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Before the
FEDERAL COMMUNICATIONS COMMISSION
Washington, D.C.

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FEDERAL COMMUNICATIONS COMMISSION
OFFICE OF THE SECRETARY

In the Matter of	)	
	)	
Deployment of Wireline Services Offering Advanced Telecommunications Capability	)	CC Docket No. 98-147
	)	
And	)	
	)	
	)	
Implementation of the Local Competition Provisions of the Telecommunications Act of 1996	)	CC Docket No. 96-98
	)	
	)	

REPLY COMMENTS OF THE VERIZON TELEPHONE COMPANIES

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REPLY COMMENTS OF THE VERIZON TELEPHONE COMPANIES[1]

I. Introduction and Summary

For both legal and policy reasons, the Commission should reject the demands of competitors to be allowed to set up their entire operations in incumbents' central offices and to raise their desires above the business and operational needs of the incumbent's local exchange customers. Congress mandated physical collocation to the limited extent necessary for the purposes of interconnecting or obtaining access to the incumbent's unbundled network elements, not to force incumbents to provide real estate to their competitors in secure and sensitive central offices or to force them to redesign new services and technologies solely to meet the desires of competitors. Nor is there any public policy served by sacrificing incumbents' service to their local exchange customers so that competitors can save office space rental costs. Both the Act and good public policy dictate strictly limiting mandatory collocation to that which is "necessary

[1] The Verizon telephone companies ("Verizon") are the local exchange carriers affiliated with Verizon Communications Inc. listed in Attachment A.

for interconnection or access to unbundled network elements," by denying the expansive demands of competing carriers.

II. The Commission Cannot and Should Not Allow Competitors to Set Up Shop on Incumbents' Premises.

In its initial vacatur order, the Court of Appeals characterized physical collocation as an "allocation of property rights quite unrelated to the issue of 'physical connection.'" *Bell Atlantic Tel. Cos. v. F.C.C.*, 24 F.3d 1441, 1446 (1994) ("*Bell Atlantic*"). The 1996 Act changed that by requiring incumbent local exchange carriers to provide their competitors with physical collocation, but only that which is "necessary for interconnection or access to unbundled network elements." 47 U.S.C. § 251(c)(6). This means that the incumbents must allow other carriers to place equipment on the incumbent's premises that is actually used for only this limited purpose. Mandating collocation of equipment containing any other functions remains an unlawful "allocation of property rights."

In partially reversing the Commission a second time following passage of the 1996 Act, the Court of Appeals confirmed the limited reach of the statutory provision, emphasizing that the statutory grant of authority is not open-ended. *See GTE Service Corp. v. F.C.C.*, 205 F.3d 416 (D.C. Cir. 2000) ("*GTE*"). Instead, it found that by using the "necessary" standard, Congress limited physical collocation to that equipment containing features and functions which are necessary, *i.e.* "*required* or *indispensable* to achieve interconnection or access to unbundled network elements." *Id.* at 422 (emphasis in the original). Anything beyond that is "an *unnecessary* taking of private property." *Id.* at 423 (emphasis in the original).

Many of the commenters urge the Commission to violate the Act by defining "necessary" broadly to include switching and routing equipment (*see, e.g.*, AT&T at 24-25, Covad at 22-25), or equipment which contains any functions that a manufacturer chooses to include in the

collocated equipment (*see, e.g.*, @Link Networks at 16-25, Allegiance at 54-65). But these functions are not necessary for interconnection or access to the incumbent's unbundled network elements. Therefore, under the statute, as interpreted by the courts, incumbents are not required to allow equipment with those functions to be collocated.

Denying those commenters' proposals is also good public policy. Requiring collocation of the equipment that some competitors want could allow them to set up entire central offices in collocation space, with circuit switches, routers, and any number of other items of central office equipment. This will drastically reduce the space available to the incumbent to provide local exchange service and could deprive or delay service to local customers, particularly residential customers. The result would be that end user customers' interests would become secondary to the whims of competitors, most of whom service mainly business customers. Placing competitors' desires to avoid obtaining their own real estate above – or even on a par with – the incumbents' use of its own central office and other private property to provide service to its own end user customers turns the notion of competition on its head. Here, except for the limited class of equipment that competitors need to collocate in order to interconnect or obtain access to unbundled network elements, the statutory terms and the very notion of competition requires that all competitors obtain their own space to locate their own equipment.

Defining the types of equipment that can be collocated expansively will also increase costs. By depriving the incumbent of space for expansion in its own central office to meet its continued obligation to provide telephone service to local customers on demand, such a policy could force the incumbent to expand the capacity of its office prematurely or build an entirely new building that would otherwise not be needed. Under the Commission's collocation pricing rules, these increased costs cannot be fully recovered from the cost-causer, which is the

competitor that used up the existing space. Under those rules, incumbents may charge collocators only for the cost of the actual space they occupy, not any consequential costs that result from exhausting the available central office space. This means that the incumbent's local exchange customers must foot the bill so that competitors may receive a free ride.

III. Cross-Connections Between Collocators Are Not "Necessary" For Interconnection Or Access To Unbundled Network Elements.

None of the commenters has shown that cross-connects between collocated carriers are "necessary" for interconnection or access to unbundled network. The commenters advocating such cross-connects rely on two lines of argument – an alleged technical need, and an alleged "right" to use such cross-connects for interconnection to carriers other than the incumbent local exchange carrier. *See, e.g.*, RCN at 15-16; Conectiv at 19-21; Focal at 15-18. Neither argument has merit.

The technical argument fails because no carrier needs to connect to another carrier in order to obtain interconnection or access to unbundled network elements from the incumbent local exchange carrier. By definition, collocation provides a direct connection between a collocated carrier's equipment and the incumbent local exchange carrier's network. There is no need for an intermediary carrier's facilities.

Several carriers that do not have their own fiber networks argue that they need to cross-connect to other carrier's collocation arrangements in order to use the other carriers' fiber transport facilities. *See, e.g.*, Rhythms at 28; DSLnet at 39-40. However, the lack of cross-connects does not prevent a collocated carrier from purchasing fiber facilities from another carrier. The incumbent local exchange carrier does not place any restrictions on the ownership of the fiber facilities that a collocator brings into the building. A carrier without its own fiber network can purchase those facilities from Verizon or another carrier and bring them into its

collocation arrangement. Verizon also offers a service that permits a fiber transport provider to provide facilities to multiple collocated carriers through a fiber splice in the cable vault. For these reasons, no carrier needs a cross-connect from its collocation arrangement to another carrier's collocation arrangement merely to obtain access to another carrier's fiber facilities.

