BEFORE THE
WASHINGTON UTILITIES AND TRANSPORTATION COMMISSION

In the Matter of the Petition of Qwest Corporation to Initiate a Mass-Market Switching and Dedicated Transport Case Pursuant to the Triennial Review Order	**Docket No. UT-033044**

DIRECT TESTIMONY OF

MARK L. STACY

Operational Impairment

ON BEHALF OF

WORLDCOM, INC. (MCI)

December 22, 2003

REDACTED (PUBLIC) VERSION

QSI CONSULTING
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I. INTRODUCTION

Q. PLEASE STATE YOUR NAME AND ADDRESS.

A. My name is Mark L. Stacy. My business address is 229 Stetson Drive, Cheyenne, Wyoming, 82009.

Q. BY WHOM ARE YOU EMPLOYED AND IN WHAT CAPACITY?

A. I am a Senior Consultant and the Director of Telecom Policy for QSI Consulting, Inc.

Q. PLEASE PROVIDE A SYNOPSIS OF YOUR EDUCATIONAL BACKGROUND AND RELEVANT WORK EXPERIENCE.

A. Before joining QSI, I was President of Stacy & Stacy Consulting, LLC. Like QSI, Stacy & Stacy is a consulting firm providing consulting services to domestic and international telecommunications carriers. During my tenure at Stacy & Stacy, I testified on behalf of a number of clients in regulatory proceedings in the Western United States on a wide range of subjects.

Before joining Stacy & Stacy, I was employed by Kenetech Windpower, Inc., where I was the regional manager of business and project development for the Rocky Mountain Region. Before my tenure at Kenetech, I was the Chief Economist for the Wyoming Public Service Commission. While at the Wyoming PSC, I was responsible for providing the Commission with a wide range of policy, economic, and technical expertise regarding telecommunications and other public utility issues.

In addition to my occupational experience, I hold a Bachelor of Science degree in Geology and a Master of Science degree in Public Utility and Regulatory Economics from the University of Wyoming.

Q. HAVE YOU PROVIDED TESTIMONY AND ADVOCACY BEFORE STATE UTILITY COMMISSIONS IN THE PAST?

A. Yes. Over the past 11 years, I have provided testimony and advocacy before state utility commissions in the following states: Arizona, Colorado, Connecticut, Florida, Idaho, Indiana, Iowa, Montana, Nebraska, New Mexico, New Jersey, New York, North Carolina, North Dakota, Oklahoma, Oregon, South Dakota, Utah, Wisconsin, Washington and Wyoming.

A more detailed discussion of my educational and professional experience can be found in Exhibit MLS-1, attached to this testimony.

Q. ON WHOSE BEHALF IS YOUR TESTIMONY PREPARED?

A. This testimony was prepared on behalf of WorldCom, Inc. (hereafter "MCI").

Q. WHAT IS THE PURPOSE OF YOUR TESTIMONY?

A. At paragraph 419 of its *Triennial Review Order*,[1] the Federal Communications Commission ("FCC") found, on a national basis, that competitive local exchange carriers ("CLECs") are impaired without access to unbundled local switching when attempting to serve the "mass market." The FCC pointed specifically to certain economic and operational criteria that served as the basis for its impairment finding, and asked state

[1] *In the Matter of Review of the Section 251 Unbundling Obligations of Incumbent Local Exchange Carriers, Implementation of the Local Competition Provisions of the Telecommunications Act of 1996, and Deployment of Wireline Services Offering Advanced Telecommunications Capability*, CC Docket Nos. 01-

commissions to review these issues in more detail as they contemplate whether the finding of impairment should be overturned in any of the telecommunications markets within their jurisdictions. *See Triennial Review Order* ¶ 493. At paragraph 476 of the *Triennial Review Order*, the FCC describes a number of economic and operational factors, including for example, issues related to incumbent local exchange carrier ("ILEC") unbundling performance, collocation and the lack of processes and procedures facilitating the transfer of loops from one CLEC's switch to another CLEC's switch. The FCC specifically identified these types of issues as those it believed could add to the impairment faced by CLECs attempting to provide services via UNE loop ("UNE-L") as compared to the relative ease with which CLECs can provide such services utilizing the UNE platform ("UNE-P").

Qwest has petitioned the Washington Utilities and Transportation Commission ("WUTC" or "Commission") to enter a finding of "non impairment" with respect to unbundled local switching for mass market customers in certain markets within the state and to remove unbundled local switching from the list of available unbundled network elements ("UNEs"). The purpose of this testimony is to describe why operational, network, and technological factors give rise to impairment, and to describe how CLECs generally, and MCI specifically, are impaired in their effort to serve the mass market without access to UNE switching in today's environment. This testimony also describes ways in which MCI believes many of the factors leading to today's impairment can be

338, 96-98 & 98-147, Report and Order and Order on Remand and Further Notice of Proposed Rulemaking, FCC 03-36, ¶ 3 (rel. Aug. 21, 2003) ("*Triennial Review Order*" or "*TRO*").

overcome with active oversight on the part of the Commission and cooperation of the industry.

Q. BEFORE SUMMARIZING YOUR TESTIMONY, DO YOU HAVE ANY GENERAL COMMENTS?

A. Yes. I believe it is critical to highlight the fact that UNE-P is successful today as a tool for mass market competition in large part because (1) a host of talented people and an enormous number of resources (Commission resources, CLEC resources and ILEC resources alike) were dedicated to its development as a commercially viable delivery platform over a period of many years (with the last four years exhibiting the most focused efforts), and (2) because it involves the end-to-end leasing of ILEC facilities, UNE-P provides CLECs access to the customer's loop in much the same manner as that available to the ILEC.[2] Further, it should be noted that much of the success of UNE-P must be attributed to the cooperation, however reluctant, on the part of the ILECs to overcome operational and business-related barriers, based almost solely on their desire for §271 relief.

To assume that the more challenging operational, technical, and network hurdles associated with UNE-L, which requires the connection of an unbundled loop facility with the CLEC's switch, will be overcome in a mere nine-month timeframe is not reasonable. Further, to assume such hurdles can be overcome in this limited timeframe without incentives on the part of the ILECs that have, for the most part, already been released from market restrictions via §271 is even more difficult to support. It is more logical to

assume that the operational and technological issues giving rise to impairment will be resolved over time, and true loop portability – as described throughout this testimony – will become a reality only with the guidance and oversight of state commissions and proper incentives for ILEC cooperation.

Q. ARE THERE PARTICULAR ISSUES THE COMMISSION SHOULD KEEP IN MIND RELATIVE TO IMPAIRMENT FOR MASS MARKET SWITCHING AND EFFORTS MADE TO MITIGATE THAT IMPAIRMENT OVER TIME?

A. Yes. To the extent this Commission determines that the UNE-L strategy should become more widely implemented, it must recognize that transferring a customer's service from the local switch of one carrier to that of another relies upon numerous Operational Support Systems ("OSS") processes and procedures, as well as the availability and reliability of network elements, comprising a chain of connectivity between the customer and his/her local service provider of choice. Because of this necessary chain of connectivity, even if one assumes that ILEC hot cut processes can become seamless at some point in the future, CLECs are likely to remain impaired as a result of numerous operational and technological issues affecting loops, collocation, and transport.[3] Hence, it is imperative that the Commission remain focused on each of these issues when evaluating impairment and keep an unwavering eye on the primary objective—to ensure that mass market consumers can, at ever increasing volumes,

[2] Here, "commercially viable" is meant to address efficiency (from both the ILEC and CLEC perspectives), reliability, timeliness, and economics.
[3] Indeed, the FCC found that hot cuts are not the only issue which may give rise to impairment.

transfer their services from one facilities-based local service provider to another without service disruption or other service impacting problems.

Q. ARE THERE BENCHMARKS AGAINST WHICH UNE-L PROVISIONING PROCESSES, LIKE THE BATCH HOT CUT PROCESS, SHOULD BE MEASURED RELATIVE TO THE SEAMLESSNESS AND RELIABILITY YOU ALLUDE TO ABOVE?

A. Yes. Throughout this testimony, I will point the Commission to the largely seamless and reliable nature of the existing UNE-P process as the benchmark to which UNE-L provisioning processes should be held if impairment is to be overcome. A move to UNE-L as a mass market delivery method cannot occur until the ILEC's processes can support the seamless and reliable provisioning of loops to multiple carriers at commercial volumes on a day-to-day basis, consistent with the manner in which they currently accommodate CLEC orders via UNE-P. MCI recommends that the Commission maintain the national finding of impairment throughout all telecommunications markets in the state of Washington until such time as UNE-L can realistically replace UNE-P as a tool for serving mass market customers. This will, at a minimum, require resolution of the many operational issues that I address in the remainder of this testimony, as well as those discussed by MCI witnesses, Messrs. Cox and Cabe.

Q. THERE IS A GOOD DEAL OF DISCUSSION IN THE FCC'S *TRIENNIAL REVIEW ORDER* REGARDING "TRIGGERS" AND ANALYSIS RELATED TO "ACTUAL DEPLOYMENT." IS YOUR TESTIMONY RELEVANT TO THOSE ISSUES?

A. Absolutely. As Dr. Cabe discusses in his testimony, the trigger analysis is meant to examine whether mass markets consumers have three real and current choices

available to them through facilities-based carriers.[4] The stated intention of the trigger analysis is to give weight to evidence that carriers in the real world are actually providing service to mass market customers without UNE-P, and that those carriers could continue to serve mass market customers within the entire identified market if UNE-P were discontinued. If these "triggering" carriers are able to provide services without UNE-P within the relevant market today and have the ability to continue providing it in the future, those alleged "triggering" companies must have overcome operational issues related to accessing the ILEC's loop facility. Nonetheless, to qualify as a legitimate "trigger," the carrier would be required to overcome these obstacles on a going forward basis,[5] and perhaps to overcome them in areas of the market where it does not currently offer services.[6] In evaluating the legitimacy of an identified trigger, the Commission needs to understand what operational issues exist relative to a UNE-L delivery strategy, and how the identified trigger company overcomes those obstacles throughout the market, both today and in the future.

Q. PLEASE BRIEFLY SUMMARIZE YOUR CONCLUSIONS.

A. As discussed in Mr. Cox's testimony, MCI intends to move toward serving its mass market customers using its own switching, collocation and transport facilities in combination with ILEC-provided unbundled loops. MCI intends to pursue this strategy

[4] Or in a less likely circumstance, whether carriers have two wholesale alternatives from facilities based carriers within the relevant market.
[5] See *Triennial Review Order* ¶ 500 where the FCC states: "The key consideration to be examined by state commissions is whether the providers are currently offering and able to provide service, ***and are likely to continue to do so***." (Emphasis added).

aggressively in locations where certain operational and economic hurdles can be overcome. However, this strategy is critically dependent upon reliable access to the customer's loop, OSS, processes, procedures and other facilities needed to ensure that loops can be successfully extended to CLEC switching facilities and maintained on an on-going basis.

Q. ARE THE ISSUES YOU ARE ALLUDING TO ALLEVIATED WITH AN EFFECTIVE HOT CUT PROCESS?

A. No, they are not. While an improved hot cut process is critical to a workable UNE-L platform, numerous other operational issues give rise to the impairment CLECs face today without access to UNE switching. The Commission should recognize that moving from a UNE-P to a UNE-L strategy requires a true paradigm shift for both the CLEC and its underlying loop provider, the ILEC. And, based upon the operational issues described in this testimony, as well as the customer impacting issues discussed in Mr. Cox's testimony, MCI would be uncomfortable migrating its sizeable UNE-P customer base to a UNE-L strategy in the near future. MCI simply has no confidence that through a UNE-L arrangement, its customers would continue to receive the quality of service they have come to expect. Simply put, MCI sees no reasonable way, in the near term, to migrate its thousands of Washington UNE-P customers to a UNE-L delivery platform without massive service disruption, service impacting errors, and an overall decrease in customer service. Moreover, as described in Dr. Cabe's testimony, it

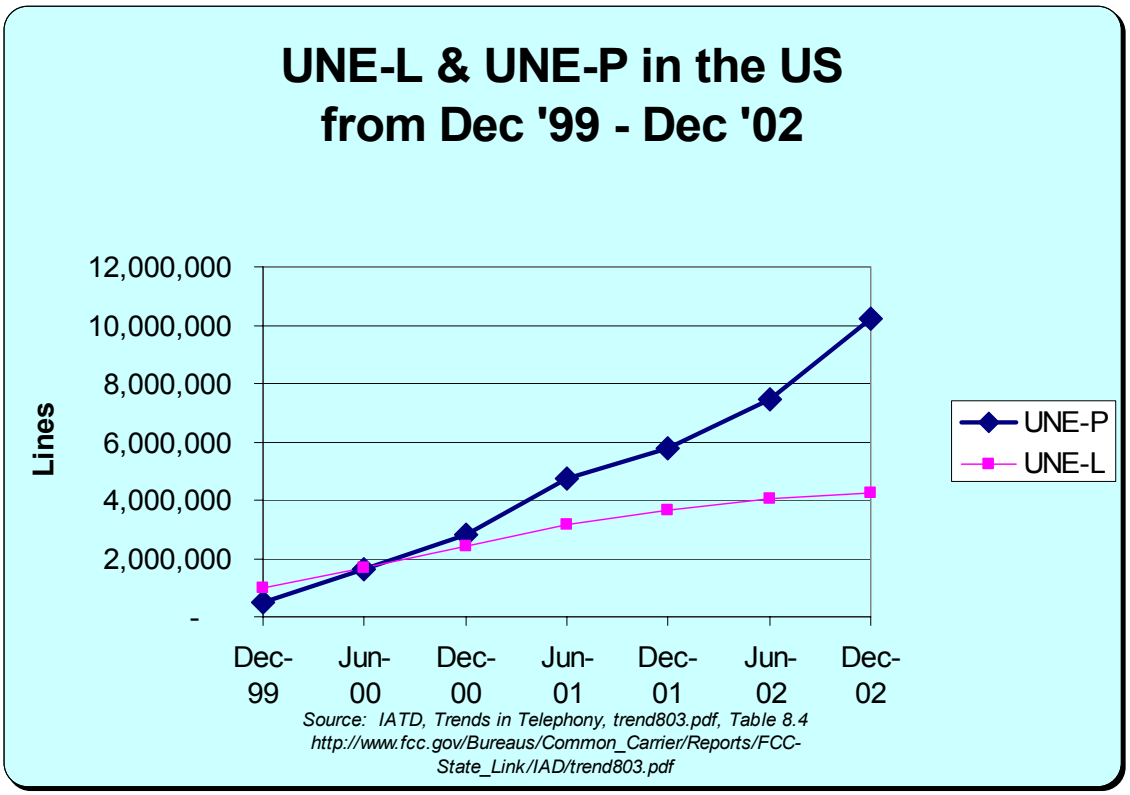
[6] See *Triennial Review Order* ¶ 499 where the FCC states: "They should be capable of economically serving the entire market, as that market is defined by the state commission. This prevents counting switch providers that provide services that are desirable only to a particular segment of the market."

would not be economic for MCI to do so. Until the UNE-L transition process becomes as seamless as that of UNE-P, MCI, as well as other CLECs, remain operationally impaired without access to unbundled local switching as a means to access the ILECs' local loop.

