analysis required that UNE-P be required in large percentage of areas where UNE-L was uneconomic.

9. Although the DC Circuit Court of Appeals had already overturned the *Triennial Review Order*'s switching impairment finding when the Board approved the funding, MCI still had reason to expect that UNE-P would remain in place in some form, and that the strategy of augmenting UNE-P with a UNE-L build out continued to make sense.

10. That changed in June 2004, when the Solicitor General and the Commission decided not to defend the *Triennial Review Order*'s impairment findings before the Supreme Court. The Chairman has made clear his distaste for UNE-P, and the handwriting on the wall suggests that this Commission intends to curtail UNE-P availability severely, if not outright eliminate it.[2]

11. Further, the ILECs have been emboldened by what they perceive to be a winning hand in the regulatory arena and in the courts. As the Commission knows, we tried to reach commercial agreement on a UNE-P replacement product with each of the RBOCs. With the notable exception of our agreement with Qwest reached prior to the Solicitor General's decision, those efforts failed. With the Chairman's recent pronouncements regarding UNE-P and the government's unwillingness to defend the *Triennial Review Order* before the Supreme Court, the ILECs have little incentive to negotiate a commercially reasonable resolution at this point. Nor do they have any incentive to address the economic or operational problems that plague UNE-L today. Quite to the

[2] *Unbundled Access to Network Elements*, WC Docket No. 04-313, Order and Notice of Proposed Rulemaking (rel. Aug. 20, 2004) (FCC 04-179), Separate Statement of Chairman Michael K. Powell at 1.

contrary, the ILECs continue to seek to worsen the economic conditions by proposing higher loop rates and nonrecurring charges.

12. While I should not be surprised by this, I am disappointed. As circuit switches are being replaced by packet switching technology, as new competitors such as cable companies are entering the market, and as wireless becomes a substitute not just for long distance but for long distance and local, the ILECs should have incentives to work more closely with companies like MCI, to counteract the threat of stranded switching investment. The fact that the ILECs, other than Qwest, have not done so speaks volumes either about their own view of their chances of winning complete victory in the regulatory arena and in the courts or their own view about the substitutability of these other modalities with their own wireline services.

13. As a result, MCI's investment plans have been put on indefinite hold. Given that our network coverage would be limited to selected areas while we augmented the network to expand our coverage, it is apparent to us that without UNE-P to serve those areas that need network upgrades, this plan is unviable. The above plan to augment MCI's network to enable us to use UNE-L to supplement our UNE-P presence is no longer moving forward, because we no longer have any comfort that there will be a UNE-P presence to supplement, nor the necessary improvements to UNE-L provisioning processes and reductions in hot cut NRCs.

14. The ubiquitous nature of UNE-P allows CLECs such as MCI to provide service on a mass market basis. Because MCI's facilities are not currently deployed in a manner that would allow it to continue to provide service to all of its existing customers, even if a

UNE-L strategy were viable to supplement MCI's UNE-P based offerings, the capability to continue to serve residential customers via UNE-P is critical to MCI's continued market participation and expansion.

15. In order for a UNE-L plan to serve residential customers to make sense for MCI a number of things need to happen. First, the elimination of UNE-P (UNE-switching) has to be linked to measures that enable the economic use of UNE-L, if densities otherwise permit UNE-L to be economic at all in certain wire centers. Those "UNE-L Enabling" measures fall into two categories: economic and operational.

16. As this Commission knows, a critical economic barrier is the rate established for the hot cut that cuts over an ILEC loop to our collocation facility. Although the hot cut rate is a nonrecurring charge ("NRC"), that charge must be recovered over the expected life of the customer. Given the high churn rate spurred by healthy competition, that loop cut over rate is a significant barrier in many states. Hot cut rates vary across the states but generally are far too high to support UNE-L competition. Worse, an important state for MCI, New York, recently established a hot cut NRC of more than $42 per loop – seven dollars more than what had been in place previously on an interim basis. Other economic issues, like the costs of network augmentation, make UNE-L economically infeasible under current conditions in the vast majority of areas.

