiring (IW)** is that part of the cable/wire and/or fiber in each unit that is home-run and delivers low voltage services from the ADP to each faceplate. It may include additional passive or active electronic equipment including a multi-port faceplate.

**Multi-port Wallplate** the subscriber interface point which contains the necessary interconnections for telephone, data and video services.

## Verizon Fiber to the Premise – Single-Family ONT

**Fiber Distribution Hub (FDH)** is the focal point for the main fiber feed for the community, where the optical signals from Verizon's off-premises network are split off to serve multiple buildings or floors over individual strands of fiber. The FDH is located in the CCR.

**Fiber Distribution Terminal (FDT)** is the network equipment in each BCR that connects the fiber from the FDH to the Fiber Jumpers home-run to the SFU ONT in each unit.

**Structured - Optical Network Equipment (S-ONE)** is the structured wiring enclosure that houses the SFU ONT. It is placed below or beside the ADP.

**Single-Family Unit Optical Network Terminals (SFU ONT)** is the termination point for fiber at each apartment where the optical signal is converted into voice, data, or video feeds. Verizon will install the SFU ONT inside the S-ONE when service is ordered.

**SFU ONT Power Supply Unit (OPSU)** converts AC power to DC power required for the SFU ONT. Verizon will install the OPSU below the SFU ONT in the S-ONE when service is ordered.

**Battery Backup Unit (BBU)** is the back-up power for the SFU ONT in the event of a loss of AC power. Verizon will install the BBU below the SFU ONT in the S-ONE when service is ordered.

**FiOS Router** is a customized router and multi-port Ethernet switch in a single enclosure so as to simultaneously providing data service to multiple outlets in a unit that contains special diagnostic software to enable remote technical support. Verizon will install the router in the ADP when service is ordered.

## Verizon Fiber to the Premise – MDU ONT

**Fiber Distribution Hub (FDH)** is the focal point for the main fiber feed for the community, where the optical signals from Verizon's off premises network are split off to serve multiple buildings or floors over individual strands of fiber. The FDH is located in the CCR.

**Fiber Distribution Terminal (FDT)** is the network equipment in each BCR that connects the fiber from the FDH to the Fiber Jumpers connected to the MDU ONT in each BCR.

**Multiple Dwelling Unit Optical Network Terminals (MDU ONT)** is the termination point for fiber at each BCR where the optical signal is converted into voice, data, or video feeds for multiple units. Verizon will install the MDU ONT in the BCR when the building or floor receives a certificate of occupancy.

**MDU ONT Power Supply Unit (OPSU)** converts AC power to DC power required for the MDU ONT. Verizon will install the OPSU in the BCR when the building or floor receives a certificate of occupancy.

**Battery Backup Unit (BBU)** is the back-up power for the MDU ONT in the event of a loss of AC power. Verizon will install the BBU in the BCR when the building or floor receives a certificate of occupancy.

**FiOS Router** is a customized router and multi-port Ethernet switch in a single enclosure so as to simultaneously providing data service to multiple outlets in a unit that contains special diagnostic software to enable remote technical support. Verizon will install the router in the ADP when service is ordered.

These definitions are courtesy of Henry Pye, Director Resident Services and Technology, JPI Partners, LLC, Richard Holtz, President, Infinisys, Inc., and Ian Davis, Esq., an Attorney with Munsch Hardt Kopf & Harr, P.C. in Dallas, Texas.