Q. WILL THE PARADIGM SHIFT YOU DISCUSSED IN YOUR PREVIOUS ANSWER HAVE A MAJOR IMPACT ON COMPETITION NATIONALLY AND IN WASHINGTON?

A. Yes, it certainly has the potential to do so. The seamlessness and efficiency associated with UNE-P has, for the first time, made it possible for CLECs to enter the marketplace in a meaningful way, with UNE-P-based market penetration outpacing UNE-L based market penetration by about 2.5 to 1 on a national basis as depicted in Table 1. *See* FCC, *Industry Analysis and Technology Division's Trends in Telephone Service*, August 2003.

TABLE 1

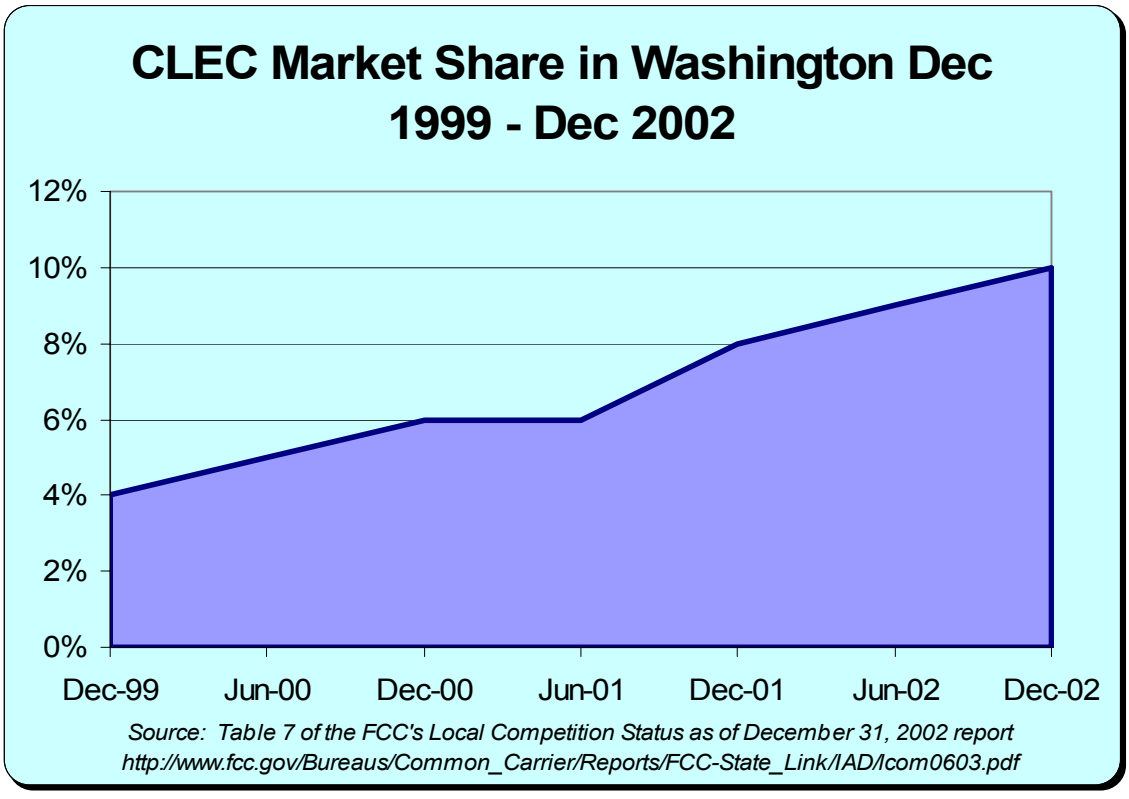


In order for this type of entry to remain sustainable, and for customers to enjoy the resultant economic benefits, the ease by which CLECs can participate in the market via UNE-P must be reproduced via the UNE-L strategy. That is, loop portability must become an operational and economic reality. If that benchmark is not attained, the competitive market, and more importantly, consumers, will suffer. Indeed, CLEC market share would decline significantly and the consumer benefits attributable to CLEC entry would likely diminish as well.

Q. HAS THE SEAMLESSNESS AND EFFICIENCY OF UNE-P HAD AN IMPACT ON COMPETITION IN THE LOCAL EXCHANGE MARKET IN WASHINGTON IN MUCH THE SAME MANNER AS IT HAS NATIONALLY?

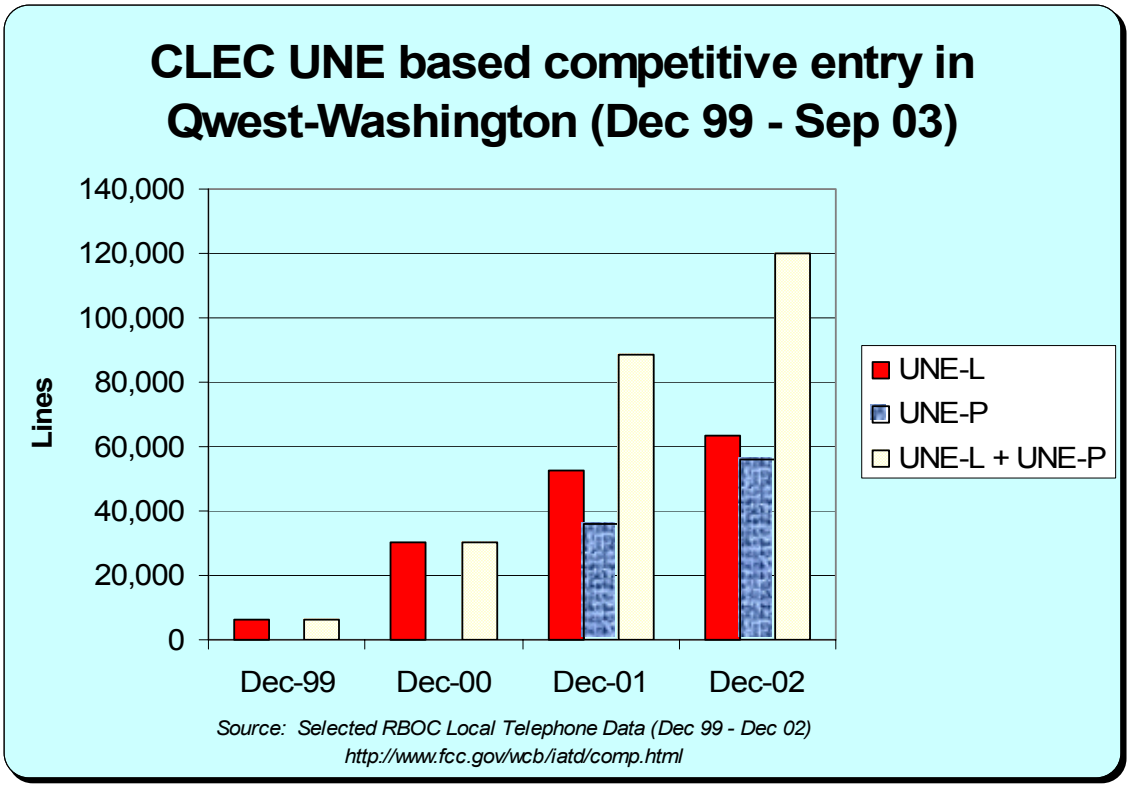
A. It certainly has. In fact, as the tables below demonstrate, CLEC penetration rates for Washington have more than doubled from December 1999 to December 2002. At the same time, UNE-P growth has comprised nearly all of Qwest's network based competitive losses. Indeed, as depicted in Table 2.1, the CLEC penetration rate in Washington has increased from roughly 4% to 10% over the past three years, according to FCC data.

TABLE 2.1



Moreover, Table 2.2 below highlights the fact that the greatest part of this aggressive growth results directly from UNE-P and its success in overcoming the operational (and economic) barriers that had restrained growth from resale and UNE-L alternatives previously. In fact, as can be seen in Table 2.2, without UNE-P driving growth, CLEC entry into the market overall would have been fairly flat.

TABLE 2.2



Q. ARE THERE IMPORTANT AREAS OF CONCERN UPON WHICH THE COMMISSION SHOULD FOCUS IN EVALUATING IMPAIRMENT RELATIVE TO MASS MARKET CUSTOMERS AND THE CHALLENGES THAT EXIST WITH A UNE-L DELIVERY STRATEGY?

A. Yes. For purposes of clarity, I have identified three broad areas of concern the Commission should consider when evaluating the operational and technical impairment

that exists for carriers attempting to utilize UNE-L in order to serve mass market customers:

(1) Loop Provisioning Issues:

While the FCC in its *Triennial Review Order* focused primarily on "hot cuts" and the impairment resulting from the inability of CLECs to reliably, seamlessly and economically cut loops in large numbers (*i.e.*, in a "batch"), this is but one of the provisioning issues giving rise to impairment without UNE switching. Issues related to untested provisioning processes operating at dramatically increased volumes on a day-to-day basis (not only for "batch" cuts but for future provisioning requirements), the increased reliability issues associated with substantial manual intervention in the provisioning process when compared to UNE-P which is largely automated, and the need to manage multiple provisioning scenarios (*i.e.*, CLEC-to-CLEC, UNE-L to Line Splitting, etc.) are also worth noting. Solutions to all of these issues must be in place (and tested for proper performance) before UNE-L can be said to exist as a viable mass market delivery platform.

(2) Loop Facilities:

ILECs have argued for years that end user loops served via Integrated Digital Loop Carrier ("IDLC") technology cannot be unbundled and provided to CLECs for UNE-L provisioning, because those loops are permanently combined (*i.e.*, "integrated") with their local switching facilities. Instead of admitting that IDLC can technically be unbundled and thereafter working to address the remaining operational aspects of any

231 necessary solutions, they insist "work-arounds" must be implemented before a customer
232 served via IDLC can be reached by a competitor. These workarounds are often time
233 consuming, costly, and fraught with technological deficiencies. To further exacerbate
234 this problem, ILECs appear to be employing IDLC technology with increasing frequency.
235 For example, it has been our experience that IDLC is used to serve as many as 40% to
236 60% of the end users in some central offices.

237 Because of these technological challenges associated with unbundling IDLC
238 loops, ILECs have consistently suggested that UNE-L requests for loops served via IDLC
239 must "fall out" of any provisioning process (including "batch" hot cuts) and be
240 provisioned via an extremely expensive and time-consuming manual process. These
241 issues must be addressed and resolved before a finding of non impairment can be entered.

242 It is worth noting that these issues do not arise in a UNE-P environment. Because
243 IDLC loops are integrated with the ILEC's switch and UNE-P uses both the loop and
244 switch facility, this connection between the two need not be broken to provide a working
245 circuit in a UNE-P environment. For this reason, the myriad issues that arise with respect
246 to unbundling IDLC are unique to a UNE-L strategy and clearly these issues must be
247 addressed and resolved before it can be decided that impairment has been overcome
248 specific to UNE switching.

249 Moreover, there are specific concerns regarding the ability of CLECs that employ
250 UNE-L to provision xDSL services or dial up services at comparable levels of quality as

the ILECs are able to provide. As such, the CLEC's ability to offer adequately "bundled" packages of services, increasingly demanded by customers, is threatened.

(3) Collocation/Transport Complexities

A workable UNE-L architecture requires the CLEC to procure and place numerous telecommunications assets for purposes of aggregating and transporting UNE loops from the ILEC's central office to its own switching facility. Many of these facilities can be purchased and managed by the CLEC itself (*i.e.*, loop aggregation equipment), while others are likely to be purchased from the ILEC and managed consistent with interconnection agreements and tariffs (*e.g.*, collocation, transport and EEL capacity). The Commission should consider that both of these types of facilities are unique to UNE-L architecture and are not required either by the ILEC in serving its own retail customers, or by a CLEC relying upon UNE-P. As such, the operational processes and resultant costs of procuring, placing and managing these facilities are over-and-beyond those costs incurred by the ILEC or by a CLEC using UNE-P. This is important to understand because the additional complexity associated with procuring and managing these facilities is not only important from a perspective of operational impairment (in some circumstances), but must also be considered for purposes of economic impairment.[7]

Additionally, the availability and extent to which such services are currently deployed in relationship to the mass market must be contemplated when addressing

[7] While a separate piece of testimony speaks directly to the economic impact of these collocation and transport facilities and their relationship to economic impairment, this testimony describes the need for those facilities and the extent to which costs associated with those facilities are unique to a UNE-L delivery strategy.

impairment from an operational standpoint, particularly if ILEC policies, procedures and abilities are limiting factors.

II. ILEC HOT CUT PROCESSES ARE INADEQUATE AND LEAD TO IMPAIRMENT

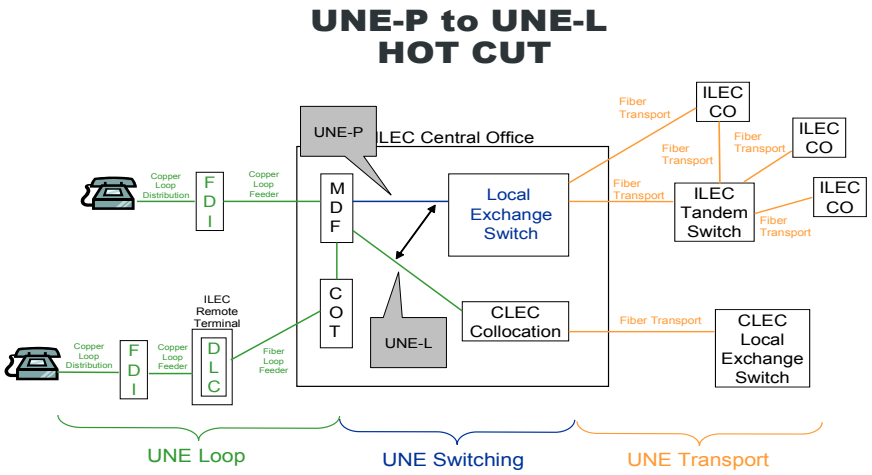
Q. THERE ARE A NUMBER OF ISSUES IN THIS PROCEEDING RELATED TO HOT CUTS. PLEASE DESCRIBE THE HOT CUT PROCESS AND EXPLAIN WHY THESE ISSUES ARE IMPORTANT.

A. The term "hot cut" describes the near-simultaneous disconnection of a working loop from a port on one carrier's switch and the reconnection of that loop to a port on a different carrier's switch, without any significant out-of-service period.[8] A hot cut must also include some type of notification made to the appropriate number administrator informing the administrator that the customer's telephone number is now assigned to a different carrier, thereby allowing the customer to receive incoming calls at his/her existing telephone number. In a hot-cut scenario, regardless of whose switch the customer is moving from and to, the ILEC must perform two manual wiring activities at the main distributing frame ("MDF"): (1) prewiring; and (2) the actual loop cutover.

