

Without a competitive alternative, customer choices will be considerably narrower than they are today.

A. The Current State of Local Competition

10. The 1996 Act as implemented by the Commission envisioned three forms of entry into local markets: building facilities to compete directly with ILEC facilities, the use of UNEs, either alone or in combination, and resale. There has been substantial investment in facilities by competitive local exchange carriers (“CLECs”).<sup>2</sup> Virtually all of this investment has been in fiber rings in the central business districts (“CBDs”) of major urban areas. Competition from cable companies is only beginning to emerge. The traditional mobile wireless service providers have not yet attempted to compete directly with wireline carriers. Broadband wireless alternatives are only now being developed.

11. UNE competition has suffered from procedural delays and implementation issues whose proximate cause has been ILEC resistance to opening their networks. Both large and smaller players have abandoned resale as a retail entry strategy because the wholesale discounts established in state arbitration proceedings are insufficient to allow profitable mass-marketing of the service.

12. The result is that competition for the local business of mass market residential and small business customers is virtually non-existent. The following discussion shows that with “business as usual” this dynamic is unlikely to change in the near future. Facilities-based competition is discussed first. This is followed by a

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<sup>2</sup> Association for Local Telecommunications Services, “The State of Competition in the U.S. Telecommunications Marketplace,” Annual Report, February 2000, <http://www.altis.org> (“ALTS Annual Report”).

discussion of UNE competition. Finally, the role of Sprint as a potential local entrant is discussed.

*1. Facilities-Based Competition*

13. There are four potential sources of facilities-based competition: fiber rings, cable telephony, narrowband wireless and broadband wireless. As discussed below, none of them is providing substantial competition to the ILECs today, particularly for origination and termination of local voice calls.

*a. Fiber Rings*

14. A number of CLECs have built fiber rings in a number of cities. These carriers are providing local exchange, exchange access, long distance, and data services over their facilities. The investments they have made and their impressive growth is one of the primary success stories of the 1996 Act.<sup>3</sup> Despite this success, local markets have not become competitive. This is because technology and economics limit fiber rings to geographic and customer niches.

15. CLEC fiber rings consist of fiber optics transmission paths, typically built in a ring configuration, multiplexing nodes that enable spurs to connect individual customer premises to the rings, switches that establish connections between customers, and an interoffice network to connect the switches to one another. To serve a customer using only its own facilities, the CLEC ring must pass sufficiently close to the customer location to allow a spur off the ring to be economically extended to the customer's premises. This implies that the customer must be within a block or so (about five

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<sup>3</sup> ALTS Annual Report.

hundred feet) of the ring; any farther than that, and it would likely be less expensive and more reliable to extend a ring down the street on which the premises is located.

16. The CLEC fiber ring networks are obviously highly capital intensive and geographically specific. Serving a potential customer outside the CBD, but within the metropolitan area where a ring is already constructed, requires acquisition of rights of way and construction. At the same time, potential revenue per customer falls outside of the core business areas. Expansion to new cities is even more problematic because the entrant has to start from scratch.

17. The implication is that fiber-ring carriers will serve a limited number of customers over their own loops. Most of these will be business customers, although in some cases residential subscribers living in large multi-tenant dwellings located in or near the commercial core may also be served. The smaller the customer, the less likely it is that a CLEC can economically extend a spur, and building out to single-family residences is not financially viable. The large fixed costs and high costs of expansion associated with the technology necessarily limit the geographic scope of the providers. To be sure, the small number of customers served on competitive fiber rings generates a large amount of local traffic. But fiber rings are not a viable competitive alternative for most residential and small business consumers.

18. Data provided in the two recent Section 271 proceedings in New York and Texas demonstrate the limits of fiber ring carrier competition. In New York State, which arguably contains the most competitive local telecommunications market in the country, a recent analysis demonstrated that less than five percent of the market was being served by competitors using exclusively their own facilities. Of course, most of these customers

were in the New York City metropolitan area.<sup>4</sup> In Texas, a survey conducted by the Texas Public Utility Commission, to which virtually all of the facilities-based providers responded, showed that only about three percent of the lines in SBC's territory were supplied by competitors using their own loops.<sup>5</sup>

b. Cable Telephony

19. At the time the 1996 Act was passed there was an expectation that cable television operators would soon be investing substantial amounts in building telephony capabilities into their networks using hybrid fiber coax ("HFC") technology. However, consistent with contemporaneous analysis by HAI's predecessor firm, Hatfield Associates, Inc., the promise of cable telephony has not been realized.<sup>6</sup> After languishing for several years, there appears to be a renewed interest in cable telephony. The recent AT&T activity has heightened interest in the cable industry and the promise of using cable networks to carry telephone calls.<sup>7</sup>