17. The second area of UNE-L enabling issues that need to be addressed before UNE-P should be eliminated in any particular wire center are the operational issues. MCI remains stymied by the operational impairments created by the ILECs' hot cut processes. We know from our experience with UNE-P that for mass market customers, ordering and

provisioning processes must be mechanized, or they will fail. The hot cut process is entirely within the control of the ILECs, and they have not made any of the improvements that would be needed to permit them to handle the volumes that would be presented in a mass market scenario, primarily because the ILECs hot cut processes remain manual, and not mechanized. We need to be able to provide customers with a nearly seamless experience when switching to our facilities. Otherwise we create opportunities for our competitors to take those customers back (or otherwise away from us). The operational issues associated with the loop provisioning process directly affect the customer's experience when MCI provides them service.

18. Sadly, despite the fact that almost 20 months has passed since the FCC announced its TRO decision in February 2003, little progress has been made to address these economic and operational issues. Moreover, as noted above, the ILECs seem to have little incentive to address these problems. Indeed, since the DC Circuit Courts mandate issued, SBC and Verizon have aggressively tried to stop state proceedings designed to implement more efficient hot cut processes. In sum, as we continue to fight over impairment issues, and as the ILECs sense a total victory on UNE-P related issues, there is no attention being paid to and regression away from UNE-L enabling issues.

19. Instead of eliminating UNE-switching (or UNE-P), this commission should require the elimination of the economic and operational barriers preventing the use of UNE-L for the residential market. Only then should the Commission consider scaling back UNE-P availability. That course would not only create a proper incentive structure for both parties, it would also promote facilities-based competition by companies such as MCI.

20. This concludes my declaration on behalf of MCI.

Declaration

I declare under penalty of perjury that the foregoing is true and correct.

Executed on September 30th, 2004

Wayne Huyard

Before the
Federal Communications Commission
Washington, D.C. 20554

In the Matter of	)	
	)	
Unbundled Access to Network Elements	)	WC Docket No. 04-313
	)	
Review of the Section 251 Unbundling Obligations of Incumbent Local Exchange Carriers	)	CC Docket No. 01-338

DECLARATION OF
MICHAEL STARKEY AND SIDNEY MORRISON
On Behalf of MCI, Inc.

October 4, 2004

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Before the
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In the Matter of	)	
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DECLARATION OF
MICHAEL STARKEY AND SIDNEY MORRISON
On Behalf of MCI, Inc.

I. INTRODUCTION AND PURPOSE OF DECLARATION

1. My name is Michael Starkey. I serve as President of QSI Consulting, Inc. ("QSI"). I am submitting this Declaration on behalf of MCI, Inc. ("MCI") in combination with Sidney Morrison, QSI's Chief Engineer. Information related to my educational background and experience and Mr. Morrison's are included with this Declaration as Exhibit 1.

2. QSI provides consulting services to many telecommunications clients, including both incumbent and competitive carriers alike as well as government agencies such as state public utility commissions. Over the past eight years, QSI and its various consultants have worked extensively with carriers pursuing business strategies involving their own switching facilities in combination with an unbundled loop ("UNE-L") provided by the incumbent LEC ("ILEC"). During that period, QSI has observed the numerous obstacles that UNE-L providers face, especially in serving residential and

small business customers. QSI has been responsible for assisting its clients in overcoming those obstacles from a business, regulatory and operational perspective and as such, has first-hand knowledge as to how these obstacles lead to impairment in the absence of UNE-P.

3. This Declaration provides the Commission with a ground-level, nuts-and-bolts description of the real-world obstacles that plague a delivery strategy relying upon UNE-L, to identify their underlying root causes, and in some cases, to identify areas where improvement can be made with regulatory pressure and oversight. Toward that end, we have grouped the most pressing operational matters into the following broad categories: (a) the overly manual ILEC hot cut process and its impact on mass market provisioning and (b) issues specific to integrated digital loop carrier ("IDLC") as they relate to facilities availability and hot cuts.

4. Generally speaking, operational obstacles facing a carrier that cannot use UNE-P to serve its customers spring from difficulty in replicating the loop facilities owned by the ILEC or accessing those loop facilities on an unbundled basis for purposes of attaching the loop to the CLEC's switch. Because the problems associated with replicating the ILEC's network are well known, we focus our attention in this Declaration on the latter difficulty, *i.e.*, connecting a UNE loop to a CLEC switch in a manner that will support a mass market product.[1]

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[1] While the myriad problems inherent in physically moving the loop from the ILEC's switch to the CLEC's switch are critical, additional obstacles beyond the simple connection of the loop to a competitive network provider, which are addressed in the accompanying Declaration of Sherry Lichtenberg, need also to be addressed, even if the provisioning aspect of the hot cut process were perfected.