Q. PLEASE EXPLAIN THE "PREWIRING" THAT OCCURS ON THE MDF.

A. During the pre-wiring stage, the technician places a jumper between the CLEC tie facility connecting the CLEC's collocation cage to the ILEC central office and the customer loop. This tie facility is sometimes referred to as a "carrier facility arrangement." The carrier facility arrangement generally runs from the CLEC collocation to the vertical side of the intermediate frame. The jumper is terminated at the

CLEC tie facility but not at the ILEC loop side. When the cut is scheduled to begin, the jumper that is connected to the loop side of the existing loop/port arrangement is disconnected and the jumper connected to the receiving CLEC's tie facility is terminated in its place. This completes a circuit between the CLEC facility in its collocation cage and the customer's loop, thereby accomplishing the cut. A test for dial tone is also required to ensure the adequacy of the circuit. As discussed above, Local Number Portability ("LNP") translation activities are typically involved with this type of transaction and have traditionally been the responsibility of the receiving carrier. The diagram below provides a high level depiction of the process described above.



[5]

[8] An important aspect of this process is that it should be transparent (*i.e.*, a migration process so seamless that the customer is actually unaware that it is occurring) to the consumer.

Q. PARAGRAPH 488 OF THE FCC'S *TRIENNIAL REVIEW ORDER* DIRECTS STATE COMMISSIONS TO APPROVE "BATCH" HOT CUT PROCESSES TO BE IMPLEMENTED BY ILECS. ARE THESE PROCESSES DIFFERENT FROM THE EXISTING PROCESSES?

A. Yes, they should be significantly different. These new processes – once approved, implemented and tested – will serve two distinct purposes. MCI uses the term ***Transition Batch Hot Cut Process*** to address the FCC's requirements that a "seamless, low-cost batch cut process for switching mass market customers from one carrier to another" be approved which – when implemented – will allow CLECs an opportunity to compete effectively in the mass market. *Triennial Review Order* ¶ 487. This process should be implemented in order to effectuate a transition of the embedded base of UNE-P customers onto UNE-L in large quantities, or "batches." A variant of this process should also transcend migrations *en masse* in order for CLECs to be able to compete effectively for mass-market customers on an ongoing, day-to-day basis. This daily process is referred to as a ***Mass Market Hot Cut Process***. To the extent that ILECs are unable to implement *Transitional Batch Hot Cut Processes*, the initial mass transitioning of the embedded base of customers from UNE-P to UNE-L will not be manageable. Moreover, if an effective, permanent process is not established, CLECs will remain impaired in their ability to address the mass market for all of the reasons cited in the *Triennial Review Order*. Given that the FCC based its national finding of impairment, at least in part, upon the absence of adequate hot cut processes, this Commission should evaluate any proposed processes in this context. Moreover, the Commission should ensure that hot cut processes are not only "identified" and "documented", but that they are actually tested

and implemented prior to contemplating whether a finding of non-impairment in the absence of unbundled local switching is appropriate. Further, the Commission must ensure that the process works under commercial loads going forward.

Q. IS THE COMMISSION SOMEHOW CONFINED TO AN EXAMINATION OF HOT CUT PROCESSES WITHIN THE CONTEXT OF "TRIGGER ANALYSES" OR LIMITED TO ANALYSES OF "BATCH" PROCESSES THAT ARE DESIGNED TO ADDRESS THE BATCH MIGRATION DESCRIBED ABOVE?

A. No. The Commission is not restricted in either sense. As described above, state commissions must approve hot cut processes independent of trigger analyses. Moreover, the FCC found that carriers are impaired without access to unbundled local switching when attempting to address mass-market customers due in part to inadequate hot cut processes. In directing the commissions to examine issues of impairment more generally, the FCC indicated that state commissions should perform more granular analyses to determine whether a finding of "no impairment" should be granted and, in doing so, directed the commissions to examine other factors that include "difficulties in performing customer migrations between competitive LECs." *Triennial Review Order* ¶ 424, n.1298. Such difficulties may well arise outside of the "batch" concept discussed above and will likely lead to impairment absent some intervention by the Commission. Hence, the Commission should view its responsibility relative to hot cuts as twofold: (1) The Commission must, within nine months, approve a *Transition Batch Hot Cut* process that would, given a finding of non-impairment, allow carriers to migrate customers en masse from UNE-P to UNE-L; and (2) evaluate the extent to which carriers would still be

impaired on a going forward, day-to-day basis, unless a seamless, efficient, and low cost *Mass Market Hot Cuts* process was also in place (it is my understanding that no similar 9 month window constrains the Commission review in this regard). Without the successful implementation of both processes, the type of loop portability needed to make UNE-L a suitable replacement for UNE-P cannot become an operational and economic reality. Moreover, as discussed in Dr. Cabe's testimony, the extent to which UNE-L is viable for the mass market will be dependent, at least in part, on the costs incurred during the hot cut process. As such, a diligent application of the FCC's existing TELRIC rules must also accompany the development of both the *Transitional* and *Mass Market* processes.

Q. HAVE YOU HAD AN OPPORTUNITY TO REVIEW THE EXISTING HOT CUT PROCESSES USED BY QWEST?

A. Only to a limited degree. Because MCI does not use its own switches to serve mass market customers (it has used its switches to serve only enterprise customers to this point), MCI does not have substantial experience with Qwest's existing hot cut process. Nonetheless, as discussed in Mr. Cox's testimony, MCI believes the existing processes are inadequate and would not effectively measure-up to the FCC's requirements. In fact, Mr. Cox identifies many customer-impacting, operational issues that involve the exchange of information that must take place in a migration to UNE-L that make the current processes unworkable for the mass market in particular. MCI has serious concerns regarding the extent to which Qwest will be successful in designing, testing and implementing *Transitional Batch Hot Cut* processes which will be capable of seamlessly transferring customer's loops from one carrier's switch to another carrier's switch (which

I refer to as "loop portability") on an economic basis. Likewise, MCI is concerned about the extent to which Qwest will successfully implement a *Mass Market Migration Hot Cut* process that will be necessary to address the increasing daily migration and churn related volumes, which will no doubt exist in a dynamic competitive market where UNE-L is used to serve the mass market.

Q. GENERALLY SPEAKING, WHAT ARE THE MAIN ISSUES THE COMMISSION SHOULD CONTEMPLATE WHEN DETERMINING THE PROCESS THAT SHOULD BE EMPLOYED TO PERFORM BATCH HOT CUTS?

A. In addition to the numerous issues described in Mr. Cox's testimony, MCI's concerns regarding Qwest's hot cut process can generally be categorized as follows: (1) workability; (2) availability; (3) costs; and (4) scalability.

Q. PLEASE PROVIDE ADDITIONAL DETAIL REGARDING EACH OF MCI'S CONCERNS.

A. In markets where MCI chooses to serve its substantial mass market customer base via UNE-L, a hot cut will be required for each new customer it wins. Given this fact, as well as the migration of existing UNE-P customers to UNE-L *en masse*, the capabilities of the Qwest systems and processes to accommodate this substantially increased volume of hot cuts in a timely manner without customer service interruption is paramount. Using existing Qwest processes, manual intervention will be required for each loop cutover. In other words, an ILEC technician will need to be dispatched to accommodate the frame manipulation for every single loop that must be transitioned from one carrier to another (in Washington this will be literally thousands of loops in a transition and perhaps thousands each month thereafter). Concerns regarding Qwest's ability to handle

hundreds of thousands of these types of manual orders on an ongoing basis are legitimate. This is especially troubling given that Qwest has accomplished very few of these hot cuts in a commercial setting, and almost none on a mass markets basis because hot cuts have been primarily used to accommodate limited numbers of enterprise customers.

Q. PLEASE EXPLAIN YOUR CONCERNS RELATIVE TO "WORKABILITY."

A. A hot cut is, by definition, a coordinated effort on the part of the ILEC and the CLEC to "cut" a loop with minimal disconnection time (*i.e.*, the time wherein the customer is connected to no switch or is connected to a switch wherein his/her telephone number is no longer active).[9] For this reason, the Qwest hot cut process must be specifically designed to minimize not only the time and cost specific to Qwest's activities, but also those associated with the CLEC (both CLEC representatives and CLEC systems). In short, the Qwest process must work well not only for Qwest, but for the CLEC as well. Systems and processes must be in place so that Qwest and the CLEC can quickly and efficiently exchange information about the cut process as it progresses.

Q. PLEASE EXPLAIN YOUR CONCERNS ABOUT "AVAILABILITY."

A. Even with the limited amount of information available from the Batch Hot Cut Forum in the Qwest region, it is clear that Qwest intends to limit both the types of loops and the number of loops it will accommodate via a batch hot cut. More specifically, Qwest has stated that it will not utilize the batch hot cut process when a truck roll is

[9] Qwest defines a batch hot cut as "[t]he conversion or migration of an existing service to another service (*i.e.*, UNE-P to UNE-Loop). In other words, Qwest facilities are already assigned to the end user customer

414 required. While on its face this seems reasonable, there is some disagreement as to when
415 and why a truck dispatch would be required. Qwest has stated that it will not perform
416 batch hot cuts for the following types of cuts: (1) CLEC-to-CLEC, UNE-L based
417 migrations; (2) lines currently involved in a "line splitting" arrangement; (3) IDLC lines;
418 (4) lines to be provisioned over Enhanced Extended Links ("EELs"); and (5) requests for
419 batches with greater than 100 loops per day per central office. All of these restrictions,
420 and others, substantially reduce the benefit provided by the hot cut process and could
421 severely limit the efficiency by which CLECs could offer mass market services on a
422 UNE-L basis. In short, hot cut processes with these types of restrictions do very little to
423 help overcome the FCC's national finding of impairment and should not be approved by
424 this Commission.

425 **Q. EXPLAIN YOUR CONCERNS RELATIVE TO HOT CUT COSTS.**

426 A. After substantial time and effort, CLECs and state commissions waded through a
427 plethora of ILEC data to conclude that UNE-P provisioning costs were closer to $1 in a
428 migration situation, as opposed to the more than $100 originally advocated by the ILECs.
429 The lesson to be learned from that experience is that ILECs have an observed propensity
430 to dramatically to exaggerate the costs associated with provisioning UNEs and their
431 estimates tend to be based on cost studies that incorporate inefficient procedures or
432 technologies. Likewise, their studies are generally defined by duplicative work steps,
433 exaggerated estimated work times and many other errors all tending toward non-

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and appear on Customer Service Record (CSR). The facilities are reusable." See Acronyms List – Qwest Batch Hot Cut Forum.

recurring charges substantially in excess of efficiently incurred costs. The same will undoubtedly be true of the hot cut process and the cost studies that accompany them. For that reason, it is critical that this Commission understand that the hot cut process will, for the most part, take the place of a UNE-P migration. (*i.e.*, the method by which most mass market customers are changed from one carrier to another today). Thus, to the extent non-recurring costs for the hot cut process substantially exceed existing UNE-P migration charges, UNE-L will suffer from an economic disadvantage relative to UNE-P and relative to the ILEC's retail services that are, in large part, similar to a UNE-P migration. MCI is concerned that existing hot cut costs – to the extent they might be applied in the future – and any hot cut charges which may be determined in future proceedings will be inappropriately based upon inefficient processes and technologies and, as a consequence, set at rates which are too high to allow for economic use of the UNE-L strategy for mass market customers.

Q. HAS QWEST PROVIDED ESTIMATED COSTS AND PRICES FOR ITS BATCH HOT CUT PROCESS?

A. No. This has been a topic of great debate during the Batch Hot Cut Forum. It is impossible for CLECs to fully evaluate Qwest's batch hot cut proposal without knowing the cost of that process. Qwest must provide the cost of the proposed batch hot cut so that CLECs and other parties can scrutinize those costs and ensure that they reflect the efficiencies and cost savings that the FCC intended, *i.e.*, do more for less. It is impossible to accept a batch hot cut process without knowing the cost of that process.

Q. HAVEN'T ILECS MADE STATEMENTS TO THE EFFECT THAT THESE HOT CUT MIGRATIONS WILL NOT POSE ANY PROBLEMS?

A. Yes. Though ILECs claim that they can handle large volumes of hot cuts, the facts simply do not support their claims. For example, in New York, even based upon its own calculations, Verizon anticipates the need to hire and train literally thousands of new employees just to accommodate the increased volume of hot cut demands.[10] Qwest, on the other hand, has no plans to increase staff whatsoever in order to deal with these needs and instead will dedicate only two central office technicians per central office to do the batch hot cuts. For that reason, Qwest is proposing to limit its batch hot cuts to 100 per central office per day. In smaller central offices, a team of two technicians may be understandable. In larger central offices, however, Qwest could certainly bring more technicians to the task and accomplish far more than 100 batch hot cuts per day.[11] As this Commission is aware, when the migration of the embedded base begins, the largest central offices will have substantially more batch hot cut requests – perhaps several hundred per CLEC per central office per day. The fact that Qwest, unlike other ILECs, does not see the need to "gear up" in order to accommodate the batch hot cut requests should be a cause for this Commission's concern.

[10] See Verizon's Panel Testimony filed October 24, 2003, New York Case No. 02-C-1425, Exhibit V-A, Force Load Model.

[11] There is some doubt as to whether Qwest can even achieve this number of hot cuts per day. Given Qwest's estimated task times for hot cuts (discussed at the BHC Forum) it would not be possible for 2 technicians to complete 100 hot cuts in an 8 hour day. Additionally, according to Qwest's response to WUTC Bench Request 1-017, Qwest has no experience dealing with hot cuts at even this limited volume.

Q. PLEASE EXPLAIN IN MORE DETAIL.

A. From the information I have seen to date from ILECs across the country, typically only individual hot cuts are given standard completion appointment intervals. Batch hot cut project completion due dates are normally negotiated, which allows the ILEC to spread its workload to meet the throughput restraints of the underlying process. The manual requirements of the process dictate the need to match the appropriate number of technicians and other personnel with the volume of work that is requested and, as such, it is the manned workforce that provides the restraining factor in upward scalability. As volumes increase, a workload strain is placed on the existing work force, eventually leading to transfers from other jobs within the ILEC or through new hires in order to meet demand. Unfortunately, even if Qwest did plan to increase staffing in preparation for increased hot cut volumes, simply "throwing more bodies" at the problem is only helpful to a limited degree, as real-world constraints on the number of technicians that can work on a given frame at a given time come into play. To the extent the ILEC's process cannot keep up with the dramatically increased demand for hot cuts, the compounding effect of missed cut dates would create long UNE-L provisioning intervals and an enormous backlog of hot cut requests.