20. The near term prospect for significant deployment of cable telephony is slight. The same considerations that have prevented significant cable deployment to date will apply in the immediate future. First, substantial network upgrades are required to

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<sup>4</sup> In the Matter of Application of Bell Atlantic-New York Company (d/b/a Bell Atlantic-New York), *et al.*, for Authorization to Provide In-Region, InterLATA Services in New York, CC Docket No. 99-295, Affidavit of A. Daniel Kelley on behalf of AT&T Corp., AT&T Exhibit I, October 19, 1999, p. 2, Table 1.

<sup>5</sup> See, In The Matter of Application of SBC Communications, Inc., *et al.* For Provision of In-Region, InterLATA Services in Texas, CC Docket No. 00-04, Declaration of A. Daniel Kelley and Steven E. Turner on Behalf of AT&T Corp., January 31, 2000 (redacted for public inspection), p. 5, Table 1.

<sup>6</sup> Hatfield Associates, Inc., "The Enduring Local Bottleneck II," April 30, 1997.

<sup>7</sup> Cable telephony is the provision of telephone service over two-way active cable networks that is comparable in service quality and reliability to that of the PSTN. Two-way active cable networks are those that have been upgraded to carry information in two directions, from the cable headend to the customer premises and vice-versa.

support two-way traffic. Many systems have not been upgraded. Second, to be an effective substitute for ILEC service, cable network service must be as reliable as that of the telephone network from the initial day of operation. Third, cable telephony investment may be delayed until IP telephony technology is proven. Finally, many cable operators perceive that their opportunities in digital television, cable modems, and video on demand are better than their opportunities in cable telephony.<sup>8</sup>

21. At the end of 1999, approximately 49 percent (or 8.8 of 17.9 million homes passed) of the TCI cable facilities acquired by AT&T had not yet been upgraded to the two-way systems that, with additional equipment, are capable of supporting telephony. AT&T is aiming for 85 percent, or roughly 6.4 million additional homes, to be upgraded to HFC by the end of 2000.<sup>9</sup>

22. In reality, the number of cable subscribers to whom AT&T can offer cable telephony service today is probably much lower than suggested by the upgrade statistics. Even if approximately 50 percent of AT&T's plant is capable of carrying telephony (i.e., two way active with backup power), a considerable amount of time will be required to prepare the telephony service offering for commercial deployment. Installing the telephony component requires equipment in the headends, switch installation, back office

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<sup>8</sup> In an interview with four engineers from medium-sized cable operators, each one indicated that compared to these other services cable telephony was the lowest priority. See, Brown, Roger, "Dining at the broadband buffet: Modems, digital TV, upgrades and telephony fill MSOs' plates," CED, January 1999, p.84.

<sup>9</sup> See Merrill Lynch, "Recognizing Growth – One Way or the Other," February 17, 2000, p. 25.

systems for billing, monitoring and provisioning, as well as sales staff and technical training.<sup>10</sup>

23. The end result is that today the number of cable telephony customers is quite limited. Research by HAI found that in two of the largest states, New York and Texas, cable telephony customers account for less than one percent of the market.<sup>11</sup> In fact, cable telephony penetration in these states numbers only in the thousands. The cable industry is doing a better job of deploying cable modem service. There are currently an estimated 2,000,000 cable modem customers in the U.S.<sup>12</sup>

c. Narrowband Wireless Services

24. In many countries, wireless services are advancing rapidly as alternatives to wired access to the public switched telephone network (“PSTN”). However, this is not the case in the United States. At this point, the cellular and PCS networks are optimized for mobile wireless voice access. With a few, mostly rural, exceptions wireless carriers have not developed any opportunity to convince households to replace their reliable wired access with wireless service.

25. Perhaps the most significant, and obvious, indication that current Commercial Mobile Radio Services (“CMRS”) are not a true replacement – and therefore not competitive with wireline local access service – is that the current price levels and structures of wireless services do not create viable competition to incumbent

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<sup>10</sup> Merrill Lynch notes that the challenges AT&T has encountered thus far include longer than expected installation time, and delays in hiring, training, and retaining installation technicians. *Ibid.*

<sup>11</sup> Based on Telephone and Internet surveys. In both states, the number of cable telephony lines found numbered only in the thousands.