5. In the absence of UNE-P, the need for UNE-L processes and procedures that would support a mass market service offering as opposed to an enterprise offering becomes an imperative. As discussed above, since 1996, QSI and its consultants have assisted clients in developing and improving their UNE-L business processes. However, none of our clients prior to the *Triennial Review Order* focused any notable effort on using UNE-L to serve residential or very small business customers, even when those carriers had deployed their own switching capacity and had spare capacity available in a given market. This was true even before UNE-P became a realistic service delivery platform in the late 1990s. The simple reality is that the time and effort required to secure a UNE loop and connect that loop to a CLEC switch, using existing ILEC procedures and processes (and paying ILEC non-recurring charges associated with UNE-L), makes such an endeavor extremely unattractive for purposes of serving residential customers. Residential customers require substantial operational standardization, so as to achieve operational economies. The UNE-L process as provisioned by the ILECs simply does not allow for that required level of standardization. Hence the vast majority of the CLEC industry focused their UNE-L efforts on larger business customers, where term contracts and higher profit margins could justify the substantially higher costs of a UNE-L strategy (both the fixed costs of the network build out and the marginal costs associated with ILEC non-recurring charges).

6. With the advent of UNE-P, many of these CLECs were finally provided a service delivery platform capable of providing a more robust service offering to both enterprise and mass market customers. In doing so, they continued to use UNE-L to serve larger business customers and used UNE-P to serve the mass market segment of

their business. In this way, even though UNE-P did not allow them to experience greater utilization of their own switch capacity and thereby reduce their dependence on their main competitors for key network inputs, UNE-P did allow them to achieve operational economies of scale for their other investments (*i.e.*, OSS, marketing, managerial, customer services, etc.).

7. When the Commission reviews the record in this proceeding, it will no doubt be inundated with ILEC data purporting to show that UNE loops are provided in large numbers and with ILEC claims that such numbers prove the sustainability of UNE-L competition. The ILECs will undoubtedly use these UNE loop volumes to suggest that carriers have overcome the problems we identify in this Declaration (and they will claim that such market-based success provides the best evidence in rebutting a finding of impairment). But the ILEC volume data tell us very little about carriers serving the mass market or about carriers who may have overcome operational barriers toward standardizing a high-volume UNE-L product. As is discussed in detail in Ms. Murray's Declaration on behalf of MCI (and consistent with our own experience), the overwhelming majority of those loops are not used to serve mass market customers, but are used instead to serve the larger business customers (enterprise customers). Such information comes as no surprise to us as we have witnessed no fundamental change in the operational or economic realities of the UNE-L business plan since the mid-1990s. Carriers then and carriers now rely on UNE-L almost exclusively to serve enterprise customers.