Indeed, the weakness of this argument is revealed most clearly by the collocators' admission that their real goal in constructing cross-connects is to connect to each other's networks, rather than to interconnect with the incumbent local exchange carrier's network. *See, e.g.*, Telergy at 32; RCN at 15, Rhythms at 31 (which argues that cross-connections should be in the incumbent's central office because all of the competitor's telecommunications equipment is housed there – hardly the scenario permitted under the Act). They argue that the incumbent local exchange carrier's obligation under Section 251(c)(6) to provide physical collocation for interconnection and access to unbundled network elements includes facilitating the collocators' obligations under Section 251(a) to interconnect with each other. As the D.C. Circuit pointed out in previously rejecting this very requirement, "the cross-connect requirement imposes an obligation on LECs that has no apparent basis in the statute. Section 251(c)(6) is focused solely on connecting new competitors to LECs' networks." *GTE*, 205 F.3d at 423. *See, also,* Verizon at 12-14. Collocators do not have a right to use precious central office space as a hub to connect to each other, regardless of whether it would be more or less expensive than connecting outside the office on their own premises. Congress would not have restricted collocation to that which is "necessary for interconnection or access to unbundled network elements" if it intended to allow unfettered occupation of central office space by competing carriers.

The commenters also argue that the section 251(c)(6) obligation to provide collocation on terms that are "just, reasonable, and nondiscriminatory" requires the incumbent local exchange

carrier to permit a collocator to connect to another collocator on the same terms that the incumbent can connect to the other collocator. *See, e.g.*, Telergy at 33-35; Joint Commenters at 50-52. This again is based on a misreading of the statute. Collocating carriers do not have the same rights as the incumbent in their occupation and use of the incumbent's own central office space. An incumbent local exchange carrier can place any type of equipment it wants in its central office, and can use that space for any purpose permitted under federal or state law. In contrast, collocators may use the incumbent's premises only insofar as it is "necessary for interconnection or access to unbundled network elements." This is a very limited purpose that does not confer upon a collocator the unrestricted property rights enjoyed by the incumbent. The non-discrimination requirement in Section 251(c)(6) refers to the incumbent's obligation to avoid discrimination among collocators, including its own affiliates. It does not and cannot mean that the incumbent must allow competing carriers to use central office space for the same purposes as the incumbent.

Grasping at straws, some commenters argue that the Commission should require the incumbent local exchange carriers to offer cross-connects as unbundled network elements or as federally-tariffed services. *See, e.g.,* Focal at 18-22. This is nothing more than an attempt to circumvent the limitations Congress imposed on collocation and would go far beyond the statutory definition of a network element. A network element is "a facility or equipment used in the provision of a telecommunications service" by the incumbent local exchange carrier. *See* 47 U.S.C. § 153(29); *Implementation of the Local Competition Provisions of the Telecommunications Act of 1996*, 15 FCC Rcd 3696, ¶ 327 (1999) ("UNE Remand Order"). No incumbent local exchange carrier uses cross-connects between collocated carriers to provide a telecommunications service. The incumbent is required to unbundle network elements that it

currently uses to provide telecommunications services, not to construct entirely new types of facilities at the request of its competitors.[2] Moreover, as discussed below, the Commission has provided no public notice that this proceeding would consider proposals to create new unbundled network elements. Nor has the Commission developed a record that would meet the statutory "necessary" and "impair" standards as required in the Supreme Court's opinion in *AT&T v. Iowa Utils. Bd.*, 119 S.Ct 721 (1999) for creation of a new unbundled network element. The proposal to require cross-connects as a federally-tariffed service runs afoul of the court's decision that the Commission has no authority to order physical collocation under Title II of the Act. *See Bell Atlantic v. FCC*, 24 F.3d 1441 (D.C.Cir.1994). Furthermore, the Commission has recognized that it has no authority under Section 251 to require tariffing of collocation. *See Implementation of the Local Competition Provisions in the Telecommunications Act of 1996*, 11 FCC Rcd 15499, ¶ 610 (1996).

IV. It Is Contrary To The Act To Permit Collocators To Decide Where Equipment Should Be Placed In A Local Exchange Carrier's Central Office.

Several commenters seek to eliminate the incumbent carrier's control over the design and engineering of the central office by permitting collocators to place their equipment anywhere they please. *See, e.g.,* Joint Commenters at 39. As Verizon demonstrated in its comments, this would extinguish the incumbent's property rights throughout the building and clearly is not "necessary" for interconnection or access to unbundled network elements. *See also* BellSouth at 9; SBC at 26-28.

[2] The commenters argue that cross-connects are "ubiquitous" in all carriers' networks and therefore are existing elements. *See, e.g.*, Joint Commenters at 53-55. This is wrong. Just because a certain type of facility may exist in the network does not mean that any new facility that a competitor wants the incumbent to construct using that type of facility meets the statutory definition of an unbundled network element.

Allowing collocators, rather than the incumbent, to choose the location for their equipment would create chaos. The Commission cannot simply assume, as some commenters claim, that collocators would choose the most cost-effective and efficient location for their equipment. *See, e.g.*, Joint Commenters at 40. An individual collocator has no reason to be concerned about the impact of its chosen location on the incumbent, on the incumbent's service to the public, or on other collocators, and it has no responsibility for the overall design and construction of the central office. It is also readily apparent that the collocators are unlikely to have any concern about the security of the central office. For example, Covad labels security concerns "silly," and the Joint Commenters consider security to be a "red herring." *See* Covad at 35; Joint Commenters at 42. This cavalier attitude directly contradicts the Commission's recognition that maintaining security in the central office is essential, and that the incumbent local exchange carrier is entitled to establish reasonable security measures. *See Deployment of Wireline Services Offering Advanced Telecommunications Capability*, 14 FCC Rcd 4761, ¶¶ 47-48 (1999) ("Advanced Services Order"). It also demonstrates why the incumbent local exchange carrier must retain control over assignment of central office space.