<sup>12</sup> See Sanford C. Bernstein & Co., Inc. And McKinsey & Company, Inc., “Broadband!,” January 2000 (“Broadband!”), p. 8.

wireline residential service providers. Rates for cellular and PCS services in New York and Texas are priced at 160 to 190 percent of the incumbent's wireline service, depending on the wireless carrier.<sup>13</sup>

26. Another barrier to narrowband wireless competition for ILEC customers is that the wireless subscriber pays for both outgoing and incoming calls in the U.S. In most international markets, where wireless penetration levels are higher than the U.S., the caller pays for incoming calls to the subscriber.<sup>14</sup> Implementing a calling party pays system would make CMRS services much more competitive with wireline services, at least from a pricing perspective, but that is not likely to happen in the near future.<sup>15</sup>

27. Thus, the services offered by CMRS carriers are not competitive with wireline local exchange service. The local minutes of use on these networks are generally new minutes – made possible by the mobile capability of the technology. Despite press releases with promises of coming competition from wireless systems, there is no clear evidence that CMRS carriers are functionally offering service directly competitive with wireline local exchange service.

28. The future for narrowband fixed wireless as a competitor to the ILECs may be more optimistic. There are a few instances of CMRS carriers investigating the offering of fixed services over their networks. AT&T Wireless has "Project Angel," which is apparently being tested in Dallas. AT&T has announced that it will use fixed

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<sup>13</sup> Based on HAI study conducted through Internet and telephone surveys in the Fall of 1999.

<sup>14</sup> In Europe 40-50 percent of traffic volume is incoming, versus less than 20 percent for the United States. Goldman Sachs research report, February 1999, cited in Letter from George S. Blumenthal, Chairman, CoreComm to William E. Kennard, March 17, 1999, fn. 2.

wireless to supplement its local service offerings where it cannot provide cable telephony service.<sup>16</sup> Western Wireless offers fixed services in a few rural areas of Nevada and North Dakota.<sup>17</sup> With the implementation of next generation digital mobile systems in coming years, additional wireless capacity and features will become available. The calling party pays and E911 issues are being addressed by the FCC. As discussed below, the merger between MCI WorldCom and Sprint will increase the incentive of Sprint PCS to invest in this alternative.<sup>18</sup>

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<sup>15</sup> See In the Matter of Calling Party Pays Service Option in the Commercial Mobile Radio Services, WT Docket No. 97-201, released 10/23/97.

<sup>16</sup> Sparse detail has been provided concerning this product. Wireless Week, May 24, 1999: 1

<sup>17</sup> Boyer, Alan J., "Local Access Over Analog Cellular Networks: Implications for Universal Service Funding and Commercial Mobile Radio Service Carriers," presented at Telecommunications Policy Research Conference, Alexandria, VA, September 27, 1999.

<sup>18</sup> Sprint has narrowband fixed wireless trials underway.

d. Broadband Wireless

29. For purposes of this discussion, wireless broadband service is considered to be a two-way digital service with a bandwidth equal to, or in excess of, 256 kbps (starting at roughly the same speed as DSL service over wireline facilities and extending up into SONET-like speeds). Table 1 shows the various broadband spectrum allocations.<sup>19</sup>

Table 1  
Broadband Wireless Industry

Spectrum	Frequency	Major Players
MMDS	2 GHz	MCI WorldCom, Sprint
DEMS	24 GHz	Teligent
LMDS	28 GHz	Nextlink
38 GHz	38 GHz	Winstar, Advanced Radio Telecom

30. Although some of these allocations were made years ago, there are several reasons why broadband wireless start-ups are not significant competitors in the local access arena today. Most have been struggling to grow – facing restrictive rules concerning spectrum usage; restricted access to roof-top radio sites; a lack of capital; and, in the case of MMDS, awkward transitions from cable television competitor to broadband access provider. Although some broadband wireless carriers have developed name recognition, and small pockets of wireless broadband service are available around the country, service is generally localized in the most concentrated commercial areas of the

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<sup>19</sup> These spectrum allocations being used by broadband wireless carriers are often still referred to by the service they were originally allocated for. The carrier classifications and spectrum ranges go from the MMDS around 2 GHz up to the 38 GHz microwave channels dominated by Winstar. In between are the Digital Electronic Message Service (DEMS) carriers - Teligent being the best known - at 24 GHz and the Local Multipoint Distribution Service (LMDS) carriers at 28 GHz.

largest urban markets. A significant majority of the broadband wireless services being offered are only available to business customers.