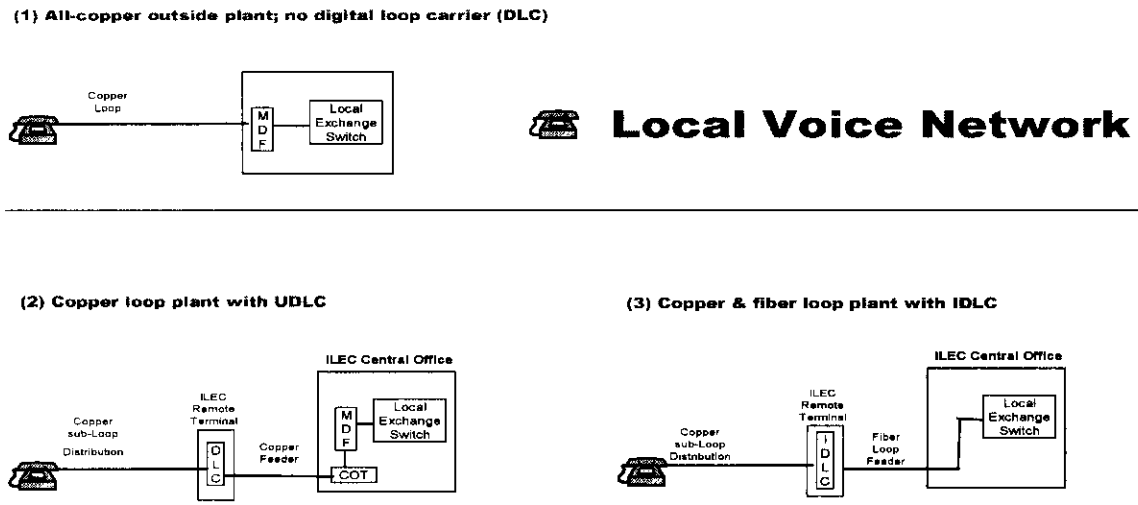
II. NETWORK ARCHITECTURE

8. The primary problem facing a UNE-L delivery strategy is its inherent conflict with existing ILEC network engineering practices. As a fundamental matter, the ILECs' outside plant facilities were built (and are largely maintained) specifically to support the ILECs' retail services. In a UNE-L environment, the ILEC is required to separate network elements it has over the past 50 years worked very hard to combine in order to increase the efficiency by which it can provide retail services. The ILECs have been extremely successful in integrating their networks, and their processes supporting their combined, retail services are impressively efficient. It is these same processes that provide UNE-P comparable economies of scale and scope. Unfortunately, these processes and the ILECs' success in integrating their networks present the highest hurdles to effectuating UNE-L. UNE-L requires the ILEC to dismantle the very integrated nature of its network in a fashion it does not like nor is particularly well suited to accomplish. This dismantling process not only robs UNE-L of the efficiency the ILECs' retail services maintain in their integrated fashion, but the dismantling itself introduces additional delay, costs, and errors that only the CLEC faces.

9. The ILEC local loop network is structured today around two primary technologies: (a) copper cable extending uninterrupted from the ILEC central office to the customer's premises and (b) a combination of fiber (or copper) based feeder facilities stretching from the ILEC central office to a remote terminal location and copper cables that extend the loop the remainder of the way from the remote terminal to the customer's premises. In the second of these architectures, the fiber (or sometimes copper) feeder

facility is controlled by electronic equipment that multiplexes individual signals from individual customers onto higher bandwidth circuits for purposes of delivering that traffic from customer locations to the central office. This equipment is generally referred to as "digital loop carrier" or "DLC" equipment. In many instances, the circuit connecting the remote terminal location to the central office actually terminates directly into the local digital switch that provides the customer's dial tone and various switching functionality (inward/outward calling, features, etc.). These are the "integrated" or "IDLC" facilities that we will discuss in detail in this Declaration. The fundamental advantage of this newer, more advanced "integrated" technology is that it allows ILECs to provision services to their retail customers in an automated fashion. That is, ILEC retail customers (and CLEC UNE-P customers) served by IDLC can have their service "turned up," can change their service(s), and can even add additional lines without the need for an ILEC technician to be dispatched either to the central office, or to a remote terminal (or the customer's premises). The customer's service is managed and provisioned electronically via sophisticated software and workflow processes. This automation of the provisioning process is a substantial improvement over expensive and time-consuming manual processes.

10. The diagrams below depict the three most common outside plant arrangements comprising a local loop (as described above).



11. **Diagram (1): All-Copper Analog Loop:** The copper loop enters the central office, where it is manually cross-connected from the vertical side of the main distribution frame ("MDF") (generally considered the "outside plant" or OSP appearance) to the horizontal side of the frame (generally considered the "central office" or CO appearance).

12. **Diagrams (2) and (3): Digital Loop Carrier:** These two diagrams show alternate serving arrangements that utilize more advanced platforms known as Universal Digital Loop Carrier ("UDLC") – Diagram (2), and IDLC – Diagram (3). In a general sense, the purpose of both DLC applications is to aggregate the traffic of 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 ("RT") and the CO.

13. ***UDLC:*** In the UDLC scenario, the copper loop that leaves the customer's premises connects to a DLC RT, 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 CO.[2] The cable terminates in the CO on a Central Office Terminal ("COT") 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 as a point of interface for the carriers' switching equipment (and as a point of interconnection for a CLEC in an unbundling scenario).