Q. WHAT IS THE MAJOR OBSTACLE TO A SCALABLE HOT CUT PROCESS ON THE PART OF THE ILECS?

A. The major bottleneck in the hot cut processes advocated by the ILECs exists at the main distribution frame ("MDF"). As described before, from an operational standpoint (absent installation and implementation of new technology that I will discuss

later), in a UNE-L environment each customer must be rewired manually for purposes of connecting the UNE loop to the receiving CLEC's collocation cage or EEL arrangement. This raises another important factor specific to scalability, *i.e.*, differences between large hot cut jobs undertaken today (or in the past) by the ILECs versus the very different hot cut requirements they will face in a market without UNE-P. Currently, large project hot cuts typically involve one or a limited number of individual multi-line business customers wherein the cut, though potentially impacting many loops, is specific to a given customer. Frequently, the loop MDF connections for these groups of multiple lines are centrally located on the frame and typically all of the customers' loops are relatively concentrated geographically on the frame, because they terminate at the same premises. Conversely, a hot cut for a large group of residential, single line customers will generally appear at random frame locations. It is easy to envision multiple frame technicians working on a number of individual large business hot cuts concentrated on a given loop count; however, it is equally as easy to envision the potentially chaotic situation that could develop as a result of multiple technicians working simultaneously on a number of large residential single line hot cut projects involving loops appearing in random locations on the frame. Therefore, even though an increase in staffing may allow Qwest to achieve more hot cuts per day in the short term, such staffing increases should not be considered to be a total or permanent solution to the problem. MCI believes that such a solution will likely only be achieved through a change in technologies.

Q. ARE THERE ANY RECOMMENDATIONS YOU CAN MAKE TO THIS COMMISSION REGARDING THE LONG TERM USE OF TECHNOLOGY TO REDUCE LABOR TIMES, EXPENSES AND THE POTENTIAL FOR ERROR IN THE HOT CUT PROCESS?

A. Yes. If policy makers truly intend for UNE-L to replace UNE-P, such that millions of loops will be "ported" from one carrier to another on a regular basis, technology that automates the loop cutover function is the only way to reach that objective. Today's "hot cut processes" as briefly described above remain largely manual, labor intensive, and can be made only marginally more efficient with system and process related improvements. While many of these process and systems changes are important and can lead to a more efficient, scalable and low cost hot cut methodology, they completely ignore the largest manually intensive step in the process, *i.e.*, the work of the frame technician to actually cutover the loop.

Q. CAN YOU PROVIDE AN EXAMPLE OF THE SYSTEM OR PROCESSES IMPROVEMENTS THAT CAN BE MADE FOR PURPOSES OF IMPROVING THE HOT CUT PROCESS?

A. Many ILECs, like SBC and Verizon,[12] are experimenting with electronic systems that help the two companies involved in a hot cut first schedule the appropriate activities, and then track the progress of the activities on a near real-time basis. The intention of these systems is to mitigate the need for a three-way conference call that has generally existed between the CLEC, the ILEC frame technician and an ILEC provisioning agent on the day of the cut (as well as other manual coordination steps). Further, these systems

[12] Verizon continues to develop its Wholesale Provisioning and Tracking System ("WPTS") while SBC is furthering the development of its Provisioning Web Site ("PWS") system. Both systems have been

should help reduce, if not eliminate, any up-front "negotiation" required between the CLEC and the ILEC in choosing the most efficient time for a given CLEC's hot cut orders to be provisioned. While at least two of the nation's ILECs (SBC and Verizon) have described electronic systems they are currently developing toward further automating these non-frame processes, much still needs to be learned about these systems and their capabilities (*i.e.*, can they operate in a system-to-system mode without monitoring by CLEC personnel, can they provide near real-time, if not real-time, access to work step completion information). To my knowledge, Qwest is conducting no such experimentation with these systems.

Q. DO THE SYSTEMS YOU HAVE DESCRIBED ABOVE ADDRESS MANUAL WORK STEPS ASSOCIATED WITH THE ACTUAL PREWIRING AND LOOP CUTOVER ACTIVITIES UNDERTAKEN BY A FRAME TECHNICIAN?

A. No. Though the pre-wiring and cutover functions undertaken by the ILEC's frame technician represent the most substantial barriers to proper scalability, reliability and cost reduction, MCI is not aware of any ILEC proposing some type of mechanization or automation of any of these functions within its hot cut process. Qwest has indicated in its response to WUTC Bench Request 1-030 that it does not intend to avail itself of electronic loop provisioning processes that could mitigate these barriers.

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heralded by each company as a solution to many of the coordination steps that were heretofore performed manually.

Q. DOES TECHNOLOGY EXIST THAT COULD BE USED TO AUTOMATE THESE FUNCTIONS?

A. Yes, and many of the ILECs utilize these technologies for purposes of provisioning retail products with the specific intention of removing manual work steps from their provisioning process. For example, Verizon employs the two most common types of technology that can be used to cutover a loop without manual intervention: (1) automated or mechanized frame systems and (2) electronic loop provisioning via GR-303.[13] There are numerous vendors that provide these automated loop provisioning systems and, not surprisingly, each vendor describes in detail how its system can obviate the need for manual intervention in the cutover process. Examples of vendors who provide electromechanical and micro-relay type frame systems include NHC (www.nhc.com) and Simplernetworks (www.simplernetworks.com), respectively. There are many others as well.

Q. PLEASE EXPLAIN THE LIMITATIONS CURRENTLY HINDERING THIS TECHNOLOGY FOR MORE WIDESPREAD USE.

A. For the most part, it appears the largest hindrance with respect to these automated systems is incentive, not technology. Unless required to provide a UNE-L provisioning process approaching the automated efficiency of their retail or UNE-P based services, ILECs have little incentive to consider a technology that will make UNE-L a more viable option. Indeed, ILECs are motivated to delay the implementation of such advances, claiming such advancements are unnecessary, too costly or impossible. As long as

[13] GR-303 is a Bellcore (now "Telcordia") standard around which multiple equipment vendors build "next generation digital loop carrier" systems ("NGDLC").

ILECs can convince state commissions that the substantially limited manual processes, and the enormous non-recurring charges they require, are sufficient, the ILECs have little incentive to automate the process or improve it to any degree beyond that required on a regulatory basis. As such, ILECs spend the majority of their time pointing to the limitations of existing equipment rather than describing how it could be improved or trialing innovative alternatives.

Q. ARE PROBLEMS ASSOCIATED WITH HOT CUTS EXACERBATED WHEN THE MIGRATION IS FROM ONE CLEC TO ANOTHER?

A. The potential for increased complication for CLEC-to-CLEC cuts certainly exists. The amount of coordination, the information required and a number of other complicating factors are magnified with the introduction of CLEC-to-CLEC hot cuts as well as with myriad other scenarios (*e.g.*, hot cut from a line sharing CLEC to a CLEC handling both the broadband and narrowband application, moves from one CLEC to another where the receiving CLEC is serving via the ILEC's resale services). In many of these scenarios, three or more individual carriers as well as providers of ancillary services such as the Number Portability Administration Center and Public Safety Answering Points, are required to cooperate, in real time, for purposes of accommodating this largely manual process. A failure during any one of the numerous steps can result in a customer losing service.

Q. TO THE EXTENT UNE-L BECOMES MORE WIDELY IMPLEMENTED; WILL CHURN IMPACT THE ILECS' ABILITY TO KEEP-UP WITH THE DEMAND FOR HOT CUTS?

A. Absolutely. As Mr. Cox describes in more depth, churn will become increasingly important and will ultimately drive the rate at which UNE-L migrations grow. Moreover, while the ILECs would have this Commission ignore CLEC-to-CLEC UNE-L migrations, it should not. In fact, the FCC specifically cited such migrations as a potential area of impairment. *See e.g., Triennial Review Order* ¶ 476. Based upon Qwest's statements in the Batch Hot Cut Forum, Qwest does not intend to support CLEC-to-CLEC migrations within their improved hot cut processes unless they can be done with no truck roll or other complications. If a CLEC-to-CLEC migration has any complications whatsoever, then the migration must be done using the existing hot cut processes. As such, once a customer is served by a CLEC on UNE-L facilities, the ability of that particular customer to move to another carrier in the future without significant service-impacting problems is in serious doubt. All of the issues which lead to the FCC's finding of impairment without unbundled local switching come into play in such a situation and are compounded by the fact that a third carrier is now involved. Yet the ILECs, which by the very nature of their control of the local loop are critical to the process, appear content (indeed, resolute) to leave this issue unaddressed. Clearly, if the Commission intends for a customer's loop to be truly portable in a UNE-L environment, this critical issue must be addressed and included in all hot cut processes evaluated, designed, tested, implemented and certified by the Commission.

Q. TO YOUR KNOWLEDGE, HAS QWEST SUFFICIENTLY ADDRESSED THE ISSUES DESCRIBED ABOVE?

A. Qwest has addressed these issues in the Batch Hot Cut Forum, but not to the satisfaction of MCI. MCI is hopeful that Qwest will adopt automated approaches discussed in this testimony, and that of others, that will allow its systems, and ultimately its batch hot cut process, to be more efficient and to accommodate migrations for all types of loops and circumstances.

Q. SHOULD THE HOT CUT PROCESSES ULTIMATELY IMPLEMENTED BY THIS COMMISSION EXCLUDE ANY PARTICULAR ORDER TYPES?

A. Generally, no. While there might be a legitimate reason to exclude some particular order type, such exclusion should be the exception as opposed to the rule. The ILECs, from what I have seen to date, appear to make such exclusions common place, thus mitigating the potential benefits of improved hot cut processes. To the extent their efforts are successful, the process in which we are currently engaged is likely to be for naught. If that is the result of this process, then CLECs will have to use the existing hot cut processes.

Q. WHY IS THIS ISSUE IMPORTANT?

A. To the extent CLECs intend to implement a UNE-L strategy, the economics require them to move their embedded base of UNE-P based customers to UNE-L. Customers served by UNE-P today are not homogeneous with relation to service type, customer type, or loop type. As such, if the ILECs are successful in maintaining the numerous exclusions they have proposed relative to their hot cut processes, there will be

a large number of existing UNE-P customers who will not be able to use the hot cut process. Further, to maintain their customers over any length of time on a going forward basis, CLECs need to be able to address all customer types represented in their market. That would include, at a minimum, all types of lines that are currently contained within their embedded base.

Q. CAN YOU PROVIDE AN EXAMPLE OF AN EXCLUSION AND EXPLAIN WHY IT WILL DISRUPT THE CLEC'S BUSINESS IF MAINTAINED?

A. Yes, I can provide three of the most important examples. First, the ILECs, Qwest included, have for the most part stated that their improved "batch" hot cut processes will not support customer loops currently provided via IDLC facilities, at least not within the same timeframe or at the same costs as other loops. Second, I understand that Qwest will exclude any line that is currently being used for both voice and data services (line sharing or line splitting) from these processes. Third, I also understand that Qwest does not intend to support hot cuts where the receiving carrier is not collocated in the office where an end user's loop is terminated, *i.e.*, they will not allow for hot cuts to take place where EELs are used to gain access to end-end users (or in many circumstances, they have simply not developed the processes needed to provide batch hot cuts in a situation where a carrier uses an EEL).

By including these – and potentially other – prohibitions on the use of batch hot cut processes, Qwest has substantially reduced the percentage of current and future

customers' loops that could potentially benefit from the processes which are being designed to mitigate impairment. As such, even with the batch hot cut process advocated by Qwest, CLECs will remain impaired when attempting to serve any of the mass market customers who happen to fall into these categories, which could easily be well over half of all such customers. For example, it has been our experience that in some central offices, as many as **BEGIN HIGHLY CONFIDENTIAL *** [redacted] *** END HIGHLY CONFIDENTIAL** of all mass market customers are served via IDLC alone.[14] Moreover, the extent to which the CLECs are denied a batch hot cut process for a substantial portion of the network seriously calls into question whether economies of scale will be sufficient enough to warrant any attempt on the part of CLECs to implement UNE-L for the remainder of the market, even for those customers for which the hot cut process might be available.

Q. DO THE ISSUES BRIEFLY OUTLINED ABOVE ADDRESS ALL ATTRIBUTES BY WHICH THE QWEST HOT CUT PROCESSES SHOULD BE EVALUATED?

A. No. Mr. Cox addresses a number of additional issues in his testimony. Likewise, MCI is continuing to participate in the Qwest Batch Hot Cut Forum and is providing input and recommendations in any forum where provided the opportunity. Hence, this testimony should not be considered the final word on the topic of hot cuts. Additionally,

[14] *See* Qwest's Response to WUTC Bench Request 1-010.

I intend to address issues pertaining specifically to loops, collocation and transport later in this testimony. As such, the list of properties to be included in Qwest's upcoming *Transition Batch Hot Cut* and *Mass Market Hot Cut* processes will be expanded as a part of those discussions. Finally, MCI will comment more fully on this subject once it has had the opportunity to review the final, detailed Qwest proposal regarding their various hot cut proposals.

Q. DO YOU ADDRESS COST RELATED ISSUES PERTINENT TO THE ILEC'S HOT CUT PROPOSALS?

A. Not in this testimony. MCI intends to address cost-related issues after having seen Qwest's final batch hot cut proposal and the proposed rates. Nonetheless, it is important to remember that the FCC specifically cited economic impairment resulting from hot cut costs as a concern, and requires future hot cut processes to be implemented by the state public utility commissions be more efficient and have lower costs than the processes currently in place. *See e.g., Triennial Review Order* ¶ 473. Further, the FCC requires that the rates for any hot cut process be established based upon its existing TELRIC rules which require a strict adherence to a forward looking network assumption. Moreover, I recommend the Commission contemplate whether the expenses incurred by CLECs, if required to pay for hot cuts through non-recurring costs ("NRCs"), give rise to economic impairment where it would not otherwise exist (Dr. Cabe discusses this issue more directly in his testimony).

Q. IS MCI DEVELOPING A COST RECOVERY METHODOLOGY MEANT TO FUND DEPLOYMENT OF NEW TECHNOLOGIES AND PROCESSES AIMED AT TRULY MAKING THE LOOP A PORTABLE ASSET?

A. Yes. MCI, based upon substantial past experience, believes that the ILECs will undoubtedly attempt to recover hot cut costs via large, non-recurring charges, based solely upon their existing manual processes without consideration of a forward looking network structure. Therefore, MCI is currently developing an alternative proposal. It is MCI's position that the *Triennial Review Order*, and its obvious inclination away from a UNE-P structure toward a UNE-L structure, represents a major policy shift that has the potential to dramatically alter the competitive landscape. Notably, the FCC's almost blind reliance on UNE-L and its ability to replace UNE-P as a mass-market service delivery tool requires a true change in the underlying network paradigm. Simply put, if UNE-L is ever to work effectively as a replacement for UNE-P, the loop serving an end user customer must be truly portable—capable of being provisioned to any carrier with equal ease, reliability and efficiency (whether that carrier be ILEC or CLEC) on an automated basis regardless of the type of loop involved. New technology will be required to accomplish this goal. MCI believes this type of loop portability, and the substantial revisions to the network required to accomplish it, are almost identical to the number portability and equal access initiatives undertaken by policy makers in the past to strengthen the competitive marketplace. As such, the costs associated with such an initiative should be recovered in the competitively neutral fashion that worked so well for both of those undertakings. While MCI continues to develop this proposal and will

provide it for the Commission's review as soon as possible, MCI intends to provide the ILECs with the benefit of the doubt in the meantime. Because, if ILECs are true to the FCC's TELRIC requirements and develop costs based upon a truly forward looking network structure, whether that structure is currently in place or not, then the need for a proposal such as that described above will be largely mitigated.