31. Most of the broadband wireless carriers operate at frequencies well above one GHz. It is only in the past few years that using these frequencies for anything other than point-to-point microwave systems has become economically practical. There are, however, still certain immutable laws of physics that shape the potential use of these spectrum bands. While these frequency allocations are capable of carrying high-speed data signals, depending on their place in the spectrum, they are subject to degrading atmospheric and environmental conditions that do not impact services like cellular and PCS as severely.

32. Technical system considerations generally cause higher-frequency radio systems to operate over shorter ranges than lower-frequency systems. Furthermore, the 24, 28 and 38 GHz frequencies the broadband carriers operate within are affected by reflections from buildings, trees, and other objects. They are also attenuated by rain and other forms of precipitation. In certain parts of the country subject to sudden heavy rainstorms, such as Florida or Texas, the effective transmission distance of signals may be shortened considerably.

33. These broadband wireless frequencies are considered to be "line of sight" in operation. In other words, if the receiver is literally not visible to the transmitter there is not going to be any communication. In contrast, the lower frequencies used by cellular and PCS systems are much more resilient. The signals are better able to penetrate through trees and buildings and are much less affected by rain.

34. The net effect of these propagation issues is that building a radio network with these high frequencies to provide ubiquitous, reliable service coverage to a mass market has been difficult and expensive. In contrast to PCS and cellular systems designed so that cell sites have minimal radio coverage overlap among them, a high frequency system designed to blanket an area (such as a suburb) would require many more sites with heavily overlapping coverage.<sup>20</sup>

35. Compared to other broadband wireless frequencies, the MMDS band propagation issues are relatively immune to weather. The line of sight issues are also alleviated. MMDS carriers are the only ones currently serving a significant number of consumers, usually in markets where they are still trying to sell wireless cable, or in a few instances where they are providing Internet access.

36. Cable telephony will typically support only one entrant in any given area. If there is to be a third competitor providing last mile connections in competition with ILEC and cable networks over the near term, broadband wireless is likely to be it. As discussed below, the MCI WorldCom/Sprint merger significantly enhances the prospects of MMDS as a viable local competitor.

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<sup>20</sup> Overlapping coverage increases the probability that from any subscriber location at least one cell site would be visible - enabling service provision.

2. *UNE Entry*

37. In addition to a fully facilities-based entry strategy, such as cable telephony or MMDS, there currently are three primary modes by which CLECs can enter the market for local exchange services using some facilities provided by the ILECs. First, CLECs can resell the local exchange service of the incumbent LEC. Second, they can sell a package of unbundled network elements (“UNEs”), a mode sometimes known as “UNE-platform” or “UNE-P.” Finally, they can provide certain network functions, such as local interoffice transport or local switching, with certain network elements provided by the incumbent LEC.

38. The first and second approaches have one obvious advantage for CLECs: the customer can be connected to the CLEC network with little additional capital expense. However, there are many disadvantages. First, the wholesale discounts available to carriers that wish to resell ILEC local service are generally too small to allow profitable resale. Second, in the case of both resale and UNE-P, the CLEC is relying on the ILEC’s switch and network intelligence. Therefore, the ability of the CLEC to differentiate its service from that of the incumbent is limited. Third, the CLEC may be subject to uncertain platform pricing or surcharges for use of a platform. Fourth, the CLEC using a platform is much more dependent on cooperation from the ILEC.<sup>21</sup>

39. The development of competition based on either unbundled local loops (“UNE-L”) or UNE-P has been slowed by the well-documented failure of ILECs to cooperate with CLECs. However, in two states, New York and Texas, improved

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<sup>21</sup> This is not to say that the unbundled loop (“UNE-L”) competitor is not dependent – the difference is a matter of degree.

provisioning of UNE-P service is allowing the larger IXCs to provide their customers with an integrated service.<sup>22</sup>

40. UNE-L competition is quite limited even in those two states. For example, in its New York 271 Application, Bell Atlantic reported that less than 50,000 unbundled loops had been provided to carriers.<sup>23</sup> The number in Texas was even smaller.<sup>24</sup> Bell Atlantic New York provides over 12 million lines while SBC in Texas provides almost 10 million lines. DSL carriers such as Covad and Rhythms are collocating in central offices. While they are growing rapidly, their overall penetration is small. In percentage terms, the number of loops sold to CLECs is less than one half of one percent.