14. UDLC technology consists of an RT, a transmission (transport) facility to link the RT to the CO, and a COT. The RT 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 RT to the COT, and vice versa. The COT equipment converts the digital signal from the RT 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 conversion was needed at the MDF. The signal that was converted from digital to analog at the COT had to be converted back to a digital signal by an Analog Interface Unit ("AIU") resident in the switch. The required digital-to-analog conversion at the CO has largely become inefficient and unnecessarily expensive as more and more

[2] Note that UDLC may utilize either fiber or copper feeder facilities.

digital switches are deployed (the vast majority of RBOC switches serving local customers today are digital switches).

15. **IDLC:** In Diagram (3) the loop from the customer's premises connects to a remote terminal equipped with IDLC technology. With this application, the electronics in the RT convert the analog signals to a digital multiplexed format and then send the digital signal over fiber feeder cable to the CO, terminating directly in the ILEC's digital switch without converting the signal back to an analog format.[3]

16. When providing integrated retail services, IDLC technology surpasses the efficiency of UDLC on several levels. For example, IDLC technology addresses the inefficiencies attendant to UDLC by eliminating the need for the additional analog-to digital conversions at the CO, thereby reducing costs and technical inefficiencies inherent in the conversion process (discussed in more detail below). With IDLC, the analog signal originating at the customer's premises still is converted to digital at the RT, 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). Also, unlike traditional copper loops or UDLC loops, IDLC loops do not typically include a termination appearance on the MDF.

17. With respect to bundled services (retail and/or UNE-P), there are undisputable benefits to IDLC beyond even the considerable provisioning advantages described above. For bundled services, IDLC allows local loops to be connected to a digital circuit switch

[3] While certain fiber termination equipment actually exists between the RT 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.

more efficiently and cost effectively when compared to UDLC, given that IDLC requires neither an analog conversion at the CO, nor the AIU line card at the switch, nor manual MDF wiring. By avoiding this equipment, IDLC provides a more flexible and cost effective loop alternative. Unfortunately, the very efficiencies that render IDLC a far superior choice for integrated retail services make it a particularly problematic technology in an unbundled scenario. Wherein copper and UDLC loop facilities have an obvious, analog interconnection point at the MDF, IDLC bypasses the MDF and provides an uninterrupted digital signal all the way into the ILEC switch. Therefore, accessing a stand-alone unbundled loop currently served by IDLC poses unique challenges. To this point, the ILECs have decried these challenges posed by IDLC and chosen to "work around" them rather than address them in a way that offers a semblance of non-discriminatory access. However, these challenges must be faced and solutions must be pursued if UNE-L is ever to provide a realistic vehicle for mass market entry. We dedicate a significant portion of this Declaration to describing the operational means by which to overcome the challenges posed by IDLC and highlight the fact that processes exist that can turn these challenges into opportunities for a more effective UNE-L offering.

III. ILEC HOT CUT PROCESSES

18. The manual nature of the ILEC hot cut process, when compared to the automated nature of the ILEC retail provisioning process against which the CLEC must necessarily compete, poses a substantial barrier to UNE-L as a mass market delivery vehicle. The ILECs' hot cut processes include numerous shortcomings that render them

substantially inferior to ILEC retail provisioning processes (and inferior to the UNE-P provisioning process). However, for purposes of this Declaration we focus on the four primary deficiencies that lead most directly to impairment: (1) lack of mechanization, (2) scalability, (3) unavailability for numerous order types required by the CLEC and (4) rates and rate structure.

19. At its most basic, the provisioning aspect of a hot cut, when there is no IDLC present, involves a technician responding to a work order, manually locating the loop, manually pre-wiring the loop, and, on the day of the cut, manually performing the "lift and lay" necessary to connect the loop to the circuit facility assignment ("CFA") associated with the CLEC's collocation cage (and ultimately its switch) – and, in the case of a coordinated hot cut, all the while coordinating by telephone or some other device with ILEC service personnel and the CLEC.

20. This Commission has already acknowledged the important distinction between the manually intensive hot cut processes required for a CLEC to gain access to a customer's loop, versus the largely software-driven (mechanized) fashion by which the ILEC could gain access to that same loop to provide its retail services, or by which CLECs obtain service via UNE-P. No noticeable improvement has been made for purposes of narrowing this operational and economic gap between ILEC and CLEC since the Commission's most recent finding in this regard.

