EXHIBIT PL-1T

BEFORE THE WASHINGTON STATE
UTILITIES AND TRANSPORTATION COMMISSION

In the Matter of the Petition for Arbitration of an Interconnection Agreement Between	)	
NORTH COUNTY COMMUNICATIONS CORPORATION OF WASHINGTON	)	DOCKET UT-093035
and	)	
QWEST CORPORATION Pursuant to 47 U.S.C. Section 252(b)	)	

DIRECT TESTIMONY

OF PHILIP LINSE

QWEST CORPORATION

DATE MAY 19, 2010

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TABLE OF CONTENTS

I.	**IDENTIFICATION OF WITNESS**	**1**
II.	**PURPOSE OF TESTIMONY**	**2**
III.	**INTERCONNECTION AND NETWORK SIGNALING**	**3**
IV.	**INTERCONNECTION AGREEMENT LANGUAGE**	**10**
V.	**SUMMARY/CONCLUSION**	**16**

I. IDENTIFICATION OF WITNESS

Q. PLEASE STATE YOUR NAME, OCCUPATION AND BUSINESS ADDRESS.

A. My name is Philip Linse. My business address is Qwest Network Reliability Center at 700 West Mineral Avenue in Littleton, Colorado. I am employed as Director – Legal Issues for Network. I am testifying on behalf of Qwest Corporation ("Qwest").

Q. PLEASE GIVE A BRIEF DESCRIPTION OF YOUR EDUCATIONAL BACKGROUND AND TELEPHONE COMPANY EXPERIENCE.

A. I earned a Bachelors degree from the University of Northern Iowa in 1994. I began my career in the telecommunications industry in 1995 when I joined the engineering department of CDI Telecommunications in Missoula, Montana where I designed and managed the installation of Outside Plant Infrastructure consistent with customer demand. In 1998, I accepted a position with Pacific Bell as a Technology Planner with responsibility for the economic implementation of outside plant capital additions ensuring appropriate levels of network capacity. In 2000, I accepted a similar position with U S WEST as a Tactical Planning Manager.

In 2001, I was promoted to a staff position in Technical Regulatory Interconnection Planning for Qwest. In this position, I developed network strategies for interconnection and the unbundling of Qwest's local switches, Signaling System No. 7 ("SS7") and other switching-related products. I was a subject matter expert regarding the interconnection and unbundling of network elements required by the

Telecommunications Act of 1996. My responsibilities also included the development of network strategies based on the evaluation of existing and new technologies as well as the negotiation of Interconnection Agreements.

In 2003, I was promoted to my current position as Director, Technical Regulatory. In this role, I continued to provide technical expertise inside Qwest for the development and implementation of network policies. I also provided technical expertise outside of Qwest representing the company in industry technical standards setting groups such as the FCC's Network Reliability and Interoperability Council ("NRIC") and the Network Interconnection Interoperability Forum ("NIIF").

Q. HAVE YOU TESTIFIED PREVIOUSLY IN WASHINGTON?

A. Yes. I have most recently testified on behalf of Qwest in the arbitration of an interconnection agreement with Charter Fiberlink (Docket No. UT-083041) and both the arbitration of an interconnection agreement with Level 3 (Docket No. UT-063006) and the Qwest complaint proceeding regarding VNXX (Docket No. UT-063038).

II. PURPOSE OF TESTIMONY

Q. WHAT IS THE PURPOSE OF YOUR TESTIMONY?

A. The purpose of my testimony is to explain Qwest's positions from a network perspective as they relate to Qwest's proposed language filed in its August 3, 2010 petition for arbitration. Qwest's proposed language consists of Qwest's Interconnection Agreement template language modified to include language that

accommodates the limitations of North County's unique CLEC network that uses antiquated Multi Frequency (MF) signaling technology. My testimony will explain why Qwest uses modern Signaling System No. 7 ("SS7") and why the use of SS7 interconnection to Qwest's network appropriately allows Qwest to record local traffic for billing and bill validation purposes. My testimony will also explain that Qwest's proposed language both accommodates North County's use of MF signaling while allowing Qwest to ensure that North County's billing of Qwest is as accurate as possible. While my testimony will explain the technical interconnection issues, Ms. Renee Albersheim will discuss the compensation and billing terms proposed by Qwest in the Interconnection Agreement.