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<sup>22</sup> The deployment of UNE service in New York is not without problems. See, "FCC Ensures Bell Atlantic Compliance with Terms of Long Distance Approval; Bell Atlantic Agrees to Pay Up To \$27 Million," FCC New Release, March 9, 2000, describing a Consent Agreement between the FCC and Bell Atlantic under which Bell Atlantic will pay up to \$27 million in fines for failure to process properly a large number of CLEC UNE orders in New York.

<sup>23</sup> See Bell Atlantic New York 271 Application, September, 29, 1999, Attachment A, p. 3.

<sup>24</sup> See, In the Matter of Application of SBC Communications, Inc., *et al.*, For Provision of In-Region, InterLATA Services in Texas, SBC Application, January 10, 2000, Attachment 2, p. 4.

## B. Potential Competition

41. The merger does not eliminate significant potential competition. Both Sprint and MCI WorldCom obviously have incentives to enter the local business. However, Sprint is well behind MCI WorldCom in establishing local fiber facilities and arranging collocation spaces, and it will be difficult for Sprint to catch up. Where fiber ring provision is economical today, there are a number of suppliers (including the RBOCs), some of whom have stated plans to compete out-of-region. Sprint's UNE-L entry plans are focused on broadband through Sprint ION deployment.

42. While Sprint is planning to use UNE-P, this form of competition provides the fewest consumer benefits in the local market because it is difficult to differentiate the service from that of the RBOC. The MMDS licenses held by the two firms do not overlap and spectrum limits prevent each from entering the other's wireless broadband markets. Finally, the overlap in local facilities controlled by the two companies is minuscule.

## C. Conclusion

43. While there is building momentum for competition, local markets are not going to become competitive on their own any time soon. This is particularly true for mass market residential and small business customers. Facilities-based competition is developing in certain geographic niches for business customers, but there is only the prospect for cable competition for residential customers.

44. Even if cable telephony becomes widespread, local consumers are left with a choice of only two full facilities-based providers. If the merger allows the combined MCI WorldCom-Sprint to become a more effective local entrant than either

one of them would be individually, the result could be a significant increase in local competition. The next section discusses local entry by Sprint and MCI WorldCom.

## II. Local Entry Synergies

45. Section I discussed several potential local entry vehicles: fiber rings, cable telephony, narrowband wireless, broadband wireless, UNE-P, and UNE-L. The merger between MCI WorldCom and Sprint will have a positive impact on entry for each of these vehicles. This section discusses the benefits of merging in terms of reduced cost or accelerated rate of local entry.

### A. Broadband wireless

46. As discussed above, MCI WorldCom and Sprint have independently purchased MMDS licenses. The MMDS spectrum has advantages compared to other available broadband spectrum because it provides better propagation characteristics. Moreover, there is little overlap among the licenses held by MCI WorldCom and Sprint.

47. There are two business models for deploying MMDS. One is simply to provide broadband Internet access in competition with cable modems and DSL. This business plan was being pursued by MCI WorldCom prior to the merger. Sprint's original plans for MMDS involved using it first as a broadband Internet access service and ultimately as a platform for its Sprint ION service, which includes voice capabilities.<sup>25</sup>

48. The merger provides several consumer benefits. First, looking only at broadband Internet access service, the merger allows a strong nationwide player to compete with AT&T cable modems and DSL service provided over ILEC copper

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<sup>25</sup> Based on discussions with MCI WorldCom and Sprint subject matter experts.

facilities. The merger effectively adds a third broadband access facilities competitor. Time to market will be a key element of success. Cable modem service and DSL may capture significant first-mover advantages if broadband wireless service is not deployed rapidly.<sup>26</sup> Early approval of the merger will allow the jointly provided service to more rapidly capture the benefits described here .

49. Second, as technology develops, it may be possible to provision voice services over the MMDS broadband Internet connections using Internet voice (voice over the Internet Protocol or “IP voice”). However, Sprint’s already-designed Sprint ION platform can be rolled out on spectrum held by MCI WorldCom following the merger. ION allows the user to dynamically allocate broadband capacity to multiple voice channels. This effectively provides a stronger entrant into the voice market. MCI WorldCom could, of course, develop an independent alternative to Sprint’s ION service. However, since Sprint is already well along in developing the technology, the combined firm will be in a position to market it and make it a competitive force much sooner.