21. In response to the *Triennial Review Order*, the state commissions established proceedings to examine the ILECs' hot cut processes. Mr. Morrison and I, as well as other members of the QSI technical staff, participated in nearly every one of those hot cut proceedings. Although we analyzed a variety of proposed hot cut processes supported by

the ILECs, each of the processes shared similar deficiencies. Primary among them was the total failure by the ILECs to introduce any automation or mechanization into their largely manual hot cut provisioning processes. Any proposals by the ILECs to introduce additional automation were limited to the ordering and order coordination of the hot cut process and had no bearing on the manual process of actually provisioning the hot cut. No ILEC in the state hot cut proceedings provided any proposal for increased mechanization related to the provisioning of hot cuts. In fact, the ILECs criticized and dismissed CLEC proposals in this regard at every turn.

22. Much of the work in the states related to rule 51.319(d)(2)(ii) and focused on the development of *batch* hot cut processes, resulting from the *Triennial Review Order*'s direction to the states to approve and implement a batch process. While the Commission's goal of capturing economies associated with a batch process is logical, it is not the ability to "batch" orders that renders the process used by the ILEC in provisioning its retail services (or UNE-P services) more efficient. And as such, a singular focus on a *batch* process is misplaced. It is the mechanization inherent in the ILECs' retail processes (and the UNE-P processes), not the fact that cuts are accomplished in a batch, that constitutes the fundamental difference. Only increased mechanization within the ordering and provisioning processes would make a meaningful difference in the ILECs' ability to provision mass market volumes of hot cuts within intervals, and at costs, comparable to that it experiences in providing retail or UNE-P services. To the extent a "batch" process fails to include this same type of mechanization (as all the ILECs have suggested it should), it will not be successful in supporting a UNE-L strategy, no matter how many (or few) loops may be included in a batch. Further, while a batch cut process

would be valuable for the purposes of migrating customers served by UNE-P to UNE-L, its benefits largely end there. The ILEC batch processes generally are not designed to handle anything other than a transition from UNE-P to UNE-L. Once that transition is complete, and CLECs continue to win (and lose) customers in the market place, the CLECs are dependent on the ILECs' standard, day-to-day, individual hot cut processes to handle migrations. Unfortunately, it is the inherent manual nature of these processes that erects the most obvious and detrimental hurdle to the UNE-L strategy.

1. Lack of Mechanization

23. Mechanization of the hot cut process would minimize human intervention in the hot cut process, thereby increasing reliability and scalability, decreasing provisioning intervals, and reducing resultant costs. Mechanization brings substantial benefits:

> (a) the time required to move the customer from one carrier to another is dramatically reduced;
>
> (b) the rate of error is dramatically reduced (the largest single component leading to service disruption in the hot cut process is human error);
>
> (c) the process becomes scalable, given that software/hardware resources are easily supplemented; and
>
> (d) the provisioning process is relatively inexpensive (the single most expensive component of any provisioning function is human intervention).

24. Unfortunately, in the state hot cut proceedings, the ILECs refused to consider increased levels of mechanization in their hot cut provisioning processes.[4] For instance,

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[4] For example, in the very first Workshop scheduled pursuant to Indiana Utility Regulatory Commission Cause No. 42500-S1, SBC suggested that discussions regarding increased mechanization in the "lift & lay" portion of the hot cut process be set aside as the parties simply would not be able to agree that such mechanization was required (or

SBC, BellSouth, Qwest and Verizon each proposed to use the very same manual frame-wiring activities supporting their existing hot cut processes, within their new "improved" batch hot cut processes. No ILEC made any noticeable proposal related to mechanizing any of the manual provisioning work steps they currently employ in effectuating a hot cut.