III. INTERCONNECTION AND NETWORK SIGNALING

Q. WHAT IS NETWORK SIGNALING?

A. Network signaling is the network control information that is sent between network elements. This includes signaling between network elements within a service provider's network such as between two or more switches and between switches and databases. This also includes signaling between end user networks and service provider's networks and between one or more service provider networks or databases. Such network control signals include supervisory information used to initiate and terminate network connections, indicate network connection status, management of network connection and general information transactions.

Q. WHAT TYPES OF SIGNALING CAN BE USED BETWEEN NETWORK SWITCHES?

A. SS7 and MF signaling are the most common signaling technologies used in the Public Switched Telephone Network (PSTN) for what is generally referred to as trunk signaling.[1] Trunk signaling is used for setting up or taking down conversation/talk paths between network switches.

Q. WHAT IS SS7 SIGNALING?

A. SS7 signaling is a digital code that is used to manage connections between telecommunications switches and call related databases. SS7 signaling is a type of signaling known as Common Channel Signaling ("CCS") or out-of-band signaling. This means the path that the signaling uses to manage the trunk connections between switches is <u>not</u> the same trunk connection as the conversation/talk path (see Exhibit PL-2 (A)).

Q. WHAT IS MF SIGNALING?

A. MF or multi frequency signaling is generally an audible analog code that is used to manage connections between telecommunications switches. As explained above, trunk signaling is used for setting up or taking down communications paths between network switches. MF signaling is a type of signaling known as in-band signaling. This means that the path that the signaling uses to manage the trunk connections

[1] Telephone calls are sometimes made between people that are served by different switches. The connections used to provide a communication path between switches are called trunks.

between switches is also the same trunk connection as the conversation/talk path (see Exhibit PL-2 (B)).

Q. WHAT ARE THE BASIC FUNCTIONS THAT MF AND SS7 SIGNALING PROVIDE?

A. Both MF and SS7 signaling accomplish several basic functions. They both can provide call supervision, call set-up, and call take-down necessary to establish connections associated with Operator Services, Directory Assistance, 911, long distance calling and local calling.

Q. WHAT ARE THE DIFFERENCES BETWEEN SS7 AND MF SIGNALING?

A. SS7 signaling differs from MF signaling because it is more efficient, more reliable, and more flexible.

SS7 Signaling is more efficient than MF signaling in at least two important ways. First, SS7 uses a digital protocol that is transmitted, received and interpreted by switches much faster than the MF audible tones. The length of time necessary to send and receive MF signaling tones is multiplied when multiple switches and MF signaled connections are used to originate and terminate a call. Secondly, SS7's more efficient call set-up process reserves the talk path only until the busy status of the called is determined. The reservation of the talk path is digitally released once the terminating office has determined that the called party's line is busy. The calling party's switch then sends the audible busy signal to the calling party using only the loop between the switch and the calling partyr. The talk path between

switches is not used to transmit the busy status and thus is made available for other calls. However, a call connection is built and maintained when MF signaling is used. The call connection is built and maintained to the called party's switch before the busy status of the called party's line is known. When a busy status is discovered, an audible busy signal is sent over the call connection to the calling party. This call connection is maintained until the calling party recognizes the sound of the busy signal and decides to disconnect by hanging up. This is extremely inefficient use of the network between switches and is the result of extended hold times due to the calling party listening to audible busy signals.

SS7 signaling is more reliable than MF signaling. SS7 signaling was implemented within Qwest's network in the late 80s to early 90s and is now ubiquitously available across Qwest's local network.[2] Further, SS7 has become the dominant and preferred signaling method between telecommunications networks[3] because of its reliability and flexibility. On the other hand, MF signaling has been in use well before divestiture, is generally limited to performing basic call set-up take-down functions, requires increased maintenance for transmission and receiver equipment,

[2] "The use of circuit-associated interoffice in-band analog signaling call-completion and call-supervision methods and techniques covered in Sections 6.5 and 6.6 have almost become obsolete in modern LEC interoffice networks. Their use has been replaced by CCS methods described in Section 6.23. In general, in-band analog signaling call-supervision methods are encountered only in special applications, such as operator system trunks, E911 trunks, and busy-verification trunks." SR-2275 Telcordia Notes on the Networks, Issue 4 October 2000.