Several commenters argue that the incumbent local exchange carriers should not be allowed to place collocation arrangements in separate floors or rooms, despite the Court's observation that there is no justification for such a blanket prohibition. *See, e.g.*, Conectiv at 22. They argue that establishing segregated spaces increases the cost and time to provision collocation, reduces the amount of available space for collocation, and interferes with the provision of advanced services. None of these arguments has merit.

Placing collocators in a separate room normally is the most cost-effective means of maintaining security for all parties. The Commission should note that most of the commenters

who dismiss the incumbent local exchange carriers' concerns about security for their network choose caged collocation to protect their own network equipment from access by other carriers. In some cases, the collocators install additional security within their caged enclosures, such as card access systems.

Nor does segregation increase the cost or time to provision collocation. Verizon's collocation tariffs provide the same rates and provisioning intervals for collocation space regardless of whether the space is segregated or unsegregated. Although space conditioning may increase the collocation provisioning interval, the need for conditioning is not contingent on whether collocation is placed in the same floor or room. Space conditioning includes things like asbestos removal, addition of cable racking, and upgrading heating, ventilation and air conditioning systems. For most applications, the interval does not need to be extended, because the separate room or floor was already conditioned in anticipation that a number of collocation applications would need to be accommodated. Pre-conditioning of space for collocation is easier when a room or floor is dedicated in advance for collocation as opposed to ad hoc modifications to floor space in scattered pockets throughout the building.

Covad claims that segregation results in excessive space construction charges, citing Verizon, in particular, for charging hundreds of thousands of dollars for a 100 square foot space. *See* Covad at 4, 9-10, 32. This is incorrect. The price quotes that Covad cites were not the final cost for the collocation space. Rather, they were the estimates for total room construction under Verizon's earlier tariffs that charged the first collocator for the entire room, but then provided

rebates as additional collocators occupied space.[3] For instance, the $412,266 price quote in Virginia was for a major construction job to relocate a training center to make room for collocation. Verizon advised Covad and three other collocators that applied almost simultaneously that it would accept a 25% deposit. While Covad declined to submit an application, 13 other carriers eventually occupied space in this area. Covad's final bill under this pricing mechanism would have been smaller than the current tariffed rate, which charges each collocator a fixed price regardless of actual room construction costs. In any event, under the Commission's current rules, the fixed charge remains the same regardless of whether collocation is placed in a segregated area or requires space conditioning.[4]

Several commenters argue that space segregation reduces the amount of space available for collocation. *See, e.g.*, CTSI at 18, DSLnet at 42. In fact, as Verizon has shown, the primary cause of space exhaustion is the collocators' practice of ordering far more space than they need, with many collocation arrangements sitting idle for years. *See* Verizon at 17. Although the Commission allows the local exchange carriers to reclaim unused space, in practice this is extremely difficult and time consuming.

Covad claims (at 33) that it must collocate its equipment close to the main distributing frame in order to offer DSL services, which is sensitive to the length of the loop. This simplistic

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[3] At the time, the Commission had approved this method of cost recovery. *See Local Exchange Carriers' Rates, Terms and Conditions for Expanded Interconnection Through Physical Collocation with Special Access and Switched Transport*, 12 FCC Rcd 18730, ¶ 46 (1997) ("Collocation Order"). In the Advanced Services Order, the Commission required the incumbent to charge each collocator the costs for its own application rather than the entire costs of site preparation. *See* Advanced Services Order at ¶ 51.

[4] Although Verizon-West (the former GTE companies) applies a recurring rate structure for collocation applications, the recurring rate also is the same regardless of whether collocation is placed in a separate area or requires space conditioning.

argument cannot be used to dictate the design of collocation space.[5] As an initial matter, the assumption that segregated space is always farther away from the main distributing frame than the incumbent's own transmission equipment is not valid. In many cases, it is closer, because the incumbent's equipment is spread throughout the building. Moreover, DSL service currently can be provided over loops as long as 18,000 feet, so the addition of a small amount of cabling inside the central office would have a negligible impact on the loops that would be qualified for DSL service. In contrast, Covad ignores the fact that most collocators, including DSL carriers, purchase DS1 and DS3 transport facilities to carry traffic from the incumbent's central office to their own switch or other point on their own network. Digital cross connects *are* distance sensitive and cannot exceed 650 feet for DS1 and 450 feet for DS3. Placing DSL equipment close to the main distributing frame can require regeneration of the DS1 and DS3 signals to reach the Verizon interconnection point. In designing the optimum location of equipment in a central office, the incumbent local exchange carrier must balance these and numerous other considerations such as demand for collocation, building expansion plans, and the capacity of heating, ventilation and air conditioning systems. That task cannot be left to the conflicting whims of multiple collocators.

V. The Commission Should Not Eliminate The Distinction Between Physical And Virtual Collocation.

The Commission should not adopt "commingling" rules that would destroy the statutory distinction between physical and virtual collocation. The requests of some commenters that the

[5] This is also inconsistent with some collocators' insistence that they need adjacent collocation on the grounds surrounding the central office. Such arrangements would place DSLAM equipment much farther away from the main distributing frame than segregated collocation space inside the building.

Commission require the incumbent local exchange carriers to place collocator equipment in the same bays or racks as the incumbent's equipment, to convert virtual collocation arrangements in place into physical collocation, and to allow collocators "access" to their virtually collocated equipment would do exactly that. *See, e.g.*, Covad's at 36-40; Rhythms at 42; RICA at 5. The statutory description of virtual collocation makes clear that Congress contemplated that it would be a less intrusive alternative that can be accommodated in places where there is no space for physical collocation. *See* 47 U.S.C. § 251(c)(6). As these carriers' comments demonstrate, their purported redefinition of physical collocation would cause it to be just as intrusive and occupy precisely the same amount of space as virtual collocation. Indeed, there would be no difference between the two and no need for virtual collocation, obliterating the statutory distinction.