III. OPERATIONAL AND TECHNOLOGICAL ISSUES RELATED TO THE LOOP GIVE RISE TO IMPAIRMENT

Q. IN THE SECTION ABOVE, YOU DISCUSSED DIFFICULTIES ASSOCIATED WITH OBTAINING ACCESS TO LOOPS VIA THE HOT CUT PROCESS. ARE THERE OTHER LOOP-RELATED ISSUES THAT ALSO GIVE RISE TO IMPAIRMENT?

A. Yes. In an environment wherein CLECs must depend upon a UNE-L delivery strategy to serve the mass market, the physical process of accessing the unbundled loop, and thereafter using that loop to provide a comparable service to its customer, is likely to be the most important and difficult obstacle to overcome. In the following section, I identify a number of operational obstacles that plague the existing UNE-L delivery strategy and lead to increased operational complexities, diminished quality, and increased costs when compared to the existing retail and/or UNE-P arrangements. These issues give rise to impairment.

Q. CAN YOU BRIEFLY SUMMARIZE THESE OPERATIONAL CONCERNS?

A. The majority of the operational issues I describe below result directly from the fact that in a UNE-L environment, the ILEC will be separating network elements that it had specifically combined in order to provide its own retail service in as efficient a

manner as possible (and currently maintains in a combined fashion to provide UNE-P). The intentional separation of a combined loop and port combination required by any UNE delivery strategy other than UNE-P generates at least the following two types of problems:

1. Because ILECs insist that their integrated DLC facilities (IDLC) cannot be unbundled at the DS0 (individual line) level, a UNE loop request for a loop currently served via IDLC is most often re-assigned to an alternate facility. This is true even though that same customer, as a Qwest retail end user or even as an MCI customer served via UNE-P, may have been using the facility currently supporting his/her service for years. Worse yet, in many circumstances, the facility to which the customer is re-assigned is technologically inferior to the existing facility, or may simply be a facility that has been poorly maintained. Further, even the presumably simple process of reassigning a new facility is anything but simple, and can cause numerous service-impacting problems for the customer (problems the customer will undoubtedly identify with switching service providers) that would be avoided absent the need to "un-combine" the existing facilities used for retail/UNE-P; and

2. As greater and greater numbers of competitors are moved from more efficient fiber-based services to copper-based services via the reassignment process described above, and ILECs take advantage of the FCC's relaxation of retirement and maintenance requirements, this Commission will undoubtedly begin to see two networks develop, each exhibiting dramatically different levels of quality: (1)the network used by

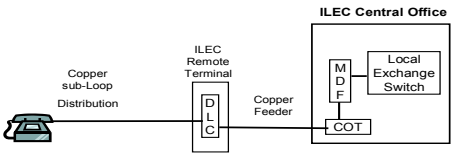
the ILEC to serve its retail customers; (2)and the network leased to CLECs by the ILEC for purposes of competing against it. As CLECs in this environment compete for limited numbers of inferior quality facilities (as the ILEC begins to retire its copper plant), situations of "no facilities" or facilities that will require costly repair before they can be used, will undoubtedly become more prominent for the CLEC, thereby increasing the amount of time required to service any single customer and dramatically increasing the CLEC's customer acquisition costs.

Q. PLEASE DESCRIBE IN MORE DETAIL THE TWO PRIMARY ISSUES YOU SUMMARIZE ABOVE.

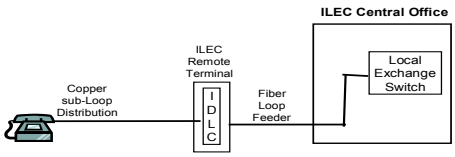
A. Before the Commission can fully appreciate the operational barriers I have summarized above, a brief overview of the existing outside plant network, focusing on different types of loop architectures is in order. The diagrams below depict the three most common outside local loop serving arrangements.

(1) All-copper outside plant; no digital loop carrier (DLC)

(2) Copper loop plant with UDLC



(3) Copper & fiber loop plant with IDLC



In the case depicted at the top portion of the diagram, the copper loop enters the central office where it is manually cross connected from the vertical side of the main distributing frame (generally considered the "outside plant" appearance) to the horizontal side of the frame (generally considered the "central office" appearance).

The lower portion of the diagram shows two alternate serving arrangements that utilize more advanced "pair gain" platforms known as universal digital loop carrier ("UDLC") on the left, and integrated digital loop carrier ("IDLC") on the right. In a general sense, the purpose of both DLC applications is to aggregate the traffic of literally hundreds of individual customers and then multiplex those individual signals into a single, higher bandwidth signal that can be transported more efficiently between the remote terminal and the central office.[15]

In the UDLC scenario, the copper loop that leaves the customer connects to a DLC remote terminal which is likely located in the customer's own neighborhood. The electronics in the DLC convert the analog signals to a digital multiplexed format, and then send the digital signal over a feeder cable (copper in this case) to the central office.[16] The cable terminates in the central office on a central office terminal, which converts the signal back to an analog format, at a voice grade (individual line) level, ultimately terminating at the MDF for manual wiring purposes. The MDF wiring appearances serve

[15] From a more technical perspective, DLC systems are wideband transmission systems used for carrying more than one channel of information. These systems use time division multiplexing ("TDM") to combine a number of individual signals, voice or data, into a common bit stream for transmission. The bit streams are transmitted over standard digital lines (copper or fiber) at the DS1 rate.
[16] Note that UDLC may utilize either fiber or copper feeder facilities.

as a point of interface for the carriers' switching equipment (and as a point of interconnection for a CLEC).

In the second example, the loop from the customer connects to a remote terminal equipped with IDLC technology. With this application, the electronics in the remote terminal convert the analog signals to a digital multiplexed format, and then send the digital signal over fiber feeder cable to the central office, terminating directly in the ILECs' digital switch without converting the signal back to analog.[17]

Q. CAN YOU EXPLAIN THE DIFFERENCE BETWEEN UDLC AND IDLC IN MORE DETAIL?

A. Older UDLC technology consists of a remote terminal, a transmission (transport) facility to link the remote terminal to the central office, and a central office terminal. The remote terminal aggregates the copper distribution pairs and performs conversions—converting the customer's analog signal to a digital multiplexed format going to the central office, and (in the opposite direction) converting the digital signal from the central office to the customer, to an analog signal. The transport carries the digital signal from the remote terminal to the central office terminal, and vice versa. The central office terminal equipment converts the digital signal from the remote terminal to an analog signal before the signal is terminated on the MDF and cross-connected to the switch port.

With the introduction of digital switches, an additional digital to analog conversion was needed at the MDF. The signal that was converted from digital to analog

[17] While certain fiber termination equipment actually exists between the remote terminal and the switch, the point of the diagram is that equipment required to convert the signal from digital to analog (or any other format) is not required.

at the central office terminal had to be converted back to a digital signal by an analog interface unit resident in the switch. The required digital-to-analog conversion at the central office was unnecessary, inefficient, and expensive, as more and more digital switches were deployed. IDLC addressed these inefficiencies by eliminating the need for the additional analog-to digital conversions at the central office. The analog signal originating at the customer's premises still is converted to digital at the remote terminal, but no other analog/digital conversions are necessary as digital switches can accept the digitally formatted signal without conversion (something older analog switches could not do). Unlike traditional copper loops or UDLC lines, IDLC lines do not typically have termination appearances on the MDF.

Q. OTHER THAN THE LACK OF DIGITAL/ANALOG CONVERSION, ARE THERE OTHER ADVANTAGES SPECIFIC TO IDLC OVER UDLC?

A. The answer to that question is strongly influenced by whether the question is relative to retail/bundled services, or specific to unbundled services. Therein lies the problem. Undisputable advantages to IDLC exist with respect to bundled services (retail and/or UNE-P). For bundled services, IDLC allows local loops to be connected to a digital circuit switch more efficiently and cost effectively when compared to UDLC, because IDLC does not require an analog conversion at the central office, the analog interface unit line card at the switch, nor manual MDF wiring. As a result, compared to today's IDLC technology, older UDLC systems require unnecessary investment for digital-to-analog and analog-to-digital conversion equipment and MDF wiring in the central office. Moreover, as discussed further, the digital-to-analog and analog-to-digital

conversions degrade the quality of the UDLC circuit and significantly reduce the throughput capability of the circuit.

Q. DO THESE ADVANTAGES ACCRUE TO CLECS UTILIZING UNE-L?

A. Typically no. To the extent that IDLC has advantages over UDLC and ILECs continue to insist that they will not unbundle IDLC systems for use by their CLEC competitors, these advantages accrue only to retail and UNE-P services that rely upon the combined nature of the IDLC system. By effectively eliminating UNE-P with a finding of no impairment (absent a finding that Qwest must unbundle its IDLC systems in digital format), this Commission further ensures that only Qwest and its retail customers will enjoy the benefits of IDLC.

Q. EARLIER YOU MENTIONED THAT ILECS GENERALLY REPLACE AN IDLC LINE WITH A UDLC LINE WHEN ASKED TO PROVIDE A UNE LOOP TO A CUSTOMER SERVED VIA IDLC. ARE THERE PROBLEMS ASSOCIATED WITH THIS APPROACH?

A. Yes, there are several. First, converting the line from IDLC to UDLC takes time, requires the order generally to fall out of any flow-through process, requires a technician dispatch, and is often expensive. Although it is not evident in the Qwest Statement of Generally Available Terms (SGAT) what Qwest would intend to charge for these activities, in the past, ILECs have indicated that costs associated with this activity (generally referred to as a line/station transfer or "LST") could generate literally hundreds of dollars for a single loop. Likewise, in its recent New York testimony, Verizon has proposed a rate of $131.18 per IDLC loop, **plus** time and material charges

associated with the actual dispatch required for the LST (likely to be hundreds of dollars more).[18]

Further, Section 12.13.3 of Telcordia Notes on the Networks (SR-2275, Issue 4, October 2000) which is entitled "Unbundling Issues Associated with UDLC and IDLC Systems" indicates that UDLC contributes to multiple problems including (a) increased dial tone delay, (b) degradation of on-hook transmission services, such as caller ID, (c) degradation of signal quality as a result of multiple analog-to-digital and digital-to-analog conversions and (d) reduction in analog modem operation speeds due to the number of analog-to-digital conversions.

Q. CAN YOU EXPLAIN THIS LAST ISSUE – REDUCED MODEM SPEED – IN GREATER DETAIL?

A. As described above, IDLC avoids additional analog-to-digital and digital-to-analog conversions inherent in the UDLC system. In doing so, the IDLC system avoids problems associated with dramatically reduced bit rate speeds for voice band data connections (*e.g.*, dial-up Internet access and fax machines) that plague UDLC systems. This issue is described more fully at Microsoft's Windows 2000 support website, where Microsoft explains that "there can be only one analog connection between your modem and the host computer" if a PC modem is to support a V.90 dial-up connection capable of operating at speeds of 56 kilobits per second. [19] Moreover, customers served by UDLC cannot receive Integrated Service Digital Network ("ISDN") and Asynchronous Digital

[18] Verizon Panel Testimony, filed October 24, 2003, New York Case No. 02-C-1425, Exhibit III-A.
[19] Microsoft Windows Server Documentation – "Attaining fast speeds with a 56Kbps modem" – See Exhibit MLS-2.

Subscriber Line ("ADSL") services without the installation of additional external loop electronics to increase digital transmission bandwidth at the UDLC. These limitations do not exist with most IDLC configurations. In short, UDLC systems can dramatically reduce the access speed enjoyed by dial-up Internet customers, while IDLC systems avoid these problems entirely.

Q. CAN YOU PROVIDE MORE DETAIL ON A LINE/STATION TRANSFER AND HOW IT IS ACCOMPLISHED?

A. The diagram taken from Telcordia Notes on the Network Issue 4 section 12.13.2.1 provides an illustrative example of the two "work arounds" described above.

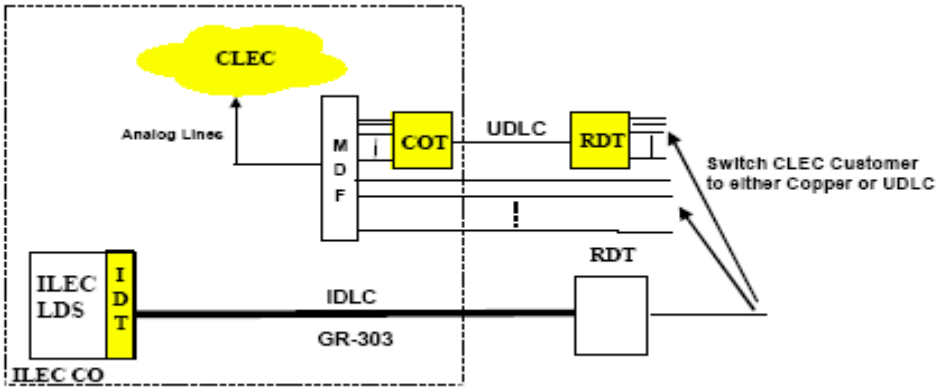


Figure 12-33. IDLC Unbundling - Bypass the IDLC System

As you can see, the technician dispatch in a line/station transfer scenario (contrasted with the dispatch required for a normal hot cut) is required at the remote terminal, in the outside plant (not in the central office). As such, the time and resultant costs required to accomplish the line/station transfer are notably increased, as is the chance for error (in many cases assignment records for facilities at an remote terminal or at an accompanying serving area interface are less accurate than those for central office facilities).

Q. UNDER THE COPPER SCENARIO DESCRIBED ABOVE, DO ILECS AND/OR CLECS NEED TO DISPATCH TECHNICIANS FOR LOOP INSTALLATIONS?

A. The technician dispatch is required in either a copper or UDLC line/station transfer situation. ILEC technicians are involved with central office work in this scenario but in most cases technicians are also dispatched to the remote terminal and even to the end-user premises in order to change facilities. In addition, in some situations CLECs must also visit the customer's premises to change/validate wiring and test customer equipment. In comparison, a UNE-P environment involving an "as is" or "as ordered" migration does not typically require the ILEC or CLEC to dispatch technicians to the central office or field.

Q. DO THESE WORK AROUNDS GIVE RISE TO IMPAIRMENT?

A. Absolutely. Clearly the CLEC faces both technical and provisioning disadvantages relative to either work around identified above. The process almost invariably entails additional provisioning time and additional costs, and the result is often an inferior facility. Likewise, all of these difficulties and increased costs appear to the customer to be a direct result of choosing a competitor's service. It goes without saying that an ILEC customer who is currently being served by IDLC (a growing probability) is more likely to convert to a CLEC if the transition is quick and seamless, but not if the new service is technologically inferior and takes an extended period of time to provision.

Q. IF HOT CUTS COULD BE ACCOMPLISHED IN A RELATIVELY TIMELY AND LOW COST FASHION, WOULD THE ISSUES YOU HAVE DESCRIBED ABOVE, AND POTENTIALLY OTHERS, REMAIN?