50. The merger will strengthen network effects associated with Sprint ION by making it available to more customers more quickly through the MMDS facilities. It is more efficient to provide ION-to-ION service because the ATM data streams do not have to be converted. The value of multilocational uses by customers also strengthens network effects.

51. The merger will also provide enhanced bundling opportunities for the combined firm. For example, in some cases MMDS can be used to reach customer

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<sup>26</sup> See Broadband!, p. 7.

locations that are not near a fiber ring. This will provide the merged firm with the ability to market more robust local networks to multi-location business customers.

52. Some observers, such as Bernstein and McKinsey, are relatively pessimistic about the prospects for the success of MMDS as a local exchange alternative. However, even Bernstein and McKinsey note that one of the advantages of the technology is that it is “scalable.”<sup>27</sup> Much of the expense is related to the number of customers served. With fiber ring, cable and traditional telephone technology, a great deal of expense is incurred simply to reach *potential customers* and the ultimate economics are driven by penetration. That is, relatively high penetration is needed to break even. Although still subject to local scale economies, the ability to break even at lower penetration levels reduces the risk of deploying MMDS service and, as Bernstein and McKinsey note, provides the combined firm with the incentive to invest in it. Moreover, Bernstein and McKinsey do not appear to have taken merger efficiencies into account in their analysis.

53. The particular synergies flowing from the merger fall into the areas of equipment and systems costs, network engineering, network construction and deployment, operations, spectrum management, and marketing and advertising.

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<sup>27</sup> See *Broadband!*, p. 37, Exhibit 33.

1. *Equipment and Systems*

54. There is currently no national standard for MMDS equipment.<sup>28</sup>

Combining the Sprint and MCI WorldCom licenses will accelerate the development of such a standard. The larger market presence of the merged company will also spur technology development and move equipment manufacturers more rapidly up learning curves. The size and market commitment of the merged company in the MMDS market will provide certainty to equipment suppliers that will in turn stimulate product development. Once products are developed, the merged entity's larger equipment orders and longer production runs will bring per-unit costs down. This benefit is inherently difficult to quantify, but it seems inevitable that the merger will accelerate equipment development and bring equipment costs down.

55. Some of these benefits will result in higher equipment discounts. Volume discounts for equipment purchases can be substantial. If subscriber equipment cost is \$750 and volume purchases result in an additional 10 percent discount, and if MCI WorldCom/Sprint MMDS achieves only a five percent penetration in the top 50 Basic Trading Areas ("BTAs"), the savings would be over \$500,000,000.<sup>29</sup> Savings are also possible on network electronics. Assuming 15 radio hub sites per market (after the

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<sup>28</sup> See *Broadband!* p. 58. Bernstein and McKinsey note that there are some efforts to develop MMDS standards, but those efforts have just begun, and cable modems are advantaged by the existence of a nationwide standard, p. 56.

<sup>29</sup> MMDS spectrum capacity can easily accommodate this penetration level, even in larger metropolitan areas. Penetration could be much higher in less densely populated areas. Bernstein and McKinsey note that initial MMDS premises equipment will cost approximately \$750, see, *Broadband!*, p. 77, Exhibit 56. Telecommunications equipment vendors provide volume discounts well above 10 percent for large customers. See, HAI Model, version 5.0a, Inputs Portfolio, January 27, 1998, "Support" under individual input descriptions in Section 3.5.

systems are cellularized) for fifty markets and hub electronics costs of \$415,000, an additional 10 percent equipment discount could amount to \$31,125,000 in savings.<sup>30</sup>

56. New services require the development of new billing and OSS systems. These expenses are particularly significant for mass-market applications where there will be millions of customers with whom to deal. Sprint is already developing systems for MMDS mass-market application. These systems can be used in MCI WorldCom MMDS markets for little or no additional cost. More significantly, MCI WorldCom can take advantage of the head start in development by Sprint. The net effect is that the service can be deployed more rapidly and cost-effectively.

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<sup>30</sup> Based on discussions with MCI WorldCom and Sprint subject matter experts and analysis by HAI Consulting.

2. *Network engineering*

57. MMDS networks must be designed and engineered. This is a centralized function with both fixed and recurring elements. Each additional network will require design and engineering. However, a single engineering department will avoid duplicative overhead. A significant, non-quantifiable benefit of the merger is that the two firms together have additional human resources that can be applied to solving engineering problems. Moreover, the learning that will take place as these firms develop and deploy technology will be shared more widely after the merger, avoiding costly duplication of errors.