These requests plainly reveal the statutory inconsistency that would develop if the Commission adopted a commingling rule for physical collocation. A fundamental characteristic of physical collocation is that the collocator has the use of and physical access to space in the central office. This led to the Court's invalidation of the Commission's earlier expanded interconnection rules, because the Commission had no power prior to the Telecommunications Act of 1996 to "take" central office property for collocation. *See Bell Atlantic*. On remand of that decision, the Commission required the incumbent local exchange carriers to offer virtual collocation for expanded interconnection, which it found was not a prohibited "taking" because it would not allow collocators to enter the central office, install their own equipment, or otherwise cause a "permanent physical occupation" of the incumbent local exchange carrier's property. *See Expanded Interconnection with Local Telephone Company Facilities*, 9 FCC Rcd 5154, 5163-64 (1994). If the Commission allowed collocators to obtain physical access to virtually collocated equipment, it would cross over to the definition of physical collocation and exceed the

Commission's authority by obliterating virtual collocation as a meaningful category. This type of mandated easement providing physical access in lieu of the virtual arrangement contemplated by Congress is precisely the type of unauthorized taking of private property that the courts have condemned. *See, e.g., Loretto v. Teleprompter Manhattan CATV Corp.*, 458 U.S. 419 (1982).

If the Commission allowed physically-collocated equipment to be placed in the same racks or bays with the incumbent's equipment, it likewise would eliminate virtual collocation as a meaningful category. In granting the Commission statutory authority to order physical collocation for interconnection and access to unbundled network elements, Congress was well aware that the Commission's authority is otherwise limited to ordering virtual collocation. The Commission cannot nullify this statutory distinction by requiring commingling of equipment in physical collocation arrangements. *See* 47 U.S.C. § 251(c)(6).

Commingling also is not "necessary" for interconnection or access to unbundled network elements. In Verizon's experience, collocators normally request more than one rack or bay of physical collocation space, despite the fact that they may not initially install equipment in all of the bays. Sprint agrees that "it does not foresee a need for a space as small as a partial rack in a central office." Sprint at 15.

Covad argues (at 36) that placing collocator equipment in the same racks or bays as the incumbent's equipment will not prevent the incumbent from maintaining the security of its network, because AT&T and the former Bell operating companies occupied space in the same offices after divestiture with only painted lines on the floor to separate their equipment. This is far from the truth. In those offices where both AT&T and the Bell companies were tenants after divestiture, there was total segregation of each party's equipment after the brief 5-year window permitted by the court. ***See*** *United States v. Western Electric*, 1984 U.S. Dist. LEXIS 19733, n.2

(Dist. Ct. D.C. 1984). The "lines on the floor" were not used to segregate equipment but to distribute assets between the divested companies. In fact, AT&T's security rules for its own collocation services are very similar to those deployed by Verizon, and in some cases are more stringent, such as requiring escorts to the collocated equipment.

As Verizon and other local exchange carriers with years of experience with collocation have demonstrated, it would be impossible to maintain security in a commingled environment. *See* SBC at 31-34; BellSouth at 11-13. Accidental or intentional damage to equipment and disruption of service would be more likely to occur, and impossible to prevent or even detect in most circumstances. In addition, commingling would be likely to create interference between collocators' and incumbent's equipment in the areas of heat dissipation, cable placement, trouble isolation, administration, and performance standards. *See id.* Commingling would eliminate the incumbent local exchange carriers' control over their networks and make it impossible for them to maintain the level of network reliability that the public and both state and federal regulatory commissions require. As a policy matter, the Commission should maintain the principle that each carrier has a right to separate its equipment from the networks of other carriers. Collocators are free to do so, and they take advantage of that ability – frequently by taking extra steps to secure their own equipment even beyond the protection afforded by their own cage. The owners of the property should have no lesser right. Any other approach is doomed to failure.

VI. The Commission Should Not Adopt A Rule That Would Prohibit Installation Of A Point Of Termination Between Collocators And The Incumbent's Network.

Several commenters argue that the Commission should adopt a rule prohibiting the incumbent local exchange carrier from requiring "intermediate points of interconnection" in lieu of direct connection to the incumbent's network. *See, e.g.*, CTSI at 21; DSLnet at 43; RCN at

17; Rhythms at 14. This is already addressed in the current rules (*see* 47 C.F.R. § 51.323(k)(2)) and it was not vacated by the Court. However, the Commission should clarify this rule as not prohibiting the installation of a point of termination, or "POT," bay at the point where the incumbent local exchange carrier's facilities terminate to the interconnection arrangement. The POT bay is not an *intermediate* point of interconnection – it is *the* direct connection to the incumbent's network. As the Commission found in its expanded interconnection proceedings, the POT bay is "an effective physical demarcation point between the respective networks to which the parties may physically connect their respective cables." Collocation Order at ¶ 106.

The POT bay is not a cross-connection frame, as the parties claim. It is a passive connection point that must be used to clearly segregate the incumbent's network from the collocator's equipment. Normally, it is a hard-wired terminal block that functions like the terminal blocks used as the network demarcation in customer premises outside the central office. Whether the POT bay is installed by the incumbent or by the collocating carrier, it performs the same necessary functions as (1) a demarcation point between the two networks; and (2) a test point for isolating troubles as either being in the incumbent's facilities or the collocator's.[6] The Commission should make clear in any rules it adopts here that a prohibited "intermediate interconnection arrangement" as defined in section 51.323(k)(2) would not be a POT bay but an intermediate distribution frame placed between the POT bay and the main distributing frame, which is not needed for connection to unbundled network elements at the main distributing frame or for direct interconnection to the incumbent's network (which occurs at the POT bay). Accordingly, just as the Commission prohibits the incumbent from installing intermediate

[6] Since the repair personnel of the incumbent and the collocator typically are not at the premises at the same time, the POT bay allows each party to isolate its network and prove the direction of the trouble without the other party being present.

interconnection arrangements on its side of the POT bay, the Commission also should prohibit collocators from installing intermediate distribution frames in their collocation space.[7]

VII. The Commission Should Not Reduce The Provisioning Intervals For Collocation.

Several commenters argue that the Commission should reduce the provisioning intervals for collocation. *See, e.g.*, AT&T at 69-71; CTSI at 22. What is noticeably lacking in their comments is any appreciation for the actual activities that must be carried out in order to prepare space for collocation. They claim, for instance, that augments to existing collocation arrangements can be completed simply by "attaching equipment to existing structures with a few bolts and the attaching of pre-prepared cables." Conectiv at 24. This gross simplification of the collocation provisioning process illustrates the absence of any record to justify the existing collocation intervals, much less reducing them.