25. Included with this Declaration as Exhibit 2 is an analysis we have constructed to highlight the vast disparity that exists between the ILEC's proposed hot cut processes and their existing retail and UNE-P processes. The analysis highlights the areas where substantial manual intervention would still be required in the hot cut process even after those processes have been improved consistent with the ILEC's proposals, as well as to highlight the additional time, cost and coordination that results from such manual intervention (by comparing those worksteps with the same worksteps required in a retail provisioning and UNE-P scenario). As shown on Exhibit 2, we have performed a comparative analysis of the worksteps and time involved in the following five loop provisioning scenarios: (1) UNE-L hot cut (coordinated), (2) UNE-L hot cut (uncoordinated), (3) Retail to UNE-P migration, (4) Retail to resale migration, and (5) Retail POTS installation (connected through). Each of these loop provisioning processes have been analyzed according to the following activity categories: service ordering, coordination, local assignment center, switch recent memory change, central office, field operations and billing. Each individual workstep for each activity category has been listed. To calculate the cost involved in each scenario, we have determined whether a

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possible), and hence, the parties' time could be allocated to areas where some agreement might be reached.

particular workstep is involved in the scenario, and if so, assigned an estimated amount of time to perform that activity and a probability occurrence factor to indicate how often that particular workstep is performed. The product of the time and probability provides the average time involved in performing said workstep. We then calculated the total time involved in each loop provisioning scenario by summing the average time for all worksteps involved. A labor rate is then applied to the total time to calculate the service cost of each loop provisioning process.[5] Our findings have been summarized below:

- Service ordering cost is identical across all scenarios, except retail POTs installation, since order confirmation need not be provided to the CLEC in this scenario.

- Coordination activities lead to more manual intervention and cost for the UNE-L provisioning process. Though coordination activities are not needed in the retail, resale or UNE-P environment, we have estimated that it results in an additional 25.68 minutes of manual intervention for UNE-L (coordinated) and an additional 11 minutes of manual intervention for UNE-L (non-coordinated).

- Local assignment center activities impose costs on UNE-L and retail that are not imposed on UNE-P and resale.

- Switch recent memory change costs are approximately 8% higher for UNE-L than for UNE-P, resale and retail.

- Central office work imposes significant costs on UNE-L that are not imposed in the UNE-P, resale, or retail scenarios. Specifically, we have estimated that UNE-L entails 28 minutes of manual intervention, compared to 0 minutes for UNE-P and resale and 2 minutes for retail. These costs relate to pre-hot cut validation and the actual cutting over of the loop. Since the connection between the UNE loop and switch is not broken in the UNE-P and resale

[5] We should note that Exhibit 2 uses generalized information we have learned through numerous ILEC cost study cases and does not include any confidential data specific to any individual carrier. We should also note that the amount of time required for any individual task, the probability of occurrence and the generalized labor rate do not reflect our opinions of a "forward looking" provisioning process. Instead, those data reflect general time estimates provided by the ILECs in their many cost study assuming continued manual manipulation of their networks.

environments, these activities do not take place in these instances. When compared to the retail worksteps, UNE-L would require an estimated additional 26 minutes of manual intervention.

- Field operations represent costs of SBC rearranging facilities for the CLEC when the CLEC wins a customer served by IDLC. As we discuss below in Section IV, instead of utilizing methods that would allow for automated loop provisioning in these instances, RBOCs require "work-arounds" that involve moving the CLEC's customer to spare copper pair or an UDLC-served loop. Because UNE-P, resale and retail all enjoy the benefits of the integrated nature of IDLC, these costs exist only in an UNE-L environment.

- Billing time is the same across all scenarios.

- The differences in worksteps described above result in the following worktimes for each provisioning process: UNE-L (coordinated) 59.26 minutes; UNE-L (non-coordinated) 44.58 minutes; Retail to UNE-P Migration 4.5 minutes; Retail to Resale Migration 4.5 minutes; Retail POTS Installation (connected through) 6.10 minutes.

When a conservative labor rate of $56.00/hour is applied to these worktimes, the total service cost for the processes are as follows:

SERVICE	TOTAL TIME (Min)	Labor Rate Per Hour	Labor Rate Per Min
UNE-L Hot Cut (coordinated)	59.26	$56.00	$0.93
UNE-L Hot Cut (non coordinated)	44.58	$56.00	$0.93
Retail to UNE-P Migration	4.50	$56.00	$0.93
Retail to Resale Migration	4.50	$56.00	$0.93
Retail POTS Installation (connected through)	6.10	$56.00	$0.93

The table above shows that the RBOCs' approach of relying on manual hot cuts would result in CLECs suffering an up-front cost *dis*advantage of 872% (for coordinated) and 631% (non-coordinated) relative to the cost the ILEC would incur to provision