3. *Network construction and deployment*

58. An MMDS network consists of CPE at the customer site, radios on towers throughout the service area, backhaul facilities connecting radios with switches, and a hub site connecting the MMDS network to the ILEC local network and the Internet. One of the major advantages of MMDS as a broadband local service competitor is that the infrastructure investment is much smaller than for cable telephony or traditional local telephone service. Within the geographic area encompassed by a license, service to a large number of customers can be achieved by building a single tower and then marketing to potential customers. As demand grows, additional towers can be built to make better use of the spectrum and to alleviate line of sight issues.

59. This attribute of the service is what makes it especially valuable for smaller communities and underserved areas. Depending on terrain, a single tower may allow service within a 35-mile radius. This makes the service cost effective in less densely populated areas.

60. Sprint currently relies heavily on expensive ILEC backhaul facilities for its PCS service. While Sprint has every economic incentive to transition to CLEC facilities where available, the merger will provide an opportunity to rapidly move to less expensive MCI WorldCom transport facilities. Moreover, using the MCI WorldCom facilities will allow the company to avoid provisioning delays or strategic anticompetitive behavior by ILECs.

61. The merged company may be able to take advantage of existing Sprint PCS tower locations in cities where MCI WorldCom holds the MMDS license. Interference issues do not prevent the MMDS and PCS radios from sharing the same towers. Tower height may have to be raised to accommodate MMDS service. The primary advantages of deploying MMDS over the existing Sprint wireless networks are certainty and speed. Complications and costs of negotiating long-term arrangements with competitors can be avoided. Moreover, using the Sprint towers allows economies in backhauling both PCS and MMDS traffic to be easily captured.

62. Where Sprint PCS towers will not suffice, there is a developing third-party market for tower space. Absent the merger, MCI WorldCom may be able to procure space on these towers and avoid full construction costs. The combined purchasing power of Sprint PCS and MMDS may result in lower acquisition costs. Many towers may be owned or controlled by actual or potential wireline competitors – the ILECs and AT&T. Therefore, the ability to share tower space at competitive rates is not a foregone conclusion. This is especially true where siting options for towers are limited, reducing the number of possible competing sources of supply for certain locations. The merged

entity, with its own (Sprint PCS) towers that competitors such as AT&T and the ILECs may desire to access, may be in a much better bargaining position.

4. *Operations*

63. MMDS will require ongoing maintenance of towers and administration of the backhaul network. Sprint PCS is already set up to perform many aspects of this function and can do so at incremental cost. That is, it has radio and tower maintenance personnel as well as management structure and systems in place to perform these tasks.

64. Both firms are in the early stages of MMDS trials. As the service is deployed there will be significant learning on the part of installers. The merger will allow this learning to be shared more broadly.

65. There will be operational savings in other areas as well. The larger customer base implied by the merger (see below) will result in the realization of economies of scale in the local switching and transport network. Local switching and transport both exhibit scale economies.<sup>31</sup> Incremental customers can be served at low incremental cost. Similarly, fiber backbones exhibit significant economies of scale. There will also be savings in network management and administration as these functions can be performed efficiently by one organization.

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<sup>31</sup> In the Matter of the Local Competition Provisions of the Telecommunications Act of 1996, CC Docket 96-98, Third Report and Order and Fourth Further Notice of Proposed Rule Making, Released November 5, 1990 ("UNE Remand Order"), para. 13, citing MCI WorldCom Comments, Tab 3, Declaration of Mark T. Bryant, at paras. 2-20, describing the economies of scale to which all loop, transport and switching unbundled network elements are subject.

5. *Spectrum Coordination*

66. MMDS spectrum is subject to coordination with spectrum holders on a local and regional basis. Combining the MMDS licenses of Sprint and MCI WorldCom will make this job easier. Pursuant to FCC requirements, the initial coordination must be performed before the merger will be consummated, but coordination issues will be ongoing.

6. *Marketing and Advertising*

67. Combining the MCI WorldCom and Sprint MMDS assets gives the merged firm a nationwide base. This will facilitate nation-wide marketing of local services. National and regional advertising will be more cost-effective because the advertisements will be viewed by a larger number of potential customers and because joint purchasing power can be used to achieve discounts on media buys.