[3] SS7 is the dominant signaling protocol in a Time Division Multiplex (TDM) network. As Internet Protocol networks carry telecommunication traffic, IP compatible signaling protocols are being developed and used for similar purposes as SS7 signaling.

and is susceptible to trunk quality conditions. MF signaling is not typically used for the interconnection of networks where SS7 signaling is available.

SS7 provides the flexibility for service providers to offer useful services between telecommunication networks beyond mere call set-up and take-down such as Caller ID and Last Call Return. SS7 signaling further enhances the ability of service providers to use an Advanced Intelligent Network ("AIN") platform to offer complex services such as No Solicitation and Security Screen. SS7 can accomplish everything MF accomplishes and more.

Q. DOES SIGNALING FACILITATE THE ABILITY TO BILL FOR TRAFFIC BETWEEN TELECOMMUNICATION CARRIERS?

A. Yes. Signaling provides important billing information either directly or indirectly such as the type of call (e.g. long distance, Operator Service, Directory Assistance), billable party (i.e. end user or carrier), call duration, and feature usage.

Q. WHY IS SS7 SIGNALING IMPORTANT FOR QWEST'S ABILITY TO BILL FOR TRAFFIC BETWEEN COMPETITIVE LOCAL EXCHANGE CARRIERS ("CLECS")?

A. Yes. Prior to 1996 both MF and SS7 signaling were used to initiate the switch recording of traffic that was usage sensitive such as long distance traffic. Until the passage of the Telecommunications Act of 1996 recording of local traffic was not common. This was because there was no reciprocal compensation requirement between local carriers. Further, ubiquitous recording of local traffic was not

generally a capability that existed in the network because the local service provided to end users was predominately billed on a flat monthly rate basis.

Q. DID THE NEED FOR THE RECORDING OF LOCAL TRAFFIC CHANGE AS THE RESULT OF THE TELECOMMUNICATIONS ACT OF 1996?

A. Yes. As the result of the Telecommunications Act of 1996, arrangements for reciprocal compensation for the transport and termination of telecommunications traffic was required of Local Exchange Carriers (LECs).[4] Because local traffic was not previously recorded, a method of recording local traffic was developed using the capabilities that existed with SS7 signaling technology.

Q. WHY WAS THE RECORDING OF LOCAL TRAFFIC IMPLEMENTED BASED UPON SS7 SIGNALING TECHNOLOGY AS OPPOSED TO MF SIGNALING?

A. As described above, SS7 signaling is more efficient, more modern and more flexible. In addition, with the use of MF signaling, the recording capabilities of the switch were limited by the number of different carriers that would potentially exchange traffic with Qwest. Further, the size of Qwest's switch recording capacity was not sufficient to capture the high volume of local traffic if MF signaling were to be used. However, unlike MF, the use of SS7 signaling technology for local call recording was not restricted by the number of carriers or the recording capacity of Qwest's switches. Thus, Qwest implemented an SS7 Link Monitoring solution.

[4] 47 U.S.C. Section 251(b) 5

This solution relied upon the out-of-band nature of SS7 technology where the separate transmission paths (Links) that carried the SS7 signals were monitored to record local traffic.[5] The data created by SS7 Link Monitoring is stored in a centralized database that is separate from the memory of Qwest's individual switches. This data was then used to create bills similar to the bills that were created from the data obtained from each switch. The data is also used to validate other carriers' reciprocal compensation charges to Qwest.

Q. IS SS7 LINK MONITORING THE RECORDING METHOD THAT QWEST USES TODAY FOR RECORDING LOCAL TRAFFIC?

A. Yes.

Q. IS THE CAPABILITY THAT MF SIGNALING PROVIDES SUFFICIENT FOR QWEST TO IDENTIFY DIFFERENT TYPES OF TRAFFIC OVER INTERCONNECTION FACILITIES?

A. No. There are generally two capabilities available to Qwest when interconnection is established using MF signaled trunking. The first is "peg count." Peg count is merely the number of calls that were placed or received during a certain period of time. Peg count does not provide the call duration or other call detail information. The second capability that MF signaled trunks can provide is total usage. This usage does not provide the call detail that would be required to generate individual

[5] Qwest monitors its SS7 links to record originating and terminating local traffic between Qwest local exchange customers and CLEC networks. In addition Qwest also uses SS7 Link Monitoring to record transit traffic.

billing records for calls. Thus, there is no information that can be used to identify individual call duration. Both the peg count as well as the total usage cumulatively can include long distance, transit and local traffic without the ability for Qwest to distinguish the difference. Further, MF signaling of local traffic does not contain the necessary calling party information to assist in determining the actual network that originated the call, or the calling party's number.