A. Yes. The operational obstacles I have described above will exist regardless of how effective any hot cut process is today or eventually becomes. These operational difficulties were largely mitigated by a UNE-P framework and can only be overcome in a UNE-L framework by requiring the ILECs to unbundle their IDLC facilities on a digital basis.

Q. CAN THE COMMISSION HELP TO ADDRESS THE OPERATIONAL IMPAIRMENT ISSUES YOU HAVE DESCRIBED ABOVE?

A. Yes. However, addressing these issues relative to IDLC technology will require diligent efforts on the part of both the Commission and Qwest. This results from the fact that the only way to ensure CLECs are not impaired is to ensure that they have access to the same facilities Qwest uses to serve its own end-user customers. In the case of IDLC, that can only be accomplished by unbundling the IDLC technology in an electronic (seamless, no dispatch) manner that provides the CLEC with access to individual customer circuits at a digital level. Short of achieving this solution, its seems clear that CLECs will continue to be impaired in the marketplace (absent UNE-P) as they will be saddled with less effective facilities to be used in competing for the very same end user customers.

Q. CAN IDLC BE UNBUNDLED DIGITALLY AS YOU DISCUSS ABOVE?

A. Yes, despite arguments to the contrary from Qwest and the other ILECs, it is technically feasible routinely to unbundle IDLC in a digital format without losing the

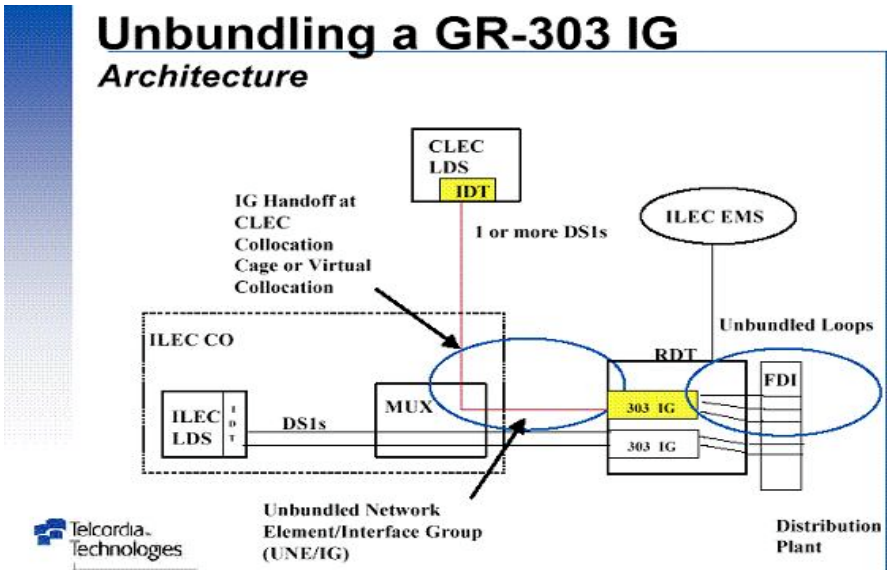
inherent "integrated" advantages enjoyed by the ILEC's bundled products. Indeed, the FCC in its *Triennial Review Order* noted: "We recognize that it *is* technically feasible (though not always desirable for either carrier) to provide unbundled access to hybrid loops served by Integrated DLC systems."[20] (Emphasis added).

The most advanced IDLC systems engineered and deployed today (GR-303 compliant) have that capability. BellCore (now Telcordia) who developed the GR-303 interface, describes at least two methods by which GR-303 compliant IDLC can be unbundled electronically without requiring a dispatch.

Q. PLEASE DESCRIBE THOSE METHODS.

A. The first method entails the establishment of separate interface groups at the IDLC remote terminal so that a distinct interface group is assigned to a CLEC and passed through a multiplexing device in the central office for purposes of accessing individual lines at the DS0 or DS1 level. This particular unbundling strategy has been discussed for years by industry bodies and has been supported by Telcordia in the past in numerous symposiums. Indeed the following diagram depicting the manner by which this process would work was constructed by Telcordia and provided to the industry in one of its GR-303 symposiums.

[20] *Triennial Review Order* ¶ 297, n.855.



Source: Telcordia's GR-303 Access Symposium binder, Tab 4, August 11, 1999.

Q. DO OTHER METHODS OF UNBUNDLING IDLC EXIST?

A. Yes, Telcordia also describes another method relative to sharing GR-303 Interface Groups between the ILEC and the CLEC, using a sidedoor port on the ILEC's digital switch for purposes of accessing individual DS0s for transfer to the CLEC's switch. The diagram below shows the use of a GR-303 interface group sharing ILEC and CLEC traffic wherein all CLEC traffic is routed through a sidedoor port, supporting a DS1 or DS0 unbundling scenario. This drawing is also taken from Telcordia documentation, this time from Telcordia's most recent issue of *Notes on the Network*, a leading source of engineering documentation relevant to today's telecommunication network. [21]

[21] Examples taken from: Telcordia Notes on the Networks Issue 4, October 2000.

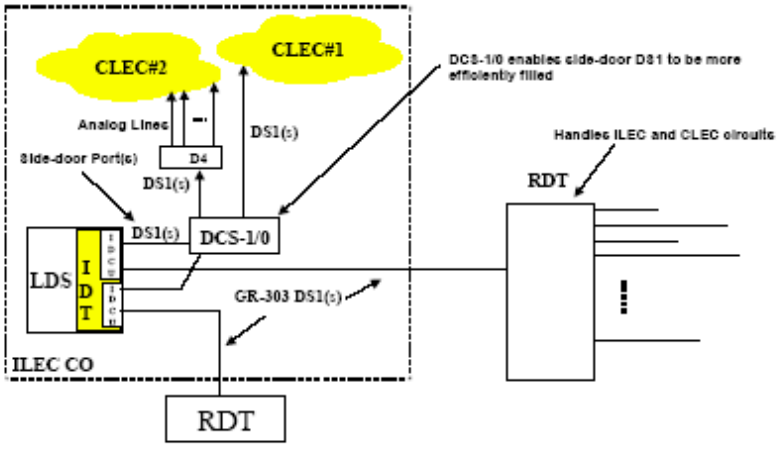


Figure 12-36. IDLC Unbundling Using Sidedoor Port

In the scenario above, unbundled CLEC loops are provisioned as non-locally switched circuits within the IDLC system. Telcordia describes this application as follows:

> While the digital system cross-connect ("DCS"), DCS-1/0, is shown in the figure, it is not a requirement of this architecture. The advantage of using a DCS-1/0 is realized if the CLEC is not fully utilizing a DS1 from the ILEC local digital switch (LDS) to the CLEC, and multiple switch modules with individual digital control units (IDCU) are used by the ILEC. If a DCS-1/0 is placed between the LDS DS1 sidedoor port and the CLEC DS1s, it would permit full utilization of the sidedoor LDS/IDCU hardware by enabling CLEC DS0s to be rearranged in the DCS-1/0 and placed on the individual CLEC DS1s. (See *Notes on the Networks* at Section 12-56)(acronym definitions added).

Q. IN ADDITION TO THE SIMPLE FACT THAT CLECS CAN GAIN ACCESS TO UNBUNDLED CIRCUITS VIA THIS UNBUNDLING METHOD, ARE THERE OTHER ADVANTAGES TO THIS TYPE OF DIGITAL UNBUNDLING?

A. Yes. Not only would either of these methods provide a CLEC unbundled access to the same customer loops the customer enjoys today, without a technician dispatch, it would also mitigate (if not eliminate) the need for manual intervention in the loop

provisioning process (*i.e.*, the "hot cut"). Because GR-303 IDLC systems are largely software driven and do not rely upon manual copper wire manipulation for purposes of cross-connecting the derived circuits they support, unbundled loops could be provisioned to a CLEC on an electronic basis, free of any costly or time consuming technician dispatch. As such, this type of IDLC unbundling would go a long way toward providing non-discriminatory access to unbundled loops, and also toward removing impairment caused by the labor intensive and cumbersome hot cut processes supported by Qwest. In short, this type of unbundling once implemented, tested and proven in a commercial setting, would go a long way toward removing the impairment currently faced by mass-market CLECs without access to unbundled local switching.

Q. ARE THERE COMPLEXITIES ASSOCIATED WITH UNBUNDLING IDLC IN THE FASHION YOU HAVE DESCRIBED ABOVE?

A. Yes. Though unbundling IDLC is unarguably feasible, the work required to establish necessary processes and techniques to unbundle IDLC in this fashion in a commercial setting has never been undertaken in earnest by the ILECs. They have simply been provided no incentive to support this type of process that will only serve to enhance competition in the local market they currently dominate. As such, time and effort must be put toward making this technology a reality. Below I list a number of the obstacles that must be overcome on the road to efficiently unbundling IDLC for purposes of removing impairment:

A. Since each CLEC circuit requires a nailed up DS0, absent additional software functionality or other processes, the ILEC may encounter blocking over the IDLC system as other circuits compete for DS0 channels.

B. The number of sidedoor ports that can be engineered varies depending on the LDS supplier and no standard appears to have emerged. Hence, a concerted effort on the part of the ILEC may be required to standardize this technology for this purpose.

C. There is limited support in existing special services design systems and databases to support sidedoor port circuits. Again, this results primarily from the fact that the vendors design systems based upon the needs of their primary customers and the ILECs have had little incentive in the past to pursue this type of unbundling technology. Hence, this issue could undoubtedly be overcome by the vendors if provided the proper incentive.

D. Other issues regarding security for an IDLC system providing multiple interface groups to multiple CLECs need to be addressed. Likewise, numerous other details associated with sharing test resources, alarms, etc., would require additional development.

Q. THESE OBSTACLES ARE SOMEWHAT DAUNTING. WHY SHOULD THE INDUSTRY WORK TOWARD OVERCOMING THEM?

A. UNE-P allowed CLECs to overcome the many issues I have described above relative to hot cuts and loop provisioning—issues that had heretofore largely stymied local competition via UNE-L. If the FCC and/or this Commission realistically intend for UNE-L to take the place of UNE-P as a competitive service delivery vehicle, then these same problems must be overcome in a different way. I have identified the manner by which that can be accomplished above. Perfecting the UNE-P process was not easy, requiring several years and the incentive of §271 relief. Likewise, unbundling IDLC will not be easy either. It will require the hard work of the ILECs, the CLECs and, most importantly, state public utility commissions. However, until it is accomplished, CLECs will be impaired without access to UNE switching and UNE-P. It is MCI's hope that addressing the problems in that order (*i.e.*, first fix the IDLC unbundling issue as well as the manual hot cut issue, then decide whether impairment remains) will provide the type

of incentive necessary for proper ILEC involvement (contrasted with their general nay-saying relative to these options in the past).

Q. WHAT CONFIDENCE CAN THE COMMISSION HAVE THAT IDLC CAN BE UNBUNDLED AND THAT THESE ISSUES YOU HAVE IDENTIFIED ABOVE CAN BE OVERCOME?

A. Though these issues are real, and real effort will be required to address them, it is important to remind the Commission that Telcordia developed the specifications for the GR-303 platform for unbundling, and has demonstrated their commitment to resolving the issues associated with unbundling, by providing the methods described above. Telcordia has even organized and spearheaded symposia related to unbundling GR-303 equipment. In the final analysis, these types of issues are really no different than the myriad of issues the industry has been addressing for several years relative to the evolution of the network and unbundling in general. The arguments the ILECs make in opposition to IDLC unbundling should remind the Commission of similar arguments the same ILECs made almost 10 years ago when they argued that loops in general could not be unbundled save catastrophic repercussions to the entire network. Those catastrophic events failed to materialize and the same will undoubtedly hold true relative to IDLC unbundling.

Q. WHY IS THIS SUCH AN IMPORTANT ISSUE?

A. It has been our experience that IDLC technology is used to provide services to a

very high percentage (**BEGIN HIGHLY CONFIDENTIAL *** [redacted] *** END HIGHLY CONFIDENTIAL**) of residential and small business customers in some exchanges in Washington.[22] As a result, absent some resolution of the problems we have identified above, a significant percentage of the end users in some exchanges would likely experience either decreased service quality if they switch to a CLEC's service accommodated by UNE-L (because their loop will be changed to a less efficient technology), or they could experience significant delays in service availability from the CLEC as the ILEC "works around" the IDLC technology for purposes of providing an alternative facility. In many cases customers will experience both problems when purchasing service from a CLEC in this manner, but would experience none of those same problems if they stayed with the ILEC, or returned to the ILEC's service. In either circumstance, the CLEC will be required to wait longer and pay more to serve its customer when IDLC is present, absent the unbundling options I have described above.

Q. HOW CAN THE COMMISSION ADDRESS THIS ISSUE?

A. As a general matter, the Commission should find that CLECs are impaired without access to UNE switching until significant progress is made toward unbundling IDLC. Second, MCI believes this Commission has a unique opportunity to take a leadership role on this very important issue and require Qwest to provide a *digital* handoff to CLECs when their customers are served by IDLC. While the actual

[22] *See* Qwest's Response to WUTC Bench Request 1-010.

implementation of such a ruling will take time and collaborative effort, the rewards to customers are plentiful. A marketplace wherein each customer's loop is truly portable between carriers will provide the real world benefits of competition.

Q. ARE THERE OTHER AREAS THE COMMISSION SHOULD ALSO BE FOCUSED ON SPECIFIC TO UNBUNDLED LOOPS THAT WILL HELP TO EASE IMPAIRMENT?

A. Yes. Until IDLC can be digitally unbundled, and even thereafter for those facilities not served by IDLC, issues relative to accessing high quality, copper facilities will continue to exist. As fiber-based facilities continue to expand in use in the network, and as the ILECs continue to retire copper facilities that have been replaced by those newer technologies, available high quality copper loops will become less prevalent and "no facilities available" notices for UNE loop orders will become more common.

Q. IS THE AVAILABILITY OF COPPER FACILITIES THE ONLY ISSUE?

A. No. One of the most disturbing consequences of the FCC's *Triennial Review Order* is that it realistically establishes two separate networks: (1) an ILEC network (packet-based, fiber facilities); and (2) a largely copper and time division multiplexed ("TDM") network available to competitors. The FCC's decision in this regard has numerous negative consequences for the continued development of competition, not the least of which is its impact on an ILEC's incentive to maintain its copper/TDM network at a level equal to that reserved for its fiber/packet network. The potential exists for situations wherein even if spare copper loops are available, they will not have been maintained at a level that makes them immediately usable for service (*i.e.*, the facilities are effectively "retired in place" and useable only with significant maintenance or

restoral activities and resultant expenses). These activities – which must be undertaken on behalf of the CLECs, but not the ILECs – delay CLEC access to not only the loops, but the entire market served by those loops.

Q. GIVEN THE FCC'S TRIENNIAL REVIEW ORDER, ARE THERE STEPS THIS COMMISSION CAN TAKE TO ADDRESS THE ISSUE OF AVAILABLE COPPER FACILITIES?