As Verizon demonstrated in its comments, even relatively minor augments require construction of new cabling, power, and racking that normally takes about as long as a new collocation arrangement. *See* Verizon at 22. Augments that require additional room construction can take longer than the standard interval. None of the commenters advocating shorter intervals has demonstrated that the actual work involved in designing collocation space, soliciting bids from contractors, ordering equipment, and constructing the facilities, can be accomplished in less time than the incumbent local exchange carriers currently need for either

[7] Rhythms is incorrect in claiming that, in the former Bell Atlantic-south states, Verizon performs cross-connects for Rhythms by dropping cable at an intermediate distribution frame, while the former Bell Atlantic-north companies run facilities directly to the collocator. *See* Rhythms Joint Declaration at 14. The former Bell Atlantic-south companies deploy the same architecture for connecting facilities to the POT bay as the former Bell Atlantic-north companies.

new or augmented collocation arrangements.[8] For instance, AT&T's claim (at 71) that "routine" augments, such as provisioning of 28 DS1 or 3 DS3 facilities, can be completed within 15 days is not supported by any analysis of the work involved or the external constraints, such as the availability of contractors or the ordering time for materials, that impact a carrier's ability to construct such facilities. Unsupported conclusory statements do not provide any basis for the Commission to adopt the unrealistic intervals proposed in the comments.[9]

In its recent order granting Verizon a waiver of the requirement to file state tariffs implementing the 90 calendar day collocation provisioning interval, the Commission noted that the New York State Public Service Commission ("PSC") had adopted a 45 business day (approximately 63 calendar day) interval for provisioning augments to existing collocation arrangements. *See Deployment of Wireline Services Offering Advanced Telecommunications Capability, Memorandum Opinion and Order*, CC Docket No. 98-147, DA 00-2528, ¶ 13 (rel. Nov. 7, 2000). However, the New York order applies only to the provision of the cable and splitter for line sharing and line splitting. *See Proceedings on Motion of the Commission to Examine Issues Concerning the Provision of Digital Subscriber Line Services*, Case No. 00-C-0217, Opinion No. 00-12 at 9 (New York PSC, Oct. 31, 2000). Even to that limited extent, the interval is unrealistic, and Verizon intends to seek reconsideration of the PSC's opinion. The New York augmentation interval is also subject to further negotiation of operational issues among the carriers. *See id.* at 10. In any event, it does not provide a basis for adopting a blanket

[8] RCN recognizes that shorter intervals for augments should not be adopted unless the collocator takes responsibility for constructing the facilities. ***See*** RCN at 19.

[9] There is also no substance to the claims that reduction in the information Verizon requires in an application form shows that implementing a collocation request requires less work. *See, e.g.*, DSLnet at 44; Telergy at 38. Streamlining of the application process has no impact on the actual work involved in carrying out collocation requests, which remains the same.

45 business day interval for all augments to collocation intervals. Indeed, as Verizon demonstrated in its petition for reconsideration of the *Order on Reconsideration*, the 90 calendar day interval should be made longer for all collocation applications, not shortened.

VIII. The Record Shows that Collocation In Remote Terminals Is Unnecessary and Impractical.

Although some commenters argue that the Commission should require collocation in remote terminals (as opposed to at an adjunct accessible terminal, such as a Feeder Distribution Interface, or "FDI"), the record demonstrates why it should not. First, as Verizon showed in its initial comments, the point of interconnection is often not at the remote terminal but at a FDI, also called a Serving Area Interface, which is generally nearby, but not necessarily in, the remote terminal enclosure. *See* Verizon at 27 and Att. D. Therefore, collocation at the remote terminal, even in those few cases where space is available, is not "necessary" to connect with the unbundled subloop, and, under the Act, the incumbent local exchange carriers cannot be ordered to allow remote terminal collocation.

Some commenters claim that providing a separate enclosure close to the FDI is too expensive and time-consuming, citing zoning restrictions and the need to deal with other property owners. *See, e.g.*, Rhythms at 52-53. But these costs and administrative difficulties are no different from those faced by incumbents when they install or upgrade their own remote terminals. The fact that new entrants face the same costs and delays as incumbents is no justification for imposing more requirements on incumbents. Moreover, these difficulties and expenses can be minimized if the competitors were to agree among themselves to install and share a single enclosure for multiple-carrier use. And even AT&T recognizes not only that "collocation at an RT will almost always be economically impracticable," AT&T at 54, but that

"there is typically no way for a competitive LEC to cross-connect facilities efficiently with the remote terminal." *Id.* Connecting at the FDI is a more effective manner of gaining access to unbundled subloops.

The impracticability of interconnecting at the remote terminal is confirmed by Alcatel, a major DSL equipment supplier in remote terminals. *See* Alcatel at 25 ("It is not possible to provide external access to the internal NGDLC components or software, either at CO or at RT locations"). Instead, Alcatel recommends that competitors place their equipment at building terminals in basements or other locations within office and residential buildings that are adjacent to the incumbent's FDI and interconnect at those locations. *Id.* at 25-26. If building terminals are not available, Alcatel recommends that other carriers use separate enclosures and extend copper feeder to the FDI. *Id.* at 26 ("Since distribution pairs terminate directly on FDIs/SAIs, similar to inside wiring at [building terminals], they would seem to be the next most favorable point of interconnection.").

In addition, Alcatel points out that introducing an FDI as an accessible terminal into the remote terminal in which Next Generation Digital Loop Carrier ("NGDLC") system is installed, as some parties argue should be required, "would jeopardize service reliability with additional activity points that are known sources of failure." *Id.* at 25. According to Alcatel, attempting to retrofit existing remotes with such interfaces "would not be possible ... without disrupting service and there would be no access security." *Id.* Nortel, another leading manufacturer of advanced services equipment, echoes that providing competitors with the ability to access copper loops at remote terminals "could impede the ability of manufacturers to develop fiber cross-connects for remote terminals." Nortel at 4.

It would be inconsistent with section 706 of the 1996 Act and bad public policy for the Commission to use its collocation requirements to inhibit deployment of advanced services and new technology, especially where alternatives are available, such as use of a building terminal or erecting a cabinet adjacent to the FDI, that will not have these effects.

IX. There Is No Legal Or Technical Basis for Requiring Collocation of Line Cards.

Verizon demonstrated in its initial comments that line cards are not "equipment," and there is no legal basis for requiring incumbent local exchange carriers to allow competitors to supply their own plug-in line cards for insertion into the incumbents' equipment (the so-called "plug-and-play" proposal). *See* Verizon at 11-15 and Att. D.