68. MCI WorldCom's experience is that it has much greater success marketing its local services to its long distance customer base than to other customers.<sup>32</sup> This provides MCI WorldCom with an efficient target marketing opportunity. Moreover, the churn rate for customers who buy both local and long distance services is much lower than the churn rate for customers who buy only long distance.<sup>33</sup> These two factors translate into much more efficient marketing for the combined company. The combined firm will have a larger long distance customer base, which can be leveraged to realize these efficiencies. At first glance it may appear that vertical integration and not horizontal integration is the key to achieving these efficiencies. However, the point is that these efficiencies can be captured more rapidly because in each city where there is a

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<sup>32</sup> Sprint-MCI WorldCom Application, Appendix C, Affidavit of John G. Donoghue, pp. 5-6.

MCI WorldCom or Sprint license, there is a larger long distance customer base to which to market.

7. *Other Efficiencies*

69. A nationwide deployment of MMDS services will generate additional efficiencies. Developing, marketing, installing and operating a mass market service requires systems and methods. If these can be developed only once there will obviously be savings. There will also be savings in individual markets. Facilities for hiring, training and housing employees and warehousing equipment may each be subject to economies of scale.

B. Narrowband wireless

70. Sprint does not place a heavy emphasis on fixed wireless at present. Sprint PCS is engaged in a few limited fixed narrowband wireless trials. However, the new firm is more likely to seek fixed wireless alternatives to ILEC loop facilities. This is because the merged firm has larger total profits at risk to RBOC entry, and hence a larger total payoff to developing local access alternatives. As third generation (3G) wireless technology comes along, effectively expanding the call carrying capacity of existing CMRS licenses, the merged firm will have a greater incentive to develop and deploy fixed wireless. This would be particularly true in medium-sized cities and rural areas within the scope of Sprint's existing PCS licenses.

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<sup>33</sup> Broadband!, p. 96.

### C. Fiber Rings

71. Fiber rings are highly capital intensive. However, the merger will provide opportunities for expansion. First, it will be possible to market local fiber connections to Sprint customers that are currently served with ILEC special access facilities. This may justify extending rings to new buildings. Second, the combined long distance traffic of the two firms will likely justify extending fiber to ILEC central offices not currently served by competitive fiber. Once the ring is extended to these offices, the incremental cost of building to new customer locations is reduced. The end result is that competitive fiber will extend deeper and more intensively in the local network, providing additional competitive pressure to the ILECs.

### D. Resale/UNE Competition

72. As discussed above, resale, UNE-L and UNE-P provide a way for long distance competitors to have more direct access to their customers. As the RBOCs gain Section 271 authority, these entry strategies will become more and more important. Each of these three entry vehicles is subject, to a greater or lesser extent, to economies of scale. Consequently, the combined MCI WorldCom/Sprint will be better positioned to enter the local market than either company would be individually, and will be able to more rapidly extend service to a larger number of customers than either MCI WorldCom or Sprint would be able to do on its own.

73. The benefits of combining the business of the two firms can be illustrated with a model that MCI WorldCom has developed to evaluate the profitability of residential basic local exchange service. The Model description and results are attached

as Appendix A.<sup>34</sup> Publicly available information was used by MCI WorldCom to model a hypothetical CLEC. The model inputs include the rates for UNEs, local exchange resale, and charges for collocation, and applicable non-recurring charges for each entry scenario, as well as total element long run incremental cost (“TELRIC”) results from the HAI Model.

74. The Model compares the cost of resale, UNE-P, and UNE-L to projected residential telephone revenues to determine whether the CLEC local exchange service can be offered profitably using these entry vehicles. The model also studies the extent to which CLEC entry can result in savings to consumers, under any of these scenarios. The Model assumes ILEC cooperation in provisioning the UNE services. The implications of using UNEs to provide DSL service are discussed below.

75. For each of the three scenarios described above, the model was run to estimate the profitability of a theoretical CLEC as a function of market penetration and customer churn. The model runs were based on data for the highest density zone in New York. UNE costs are lowest in this zone. The profitability for the CLEC will be less in other zones because costs will be higher.

76. The resale strategy is not profitable for any reasonable estimate of CLEC churn or penetration. However, the model results show that at current rates in New York, the platform scenario can be profitable depending on statewide market penetration and customer churn assumptions. If customer churn is 15 percent, profitability can be achieved at a market penetration rate of four percent. However, if churn rises to 33

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<sup>34</sup> I have reviewed the MCI WorldCom Model and am familiar with its assumptions and operation. Many of the inputs in the Model rely on HAI Model 5.0a inputs and assumptions.