A. Yes. While the underlying incentive described above is difficult to properly address within the context of the FCC's *Triennial Review Order*, this Commission can actively ensure that ILECs maintain and retire their facilities in a non-discriminatory manner, thereby ensuring that maintenance and facility retirements are undertaken pursuant to proper engineering management, not at the control of competitive strategy. Indeed, the FCC's *Triennial Review Order* also encourages this type of non-discriminatory treatment:

> We require incumbent LECs to make routine network modifications to unbundled transmission facilities used by requesting carriers where the requested transmission facility has already been constructed. By "routine network modifications" we mean that incumbent LECs must perform those activities that incumbent LECs regularly undertake for their own customers.[23]

IV. COLLOCATION AND TRANSPORT ISSUES MAY GIVE RISE TO IMPAIRMENT

Q. PLEASE INTRODUCE THIS ISSUE.

A. In order for MCI to move toward a mass market UNE-L deployment strategy, such a strategy must be operationally sound and economically viable. MCI will be unable to offer retail services to consumers when and where these requirements are not

met. If MCI is to rely upon the UNE-L strategy, MCI must be able to reach mass market customers utilizing collocation and transport services required to extend loops to its switching facilities. Timely, efficient and low cost access to these elements is therefore critical.

Q. PLEASE BRIEFLY DISCUSS COLLOCATION AND HOW IT IS GENERALLY ACCOMPLISHED FOR PURPOSES OF ACCESSING UNE LOOPS.

A. In simplest terms, collocation within an ILEC central office provides a CLEC two things required to support a UNE-L delivery strategy (1) an environmentally controlled space for purposes of placing transport equipment, and (2) access to the ILEC's main distribution frame ("MDF") (and potentially other frames) for purposes of accessing UNE loops. The MDF is the central point of termination for virtually all voice-grade facilities and equipment in a central office.[24] At a very simplistic level, central offices are designed such that any individual outside plant facility (*i.e.*, a loop) can be cross-connected to any individual central office electronic equipment (primarily the switch for purposes of completing basic local exchange services). This is accomplished primarily by terminating all outside plant facilities to a defined "appearance" on the MDF. Likewise, the majority of central office electronic equipment is also terminated to the MDF with a defined appearance. After all such equipment is terminated to the MDF in this fashion, connecting any two pieces of equipment for purposes of providing service can be accomplished by placing a cross-wire connection (a very labor intensive, "on site"

[23] *Triennial Review Order* ¶ 632.
[24] Certain IDLC applications are an exception discussed previously in this document.

process) between the two appearances for purposes of establishing an electrical circuit.[25] From a collocating CLEC's perspective, it is the MDF where the CLEC gains access to the outside plant network of the ILEC and it is from that location that the differences (and disadvantages to the collocating CLEC) become starkly clear.

Q. PLEASE DESCRIBE THE DISADVANTAGES THAT ACCRUE TO A CLEC WHO MUST COLLOCATE TO ACCESS A UNE LOOP.

A. The ILEC can access its end user customers by performing a single manual step; *i.e.*, placing a jumper on the frame and thereby connecting its local switch with the customer's loop. Indeed, the ILEC has developed its network over a period of more than 100 years with the specific intention of making this process as efficient as possible. Compare that simple process with the activities required by the CLEC to accomplish the same connection and the disadvantages become clear. For example, a CLEC must "build out" from its own central office electronic equipment to each ILEC central office, via collocation arrangements and physical transport facility placements, in order to reach the very same customer. There are obvious differences in the costs and activities associated with serving an end user customer between an ILEC (who performs a single step) and a CLEC who must perform multiple steps in addition to the step performed by the ILEC. Because the CLEC is required to perform these additional steps, and because these steps

[25] All MDF appearances are electrical as opposed to optical. Optical equipment is terminated using different termination equipment.

are not without cost (to the contrary, as is discussed in the companion economic testimony, these steps are quite costly) the CLEC is disadvantaged and therefore potentially impaired.

COLLOCATION RELATED IMPAIRMENT

Q. IS MCI IMPAIRED AS A RESULT OF ISSUES PERTAINING TO COLLOCATION?

A. Yes. As it stands today, MCI, and many other CLECs, do not have collocation arrangements (physical or virtual) in as ubiquitous a fashion as would be necessary to serve their UNE-P based mass market customers throughout the state. Indeed, MCI serves thousands of customers via UNE-P in more than **BEGIN CONFIDENTIAL** ***[redacted]*** **END CONFIDENTIAL** different central offices throughout Washington. By way of comparison, MCI is collocated in only **BEGIN CONFIDENTIAL** ***[redacted]*** **END CONFIDENTIAL** central offices in Washington, leaving approximately **BEGIN CONFIDENTIAL** ***[redacted]*** **END CONFIDENTIAL** central offices wherein MCI has today no way to reach Washington customers were the Commission to reach a conclusion that MCI was not impaired without UNE-P. Moreover, since MCI currently serves retail customers through UNE-P from less than **BEGIN CONFIDENTIAL** ***[redacted]*** **END CONFIDENTIAL** of the central offices in which it is currently collocated, MCI would not have the ability to continue to serve its *existing* customers from over **BEGIN CONFIDENTIAL** ***[redacted]*** **END CONFIDENTIAL** central

offices, until collocation arrangements could be completed and/or absent access to UNE-P.

Q. CAN MCI UTILIZE EELS IN THE NEAR TERM TO SERVE THESE CUSTOMERS AND THEN BUILD OUT ITS FACILITIES TO THOSE OFFICES OVER TIME IF REQUIRED?

A. It is best to take those two issues one at a time. First, I discuss the enhanced extended link ("EEL") and its potential for assisting UNE-L carriers later in this testimony. Suffice it to say for now that much development work remains before EELs can realistically be relied upon to service mass market customers. Second, it is likely that given proper time, financial wherewithal and potential profitability, MCI could build out its network and collocate in additional central offices. However, if the Commission is not able to assist the industry in overcoming the operational issues I have identified above relative to a UNE-L delivery platform (*i.e.*, hot cuts, IDLC), there is little incentive for MCI to expend resources for collocation space that cannot be used to its fullest potential. Moreover, setting aside questions regarding the extent to which mass market customers can be economically served by a network that includes collocation, it is unclear whether the CLECs will be able to obtain collocation arrangements and transport facilities on a timely basis such that migration can be supported. In addressing this issue, the Commission should consider that in some Washington wire centers *several* existing providers may need to procure incremental collocation space to serve their UNE-P customers. Further, collocation is time consuming and requires CLECs to perform numerous complex activities that are not required where unbundled local switching is

available. Each step taken by the CLEC to reach the end user through collocation adds time and cost to the process and introduces a probability of error and customer dissatisfaction that is not associated with the ILEC's provision of service to the same customer on a retail basis or through UNE-P.

Q. ASSUMING THAT MCI IS ABLE TO OBTAIN THE COLLOCATION ARRANGEMENTS NECESSARY TO SERVE EXISTING AND FUTURE END USERS, WHAT OTHER ISSUES MAY CAUSE IMPAIRMENT?

A. During the early stages of collocation, even when space was ultimately made available by the ILECs, MCI often experienced significant delays before it gained access to the requested collocation. To the extent that history repeats itself in a time where requests for collocation would increase dramatically, CLECs would experience difficulties reaching their customers without UNE-P.

Q. HOW COULD THE COMMISSION REMEDY THESE PROBLEMS?

A. If the Commission were to enter a finding of no impairment relative to unbundled local switching, it is my recommendation that the Commission implement backstop measures related to collocation. Specifically, to the extent that a CLEC's ability to access its mass market end-users is effectively delayed or otherwise impeded as a result of the ILEC's collocation performance, the Commission should mandate that unbundled local switching remain available to such carriers, in such locations. Moreover, to the extent that collocation is eventually implemented in such a location, the CLEC should have the choice to leave any remaining customers on UNE-P until migration to UNE-L is operationally feasible.

TRANSPORT RELATED IMPAIRMENT

Q. WHY HAVE YOU INCLUDED TRANSPORT IN THE SAME SECTION OF YOUR TESTIMONY AS COLLOCATION?

A. Transport and collocation are intrinsically related in terms of the functions they perform in a typical CLEC network. Availability of and access to collocation space is meaningless in a CLEC network unless the CLEC is able to reach the end user customer's loop and extend it to its own switch via available transport capacity. Therefore, collocation without available transport, and vice versa, renders a UNE-L framework unusable. Indeed, this Commission can consider the UNE-L framework to be a very complex chain, each link of which must be procured, assigned, provisioned and maintained in order for customers to receive telephone services without disruption. Each link is subject to its own issues and complications, but each link is equally important in terms of providing the service. A break in any single link is a break in the chain. Any single component of the service, including transport, has the potential to take the customer out of service if something goes wrong.

Q. DOES TRANSPORT POSE CHALLENGES?

A. It can. Where CLECs replace UNE-P with UNE-L, they will rely heavily on their ability to use ILEC provided transport to extend individual customer loops to their own local switching facilities. Additionally, CLECs will be largely dependent upon ILEC-provided transport to originate and terminate local, intraLATA and interLATA traffic on behalf of their end users, which heretofore had been carried on the ILEC network over shared transport. Moreover, CLECs will likely utilize ILEC-provided transport to

establish 911 trunk groups and, albeit to a lesser extent, OS and DA trunk groups. Blanketing a state or even a LATA with collocation arrangements and the accompanying transport facilities would be logistically and economically daunting. Because these transport requirements would be over and above those already required by a UNE-P based CLEC, these additional logistical and financial burdens could lead to operational and economic impairment.

Q. PLEASE DISCUSS SPECIFIC OPERATIONAL ISSUES THAT WILL LIKELY GIVE RISE TO IMPAIRMENT.

A. It is unclear whether the ILECs' networks are currently set up to accommodate the CLECs need for transport both in terms of their need to extend loops to their own switches or in terms of meeting demand for the transport necessary to originate and terminate traffic. Thus, it is unclear whether the ILECs will claim that, "facilities are not available," rendering a migration from UNE-P to UNE-L doubtful at best. Moreover, it is unclear whether the ILECs will claim that as a result of the *Triennial Review Order*, they are not required to provide transport to requesting carriers in any or all of the circumstances identified above. Indeed, if the necessary physical connections cannot be obtained or are substantially delayed, CLECs will be operationally impaired and perhaps physically precluded from accessing customers.

Q. PLEASE EXPLAIN IN MORE DETAIL YOUR CONCERNS RELATED TO TRANSPORT CAPACITY REQUIRED TO ORIGINATE AND TERMINATE TRAFFIC.

A. The latest statistics indicate that CLECs control 10% of the local customer base (over 100,000 customers) in Washington.[26] As we have seen, a significant percentage of those competitively served customers (close to 50% and increasing) are served through UNE-P. When a customer is served through UNE-P, his/her local calls are routed just as any other ILEC retail customer's calls are routed. As such, the majority of that traffic is routed either within the same ILEC switch (*i.e.*, an inter-switch call) or to another switch within the same local calling area, which is connected to the caller's originating switch via a direct-trunked connection. As local networks evolved, trunk groups directly connecting end office switches within a local area became more common. Most ILEC networks today rely heavily on direct end office trunking ("DEOT"). Absent these direct trunks, tandem switches would be required to route all inter-switch calls.

Q. WILL THESE TRAFFIC PATTERNS CHANGE IF CLECS ARE REQUIRED TO USE UNE-L INSTEAD OF UNE-P?

A. Yes. As described above, for UNE-L, the CLEC collocates equipment in the ILEC's central office and routes the customer's traffic back to its own switching facility. Hence, every call made by the customer (local and long distance) is routed through the CLEC's switch, instead of the ILEC's switch. Likewise, the CLEC's switch is interconnected with the ILEC's network either at the tandem, or through direct connections to high volume end offices. Through UNE-L, the entirety of the customer's

[26] *See* Table 7, FCC's *Local Competition Report Status*, as of December 31, 2002.

local traffic that is intended for ILEC customers must pass through the interconnection trunks established by the CLEC and the ILEC, instead of through the ILEC's direct end office trunks, as had been the case. In short, moving this significant percentage of the local customer base from UNE-P to UNE-L will immediately and dramatically change the traffic patterns for a significant percentage of the local traffic (tens of thousands of customers) that currently rides the network. The Commission should consider this dramatic shift in traffic patterns in its consideration of the issues presented in this case.

Q. DO THESE TRAFFIC PATTERN CHANGES HAVE THE POTENTIAL TO IMPAIR CLECS?

A. Absolutely. Even if (1) the hot cut process worked smoothly, (2) the CLEC could somehow gain unfettered access to the customer's loop, (3) collocation could be arranged, and (4) the CLEC could transport the customer's traffic back to its own switch, the CLEC could still face severe, customer impacting problems if the ILEC fails to provide adequate trunking for purposes of terminating traffic originated on the CLEC network. If all CLECs were required to transition from UNE-P to UNE-L, the ILEC would, in theory, be required, at its own cost, to supplement its trunk groups used for interconnection significantly within 27 months. The ILECs would also need to supplement tandem trunk ports and switching capacity. Where the ILEC fails to meet this benchmark, it is the CLEC that bears the brunt of the failure, since the CLEC's customers

will experience network busy signals when they attempt to place a local call to an ILEC customer.

Q. CAN YOU QUANTIFY THE POTENTIAL IMPACT OF THIS PROBLEM IN TERMS OF QUALITY DEGRADATION?

A. No. We are continuing to assess this issue and its potential to impact service quality.

Q. CAN THE ISSUES LEADING TO IMPAIRMENT RELATIVE TO TRANSPORT BE ADDRESSED IN SUCH A WAY THAT MCI COULD PURSUE ITS PLAN TO MOVE TO A UNE-L STRATEGY?

A. If the Commission intends to expand the use of UNE-L by CLECs to serve residential customers, it should consider initiating proceedings to provide for EELs, the continued availability of transport and measures to allow CLECs access to unbundled local switching for mass market customers where transport is not reasonably available.

1. MCI requires access to enhanced links (EELs). I will discuss this in the next section of my testimony in detail, but a great deal of the impairment issues surrounding transport may be alleviated if EELs allowing access to ILEC transport, concentrated ILEC transport, CLEC transport and third party transport were made available to MCI under the UNE-P benchmark conditions discussed above.

2. MCI must rely on ILECs to provide UNE transport where requested for local purposes, particularly to and from central offices where unbundled local switching is unavailable and for purposes of carrying end-user traffic necessary to support a UNE-L entry strategy.

3. If the ILEC is unable or unwilling to meet the transport needs of MCI and other CLECs, unbundled local switching must remain available in order to serve mass market customers in Washington.

V. THE ENHANCED EXTENDED LINK ("EEL") AS A DS0 LOOP TRANSPORT TOOL

Q. IF A STATE COMMISSION FINDS THAT MCI AND OTHER CLECS ARE IMPAIRED, IN PART BECAUSE OF TRANSPORT RELATED PROBLEMS, CAN STATE COMMISSIONS WORK TOWARD REDUCING THAT IMPAIRMENT?