Moreover, the record shows that "plug-and-play" will simply not work. Alcatel, the manufacturer of many of the line cards in question, declares flatly, "[n]either physical nor virtual collocation of a CLEC's own line cards in an ILEC's NGDLC system is feasible." Alcatel at 19. It states that the only line cards that can successfully be used with such a system "are those supplied or authorized by the system manufacturer and supported by the system software." *Id.* Likewise, Nortel, another line card manufacturer, points out that, "unless the line cards are from the same manufacturer or manufactured by third parties under license, it would not be practical for the Commission to mandate that DLECs and CLECs be able to collocate their own line cards within ILECs' Digital Loop Carriers ('DLCs')." Nortel at 4. This is because, without industry standards, "it would be virtually impossible to use different manufacturers' line cards in a single DLC." Given the "vast differences in technologies used by different manufacturers and the rapidly evolving nature of those technologies, it would be very difficult, if not impossible, to develop industry standards without thereby stifling technological development." *Id.* The

unequivocal statements of the manufacturers of the line cards and related equipment make clear that "plug and play" is not a viable concept.

If the Commission were nonetheless to require incumbents to install unlicensed line cards in their equipment, such action could lead to widespread failure of the DLC equipment in which they are installed, with no recourse to the manufacturer, whose warranty would be voided. *See* Alcatel at 19, n.43 (purchase contracts for NGDLC equipment "contain warranty provisions that further limit use or modification of the software and prevent the installation of non-compatible components"). The public interest would certainly not be served by imposing a requirement that the manufacturers have shown will not work and which will be likely to take customers out of service. As Verizon described in its initial comments, it is not technically or operationally feasible to allow other carriers to plug even compatible plug-ins into the incumbent's equipment. *See* Verizon at 12-15 and Att. D.

Another critical line card issue is compliance with the fire resistance, heat dissipation, and other health and safety provisions of the Network Building and Equipment Specifications ("NEBS"). Some parties want the Commission to prohibit incumbents from refusing to accept line cards that have been found to be NEBS compliant. However, testing a plug-in line card without the equipment in which it will be inserted, which is what these parties propose, cannot validly predict actual performance in the field. Performance is dependent on the inter-workings of the card and the equipment. Therefore, the plug-in must be tested as part of the entire system to determine such critical factors as heat dissipation, fire resistance, and electromagnetic compatibility. Failure of the system in any of these areas could lead to system failure, or even a catastrophic fire.

In addition, "plug and play" would require that each carrier have separately-identified access to the DLC systems at the central office. However, no DLC system can support an unlimited number of carriers. This is particularly true because carriers will want to distinguish their services by demanding that the incumbent install capabilities designed to meet their specific needs and by requiring that those capabilities be compatible with a variety of vendor-specific interfaces. Meeting those disparate requirements would be technically, operationally, and economically infeasible, as the above-cited manufacturers' comments show.

Accordingly, the "plug and play" option that competitors advocate would be technically impossible with currently-available or planned equipment, and attempting to force manufacturers to make equipment that would permit that option would stifle innovation. Instead, the Commission should encourage incumbents to offer advanced service offerings from remote terminals on a wholesale basis to other carriers, allowing the incumbents to select use of integrated line cards, overlay, or adjunct DSLAM technologies. These offerings should not be tied to structural separation requirements or other conditions, other than standard common carrier obligations of non-discrimination and reasonable prices, terms, and conditions. Such wholesale offerings will affirmatively allow proliferation of advanced services by multiple competitors and, therefore, are in the public interest.[10]

X. No Additional Line Sharing Requirements Are Needed.

Several parties ask the Commission to impose additional line sharing obligations on incumbents' Digital Loop Carrier ("DLC") systems between the central office and the remote

[10] This finding should supersede the conditions adopted in the SBC Order, which the Bell Atlantic/GTE merger conditions currently apply to Verizon's wholesale service. *See Ameritech Corp, Transferor and SBC Communications, Transferee, Second Memorandum Opinion and Order*, CC Docket No. 98-141, FCC 00-336 (rel. Sept. 8, 2000) ("SBC Order").

terminal. As shown in the attached Reply Declaration of Charles Kiederer, such additional line sharing is not technically possible. This is because, where DLC is present, voice and data signals can occupy the same transmission path only on the copper portion of the line nearest to the customer's premises. Once the signals enter the remote terminal and encounter the DLC electronics, they must take separate transmission paths to the central office, because the DLC transmission path allocated for the voice signal cannot support the transmission of packetized data.

Contrary to the claims of some commenters, SBC, in its "Project Pronto" offering, is not providing line sharing over fiber facilities between the remote terminal and the central office. Instead, the data and voice signal occupy separate transmission paths from the remote terminal to the central office, as they must, and only share the same path over the copper loops between the remote terminal and the customer's premises. As SBC has explained, a "distinct" OC-3 fiber will be used to provide transport from the remote terminal site for voice and a separate one will be used for data. *See Ex Parte* filing dated May 25, 2000, Att. 1 at 6, ¶ 2.5.

XI. Information On Remote Terminals Should Be Required Only On Specific Request.

The Commission should deny one carrier's request to require incumbents to provide twenty-seven separate items of information to competitors for each remote terminal deployed in the incumbent's NGDLC loop network. *See* Rhythms at 58-60. This is overkill. Verizon has more than 37,000 remote terminals installed, and a substantial number of these are being equipped with NGDLC technology. Until another carrier is considering providing service through a particular remote, there is no justification for forcing the incumbent to gather the vast amount of information Rhythms requests – information that must be gathered on a manual basis in most cases. The application process that is already in effect provides carriers with the

information they need to provide service through a remote terminal, without forcing incumbents to gather massive amounts of information that is not needed for interconnection.

XII. There Is No Justification For Injecting Competitors Into the Network Planning Process.

Likewise, the Commission should reject Rhythms' strained interpretation of section 256 of the Act as requiring incumbents to coordinate with other carriers in all aspects of network planning. *See id.* at 71-75. That statutory provision authorizes coordinated industry technical *standards-setting* and allows the Commission to participate in that process. As the legislative history makes clear, section 256 "concerns the coordination for telecommunications network-level *interoperability*." Conf. Rep. on S.652, 104th Cong. 2d Sess. at CR-135 (emphasis added).

"The *standard-setting* process described in this provision applies to interconnection of the public's switched telecommunications networks." *Id.* (emphasis added). Therefore, the provision addresses only establishment for technical standards for interconnection of competing providers' networks and equipment, not service planning.

Moreover, this provision applies to all telecommunications carriers. Therefore, if Rhythms' reading were correct, which it is not, Rhythms would need to open its own network planning process to Verizon and all other carriers.

As a matter of policy, Rhythms' request should be denied as well. Common carriers have an obligation to take into account the needs of their customers for services and facilities in their network plans. These customers include, but are not limited to, other carriers. To the extent Rhythms or any other carrier has a need for services and facilities, it should make those needs known to the applicable incumbent local exchange carriers. However, every carrier should be free to plan its own network and the services it will offer in the most efficient manner to ensure that it can serve existing customers and also offer new, innovative services, consistent with

regulatory and statutory obligations and sound business practices.[11] By planning and constructing its own facilities-based network and deploying a variety of equipment on its own premises – interconnected as needed with the networks of other carriers – new entrants can best meet the public's need for new, innovative services and technologies without continued reliance on any one technology.

Mandatory joint planning will have the opposite effect and would result in homogeneous services and technical solutions. Besides, joint service planning among competitors raises serious antitrust concerns.

XIII. Copper Facilities Should Not Be Maintained In Perpetuity.

Verizon is in the process of replacing copper feeder plant connecting central offices to remote terminal locations with fiber and should not be constrained from that effort. Fiber has much higher capacity and is less subject to degradation from moisture and other environmental conditions than copper. Therefore, the replacement effort will provide customers with higher service quality at lower cost. With the ability to interconnect to FDIs in the field, competitive carriers are not being harmed by retirement of copper feeder cable, and there is no justification for requiring incumbents to retain (or continue to maintain) that plant where fiber replacement makes technical and economic sense.

Over the longer term, the Commission should recognize that DSL is a transitional technology which provides data services over copper loops. As fiber is built further into the network, DSL will be supplanted by entirely fiber-based technologies which offer the promise of wider bandwidth, lower costs. In addition, because fiber is not subject to the same degradation

[11] Where new interfaces are involved, the incumbent must comply with network disclosure requirements.

with distance as copper, fiber will permit access to advanced services by a larger number of customers. As these all-fiber services proliferate, the incumbents should not be required to maintain copper plant simply so that other carriers may continue to provide their then-obsolete DSL services. Instead, after a reasonable transition, incumbents should be freed from any obligation to maintain copper plant.

Allowing retirement of copper plant is consistent with section 706 of the 1996 Act, which requires the Commission to encourage deployment of new technologies and not force carriers to divert resources from that goal by maintaining old technology. So long as proper notice is given under the Commission's network disclosure rules, carriers should be free to retire obsolete plant as needed. *See* 47 C.F.R. § 51.325-335.

XIV. There Is No Justification For Creating New UNEs.

Several parties ask the Commission to define a number of new unbundled network elements. For example, @Link asks for line cards, Optical Concentration Devices ("OCDs"), broadband fiber loops, and copper loops; Allegiance wants all sorts of advanced services electronics, line cards, OCDs, dense wavelength division multiplexing technology, constant bit rate class of service, and broadband fiber loops; and CTSI wants fiber loops, including all existing and future functionalities, to be declared unbundled network elements. The Commission should deny these requests.

First, the Commission has not proposed here to define any new unbundled network elements. Therefore, under the Administrative Procedures Act, it cannot adopt the relief requested without further notice and comment.

Second, none of the requests meets the statutory "necessary and impair" standard for unbundled network elements. *See* 47 U.S.C. § 251(d)(2). The Commission has defined an

element as "necessary" if "taking into consideration the availability of alternative elements outside the incumbent's network, ... lack of access to that element would, as a practical matter, *preclude* a requesting carrier from providing the services it seeks to offer." *See* UNE Remand Order at ¶ 44. None of the parties has shown that the absence of any of its requests would preclude it from providing any service.

Third, most of the individual requests are defective for other reasons. For example, line cards provide no network capability, so it makes no sense to call a line card a network element. In addition, competitors want the right to provide their own line cards for insertion into the incumbents' equipment, a proposal which should be rejected, as discussed above, rather than obtaining them from the incumbent. As another example, dense wavelength division multiplexing systems for the most part are not yet in operation, and the limited number of systems that have been installed in Verizon's network are used principally for inter-office trunking. Facilities that are not yet built, by definition, could not possibly meet the "necessary" standard, nor have the parties shown why they need access to this type of inter-office trunking facilities. For the same reasons, carriers cannot make a valid case for defining non-existent broadband fiber loops as unbundled elements. As for copper loops, as discussed above, as a matter of public policy, the Commission should allow incumbents to replace them with fiber facilities once copper-based services are supplanted with newer technology.

Fourth, the Commission has properly allowed advanced services technology to develop without unbundling requirements that could discourage innovation. *See* UNE Remand Order at ¶¶ 313-17. There is no reason to step back from that policy here.

Finally, as Verizon showed in its initial comments, quality of service classes, such as Constant Bit Rate, are not physical elements but, instead, are attributes of a particular service.

They have no stand-alone value. Moreover, those attributes are often influenced or controlled by CPE or other carriers, so they are not always under the incumbent's control. *See* Verizon at 37-38. Therefore, the Commission should deny the requests to designate additional unbundled network elements.

XV. Conclusion

Accordingly, the Commission should adopt the collocation parameters described in Verizon's initial comments.

Respectfully submitted,

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November 14, 2000

ATTACHMENT A

THE VERIZON TELEPHONE COMPANIES

The Verizon telephone companies are the local exchange carriers affiliated with Verizon Communications Inc. These are:

Contel of Minnesota, Inc. d/b/a Verizon Minnesota
Contel of the South, Inc. d/b/a Verizon Mid-States
GTE Alaska Incorporated d/b/a Verizon Alaska
GTE Arkansas Incorporated d/b/a Verizon Arkansas
GTE Midwest Incorporated d/b/a Verizon Midwest
GTE Southwest Incorporated d/b/a Verizon Southwest
The Micronesian Telecommunications Corporation
Verizon California Inc.
Verizon Delaware Inc.
Verizon Florida Inc.
Verizon Hawaii Inc.
Verizon Maryland Inc.
Verizon New England Inc.
Verizon New Jersey Inc.
Verizon New York Inc.
Verizon North Inc.
Verizon Northwest Inc.
Verizon Pennsylvania Inc.
Verizon South Inc.
Verizon Virginia Inc.
Verizon Washington, DC Inc.
Verizon West Coast Inc.
Verizon West Virginia

Before the
FEDERAL COMMUNICATIONS COMMISSION
Washington, D.C. 20554

In the Matter of	)	
	)	
Deployment of Wireline Services Offering Advanced Telecommunications Capability	)	CC Docket No. 98-147
	)	
and	)	
	)	
Implementation of the Local Competition Provisions of the Telecommunications Act of 1996	)	CC Docket No. 96-98

REPLY DECLARATION OF CHARLES KIEDERER

My name is Charles Kiederer, and I filed a declaration in support of Verizon's initial comments in this proceeding.