A. Yes, they can and MCI would encourage them to do so. Toward that end, MCI has identified a number of transport-related issues that should be addressed. For example, MCI believes that EELs could play a large role in overcoming issues contributing to impairment relative to transport facilities; however, MCI also believes that EELs have a long way to go in terms of continued development before they can be realistically used to serve mass market customers. In short, while there are areas wherein continued development on the part of the industry could mitigate the issues that lead to today's impairment, direct and continuous Commission involvement will be required to make any realistic progress in these areas. MCI has identified the following actions that state commissions should undertake relative to transport and its potential impact on impairment for mass market switching:

1. Monitor concurrent proceedings relative to loop and transport impairment in an attempt to spot areas where the ILEC insists triggers have been met for mass market switching, yet the ILEC may be attempting to remove the very UNE transport those triggering carriers use to provide the local services constituting the mass market switching trigger. In other words, if the ILEC insists a carrier providing UNE-L service in a given area should constitute a mass market switching trigger, the Commission should take a close look at whether the ILEC is likewise attempting to remove its obligation to

provide UNE transport to that very same carrier in the Loop/Transport proceeding. It is likely that the financials and operational issues associated with that "triggering" CLEC will change dramatically, perhaps even fundamentally altering its ability to continue to provide service, if that carrier can no longer purchase transport from the ILEC on a UNE basis.

2. State commissions should work with ILECs and CLECs alike to provide UNE transport arrangements aimed more directly at serving the mass market. EELs are a primary example. To this point EELs have been used, to the extent ILECs have provided them at all, primarily for high volume customers with substantial amounts of access traffic. Their use in supporting local services to multiple, individual customers requiring only a few DS0 circuits is largely untested. Nonetheless, EELs have the potential to reduce substantially the additional transport costs inherent in a UNE-L strategy, including notable sunk costs that could be avoided relative to collocation.

Q. PLEASE EXPLAIN YOUR POINT REGARDING THE POTENTIAL CONNECTION BETWEEN MASS MARKET SWITCHING IMPAIRMENT AND UNE TRANSPORT IMPAIRMENT.

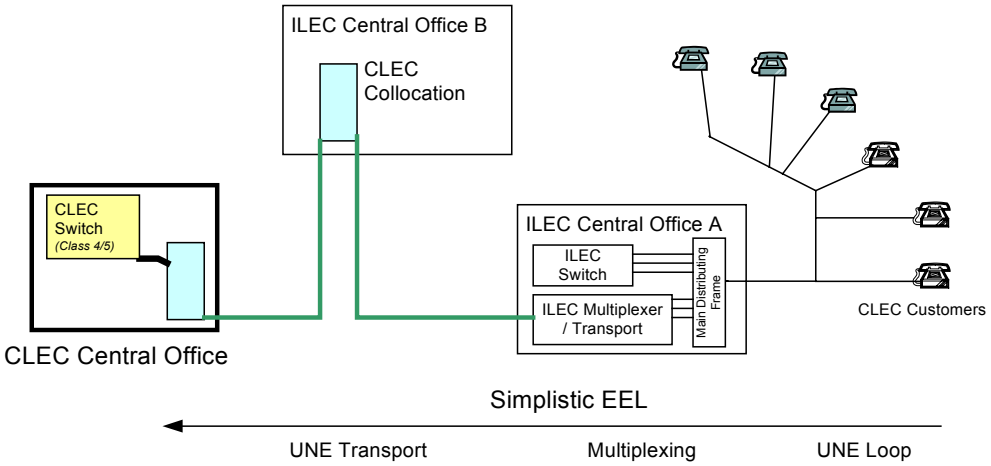
A. Because UNE transport is governed by the Telecommunications Act of 1996 and is provided via interconnection agreements that are mediated and/or arbitrated by state commissions, with prices set consistent with TELRIC, changes in the availability of UNE transport for existing CLECs providing facilities based services could dramatically alter those CLECs' capabilities to continue providing services. Removing the ILEC's obligation to provide UNE transport within a given market has the potential to

dramatically affect the process by which those "triggering" carriers access transport capacity and the prices they pay for such transport. They would largely be left to fend for transport in a nascent wholesale transport environment or pay substantially higher ILEC special access rates. Therefore, a decision to remove UNE transport from the UNE list in a given market has the potential to dramatically impact whether a carrier could be considered a "trigger" with respect to the FCC's analysis specific to mass market switching impairment. This Commission should be cognizant of this relationship as it evaluates the evidence provided by Qwest specific to impairment in both regards.

Q. PLEASE EXPLAIN YOUR SECOND CONSIDERATION RELATIVE TO DS0-RELATED TRANSPORT ARRANGEMENTS BY DESCRIBING AND DEFINING AN EEL.

A. EELs are nothing more than a combination of unbundled loops, the potential for multiplexing and unbundled interoffice transport. The diagram below provides a simplistic example:

Simple EEL[27]



As noted above, the primary advantage of an EEL is that a competitive carrier using an EEL need not collocate in every ILEC central office within which it chooses to serve a customer. Consistent with the *Triennial Review Order*, EELs generally would require only one collocation per LATA. By combining the unbundled loop with interoffice transport and the ability to multiplex smaller capacity, customer-specific circuits onto larger, more efficient interoffice circuits, the CLEC is able to "extend" the loop directly to its own central office. In most cases, multiple transport facilities from multiple ILEC end offices – each carrying multiple loops – would terminate in one ILEC central office before being transported to the CLEC's central office. This advantage is important for several reasons.

[27] The diagram above depicts the transport facility from Central Office A ultimately reaching the CLEC's Central Office via routing through the CLEC's collocation space in Central Office B. While no operational benefit is achieved through this architecture (*i.e.*, the need for a collocation somewhere in the LATA), the FCC's *Triennial Review Order* appears to require at least one collocation arrangement in the LATA for purposes of terminating an EEL.

First, EELs allow a carrier to build a customer concentration in an ILEC central office before expending considerable resources to build a collocation cage. This not only speeds the competitive carrier's products to market without the need for an expensive and sometimes time-consuming collocation process), but also allows the carrier to make an economically rational decision based primarily upon customer take rates, relative to allocating finite collocation resources.

Second, without the need for a costly collocation in each central office, the economics of providing residential service through UNE-L can be improved. Finally, and most importantly, EELs are but another method by which competing carriers can attempt to gain economies of scale and scope similar to that of their primary competitors, the ILECs. By spreading the costs of switching equipment over a greater number of customers by gaining access to numerous central offices without incurring corresponding collocation costs, competitors can substantially reduce their average costs per customer, hopefully approaching average cost levels enjoyed by the incumbent. Remember that the ILEC enjoys a network built and engineered to accommodate 100% of the market.

Q. DOES THE INDUSTRY HAVE MUCH EXPERIENCE WITH EELS USED TO SUPPORT DS0-BASED SERVICES LIKE THOSE THAT WOULD BE REQUIRED TO PROVIDE MASS MARKET OFFERINGS?

A. No. This is highly troubling given the FCC's implicit reliance upon the EEL for purposes of making UNE-L a more attractive delivery mechanism in lieu of continued availability of UNE-P. While UNE-P is a proven mechanism by which to provide competitive services to mass market customers in an efficient and economical manner,

UNE-L fueled by increased reliance on DS0-based EELs is almost completely untried and certainly unproven. Very little, if any, real world experience exists in support of the notion that EELs can actually be used effectively as a DS0 transport option on any scalable, commercially viable basis.

Q. WHAT CAN THE COMMISSION DO TO ENHANCE THE ABILITY OF CLECS TO USE EELS EFFECTIVELY IN A UNE-L ENVIRONMENT?

A. Commissions can focus their attention on two primary EEL related objectives that will dramatically increase the likelihood that EELs can, in the future, be used effectively in a mass market scenario: (1) Commissions can ensure that any approved ILEC *Transitional Batch Hot Cut* and *Mass Market Migration Hot Cut* processes include detailed information and processes related to "cutting" a UNE loop to an EEL arrangement (as opposed to the more restrictive proposal that collocation cages be the only location to which loops can be "hot cut"); and (2) the Commission can explore arrangements related to "concentrated" EELs. Despite the FCC's failure to properly evaluate real-world experience with DS0-based EELs in a UNE-L environment, there is an opportunity for this Commission to elevate EELs to a more effective platform capable of enhancing the likelihood of UNE-L success. Correspondingly, the Commission could enhance the likelihood that mass market customers will enjoy competitive alternatives from carriers other than those relying solely on UNE-P. After having affirmed in this proceeding the FCC's finding that CLECs like MCI are impaired without access to UNE switching functionality, the Commission should begin the process, via follow-up proceedings, of addressing those issues generating impairment. When evaluating ways to

overcome the economic and operational issues related to transport, MCI believes that the Commission's time would be well spent exploring with the industry how EELs could work more effectively in a concentrated format, and the extent to which ordering and provisioning processes specific to concentrated EELs could be used to limit some of the economic and operational challenges that exist with providing transport via a UNE-L platform today.

THE ADVANTAGES OF CONCENTRATED EELS

Q. WHAT DO YOU MEAN BY "CONCENTRATED" EELS?

A. A concentrated EEL is nothing more than the same unbundled loop and interoffice transport combination, with the added capability to "oversubscribe" the interoffice transport element with unbundled loops in a greater than 1:1 ratio. "Concentrating" an EEL allows a CLEC to purchase far fewer interoffice transport circuits to serve the same number of customers, with little or no impact on its resulting quality of service.

Q. HOW WOULD THE CLEC ACHIEVE A CONCENTRATION RATIO GREATER THAN 1:1?

A. Earlier in this testimony I describe next generation DLC equipment (primarily GR-303 compatible equipment) that allows a carrier to concentrate traffic traveling between a remote terminal and the integrated terminal on the central office switch. GR-303 compatible DLC allows a carrier to engineer its outside plant facilities with 4:1, 6:1 or even greater levels of concentration, thereby substantially reducing the feeder capacity

required to serve the same number of distribution pairs.[28] A concentrated EEL relies on this very same technology in extending the loop between central offices.

Q. HOW WOULD A CONCENTRATED EEL BE DIFFERENT FROM THE USE OF EELS TODAY?

A. One of the primary disadvantages of a traditional EEL delivery platform is that a competitive carrier must purchase one interoffice transport circuit for every unbundled loop it purchases in a central office. Competing carriers are limited to a 1:1 concentration ratio between loop and interoffice transport. This substantially, and unnecessarily, increases the costs relative to EELs and wastes the ILEC's interoffice transport resources. A requirement that ILECs provide EELs in a more efficient, concentrated manner can reduce transport costs and CLEC switch interface costs by as much as 75% to 90%. It would reduce wasted capacity by the same amount.

Q. PLEASE EXPLAIN THIS POINT IN GREATER DETAIL.

A. A concentrated EEL arrangement could rely upon the same GR-303 equipment discussed earlier. In simplest terms, to support a concentrated EEL arrangement, an ILEC could be required to place a GR-303 compatible remote terminal in its central office, and lease access to that GR-303 remote terminal on a "per port basis" to individual CLECs. Using the GR-303 remote terminal, individual CLECs could purchase individual DS0 UNE loops from the ILEC, cross-connect those loops to the remote terminal, and purchase transport from the remote terminal to their own central office switches using GR-303 signaling. Assuming a CLEC chose to use 4:1 concentration in

[28] *See* NEWTON'S TELECOM DICTIONARY (19th Ed. 2003), page 361. IDLC systems can achieve

such an arrangement, the CLEC would, using the concentrated EEL in this fashion, be required to purchase 1/4 the interoffice transport capacity originally required. Likewise using 6:1 concentration would allow the CLEC to purchase only 1/6 the amount previously required. Using a recent example from an Illinois proceeding where SBC Illinois' existing UNE rates were used,[29] the savings associated with the concentrated EEL arrangement are obvious:

> Consider the following hypothetical. Assume that a carrier currently serves a total of 2,688 UNE-P customers in a given SBC Illinois central office. Assume further that the carrier decides to migrate those customers from a UNE-P delivery strategy, to its own switching facilities. However, the carrier cannot justify constructing a collocation cage in the central office in question. Instead, the carrier determines that an EEL arrangement, used to extend the loops of those 2,688 customers to its switching location is the most feasible delivery strategy. Using a traditional EEL, the carrier would likely be required to purchase the following EEL combinations:[1]

UNE	Quantity Traditional EEL	Quantity Concentrated EEL	Difference
DS0 Loops	2,688	2,688	0
DS0 Cross Connects	2,688	2,688	0
Interoffice Transport Circuits	112 DS1s	19 DS1s[1]	(93)
Entrance Facility	112 DS1s	19 DS1s	(93)

> Assuming that a carrier utilizes the 6:1 concentration capability inherent in the GR-303 equipment currently deployed by SBC Illinois today,[2] the carrier in our hypothetical above could reduce its interoffice capacity needs by a total of 93 DS1s, an enormous capacity reduction. Given that SBC Illinois' current dedicated interoffice transport rates for DS1 circuits average approximately $126.96 per month,[3] reducing its interoffice transport needs by 93 DS1 circuits, saves the carrier approximately

concentration ratios of up to 44:1 depending upon traffic characteristics.

[29] Illinois Commerce Commission Docket No. 02-0864 (abated), *Direct Testimony of Michael Starkey and John Balke*, pgs. 80-81, filed May 6, 2003.

$11,807.28 per month, just for the 2,688 customers in that particular central office (a total of $4.39 per month, per customer). With savings of this magnitude, the importance of a concentrated EEL arrangement becomes clear.

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(1) Assuming the use of 6:1 concentration.
(2) Part and parcel of SBC Illinois' Project Pronto network upgrade, and its general network evolution, is Alcatel's Litespan 2000, GR-303 capable IDLC. Litespan 2000 accommodates concentration ratios of 6:1 and higher.
(3) Assumes the following DS1 components and quantities (per DS1): (1) DS1 entrance facility @ $73.46; (2) mileage termination charges @ $17.35 apiece; and (10) interoffice mileage charges @ $1.88 apiece. See ILL. C.C. No. 20, Part 19, Section 12, Original Sheet No. 30 for rates.

Q. PLEASE SUMMARIZE YOUR POSITION ON CONCENTRATED EELS.

A. As the FCC and state commissions ponder the development of facilities based local exchange competition, opportunities like those exhibited by the concentrated EEL must be a realistic component of those considerations if UNE-L is to ever fulfill the role of a primary market service platform. The concentrated EEL typifies the manner by which newer technologies can and should be, used to reduce costs for all involved, in addition to providing a more efficient and scalable competitive opportunity. There are few, if any, technical barriers to a concentrated EEL arrangement. While operational issues will no doubt require some amount of development, the competitive advantages undoubtedly require the effort. Nonetheless, ILECs will not offer concentrated EELs of their own volition. Indeed, many have already refused to provide these arrangements in the fashion described above. Therefore, state commissions will need to provide the proper incentive for ILEC cooperation in the form of a proceeding aimed to develop a workable concentrated EEL platform. It is MCI's opinion that proceedings of this type

should immediately follow the Commission's decision in this proceeding in an effort to mitigate those transport-related issues giving rise to the impairment that exists today relative to unbundled mass market switching.

Q. DOES THIS CONCLUDE YOUR TESTIMONY?

A. Yes, it does.