1. I present this declaration for the purpose of describing the technical limitations inherent in implementing line sharing between a central office and a remote terminal where the customer's line is equipped with fiber-fed Digital Loop Carrier ("DLC") electronics. At the outset, even with available next-generation digital loop carrier technology, a carrier can provide voice and data on the same voice-grade facility only on the copper path between a remote terminal and a customer's premises. For several reasons, it is not technically feasible for separate voice and data signals to occupy the same transmission path on the fiber facility from the remote terminal back to the central office when DLC electronics are present on the line.

2. First, the DLC electronics, such as those currently deployed in Verizon's fiber feeder network, are incapable of sampling or transmitting signals on the high frequency portion of the line. In a line sharing arrangement, the digital subscriber line ("DSL") signal occupies the high

frequency portion of the loop while the voice signal uses the low frequency portion. When Verizon's DLC electronics are on a line, they convert the analog voice signal into a digital signal and then transmit that digital voice signal from the remote terminal to the central office on a channelized, high capacity transmission path. Verizon's existing DLC equipment is designed to sample and transmit only those signals that reside on the low frequency portion of the line. This equipment as deployed today cannot, however, similarly sample or transmit signals occupying the high frequency portion of the line, such as DSL signals.

3. Second, when Verizon's DLC electronics are on a line, the transmission path used for the voice signal from the remote terminal to the central office cannot support the transmission of packetized data. The digital transmission channel used to transmit DLC-converted voice from the remote terminal to the central office lacks sufficient capacity to support the transmission of packetized data at DSL's high-speed rates. To transmit DLC-converted voice signals back to the central office, Verizon's DLC equipment assigns bandwidth, on a channelized basis, capable of supporting 56 kbps DS0 channels. However, this capacity is inadequate for transmission of DSL signals, which generally operate between 640 kbps and 7 mbps. Accordingly, DSL traffic must be aggregated on a separate, unchannelized, high capacity transmission path to return to the central office.

4. Third, the channelized transmission path on which the DLC-converted voice signal travels between the remote terminal and the central office terminates at a voice switch, instead of an Asynchronous Transfer Mode ("ATM") switch, which is the critical routing mechanism for packetized data. An ATM switch would be required to read the address information contained in each data packet and route the packets to their appropriate destinations, in much the same way as a circuit switch routes voice calls. For all of these reasons, a DLC-converted voice signal and a

DSL signal cannot occupy the same transmission path from the remote terminal back to the central office when Verizon's DLC electronics are in place. They can occupy the same transmission path only when that path is a copper loop or sub-loop.

5. Given the incompatibility between the DLC electronics currently deployed in Verizon's network and DSL-based data services, an alternative architecture is needed to allow competitors to offer voice and data services over a single customer line. This alternative architecture provides a digital subscriber line access multiplexer ("DSLAM") capability at the remote terminal and a separate transmission path to transport the data back to the central office. With this architecture, the voice and data signals enter the remote terminal on a copper path from the customer's premises in a line sharing arrangement, where the data and voice paths are split. The DSL signal then passes through a remotely-located DSLAM while the voice signal travels through the normal DLC electronics and on to the central office on a separate path.

6. One useful way to understand the diverging routes that a voice and data signal take in a line sharing arrangement once they approach DLC electronics is to compare the DLC architecture in the remote terminal (or adjunct location) with that in the central office. The relevant advanced services equipment (*i.e.* the DSLAM) is simply moved from the central office to the field. Where the DSLAM is located at, or nearby, the remote terminal, just like in the central office, once the integrated voice and data signal go through the splitter, the two signals take separate paths (the data signal goes to the DSLAM while the voice signal goes to the voice switch) and no longer travel together in a line sharing arrangement.

7. This is the architecture that SBC proposed to deploy for its "Project Pronto" wholesale service, which the Commission recently approved. The wholesale packet switching service offered by SBC utilizes an ADSL Digital Line Unit Card ("ADLU" card) which performs

many of the same functions as a splitter and DSLAM along with the aid of other control cards and appropriate software. The ADLU card splits the voice and data signals and sends the voice signal to the voice portion of the DLC system. The DLC-converted voice signals are then multiplexed and transported to the central office on a separate channelized transmission path.

8. However, even with SBC's use of suitably equipped Next Generation DLC equipment and ADLU cards to provide its wholesale packet switching functionality, the voice and data signals cannot occupy the same transmission path in a line sharing configuration between the remote terminal and central office. The diagrams of SBC's Next Generation DLC architecture which are attached to the Commission's recent SBC Waiver Order make this clear. These diagrams depict the voice and data signals being transported from the remote terminal to the central office on two separate transmission paths. *See Ameritech Corp, transferor and SBC Communications, Transferee, Second Memorandum Opinion and Order*, CC Docket No. 98-141, FCC 00-336 (rel. Sept. 8, 2000) at Appendices B and C.

9. Therefore, line sharing cannot be provided over a fiber facility between a remote terminal and the central office where DLC electronics are on the customer's line. Instead, the voice and data portions must take separate transmission paths.

I declare under penalty of perjury under the laws of the United States of America that the foregoing is true and correct.

Executed on November 13, 2000

Charles Kiederer

Charles Kiederer

CERTIFICATE OF SERVICE

I hereby certify that on this 14th day of November, 2000, copies of the foregoing "Reply Comments of the Verizon Telephone Companies" were sent by first class mail, postage prepaid, to the parties on the attached list.

Steven E. McPherson

Steven E. McPherson

* Via hand delivery.

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