IV. INTERCONNECTION AGREEMENT LANGUAGE

Q. WHAT LANGUAGE IS QWEST PROPOSING?

A. The Interconnection Agreement between the parties includes terms for reciprocal compensation. With the use of MF signaling, there are specific concerns that need to be addressed associated with the capabilities of the parties to create and validate bills for terminating local traffic. Ms. Albersheim's testimony contains sections of Qwest's template language as proposed to North County, with modifications shown in bold and underline. This language generally reflects the accommodation of both North County's continued use of MF signaled interconnection trunking with Qwest. Additionally, where the routing of traffic becomes two-way, Qwest's language also enables Qwest's ability to validate bills from North County for Qwest traffic that North County terminates, bill transit charges for Qwest's transit of North County traffic, and bill reciprocal compensation charges for North County traffic that Qwest terminates.

Q. HOW DOES QWEST'S LANGUAGE IN SECTION 7.1.1 ACCOMMODATE NORTH COUNTY'S CONTINUED USE OF MF SIGNALING?

A. Qwest has agreed to North County's use of MF signaling in the second sentence of the following Qwest language:

> The Parties understand and agree that CLEC currently sends no traffic to Qwest and instead terminates traffic either originated by Qwest or originated by other carriers and passed through Qwest to CLEC. **The Parties further understand and agree that CLEC currently uses multi-frequency ("MF") signaling in its receipt of traffic from Qwest and does not utilize SS7 signaling.** The Parties agree that, should CLEC subsequently wish to originate traffic to send to Qwest for termination or passing of traffic to other Telecommunications Carriers, the Parties will mutually negotiate an amendment to this Agreement which will also include requirements for use of SS7 signaling in the mutual exchange of traffic.

Q. HOW DOES QWEST'S LANGUAGE IN SECTION 7.1.1 ALLOW QWEST TO VALIDATE NORTH COUNTY'S BILLS TO QWEST?

A. The first sentence of the following Qwest language describes the current one-way nature of the traffic from Qwest to North County. Section 7.8 then provides the methodology that allows Qwest to validate North County's bill to Qwest.

> **The Parties understand and agree that CLEC currently sends no traffic to Qwest and instead terminates traffic either originated by Qwest or originated by other carriers and passed through Qwest to CLEC.** The Parties further understand and agree that CLEC currently uses multi-frequency ("MF") signaling in its receipt of traffic from Qwest and does not utilize SS7 signaling. The Parties agree that, should CLEC subsequently wish to originate traffic to send to Qwest for termination or passing of traffic to other Telecommunications Carriers, the Parties will mutually negotiate an amendment to this Agreement which will also include requirements for use of SS7 signaling in the mutual exchange of traffic.

Q. HOW DOES QWEST'S LANGUAGE IN SECTION 7.1.1 ENABLE QWEST TO APPROPRIATELY BILL FOR NORTH COUNTY TRAFFIC THAT QWEST TERMINATES?

A. The third sentence of Qwest propose language explains that if the one-way nature of the traffic changes to two-way then North County would upgrade its interconnected network to use SS7 signaling.

> The Parties understand and agree that CLEC currently sends no traffic to Qwest and instead terminates traffic either originated by Qwest or originated by other carriers and passed through Qwest to CLEC. The Parties further understand and agree that CLEC currently uses multi-frequency ("MF") signaling in its receipt of traffic from Qwest and does not utilize SS7 signaling. **The Parties agree that, should CLEC subsequently wish to originate traffic to send to Qwest for termination or passing of traffic to other Telecommunications Carriers, the Parties will mutually negotiate an amendment to this Agreement which will also include requirements for use of SS7 signaling in the mutual exchange of traffic.**

Q. WHY IS IT IMPORTANT THAT NORTH COUNTY USE SS7 CONNECTIONS IF ORIGINATING LOCAL TRAFFIC TO QWEST?

A. The main reason SS7 signaling is necessary is that Qwest cannot appropriately record the traffic that North County routes to Qwest over MF signaled trunking. MF trunk signaling technology, as I have explained above, does not allow for the network recording capability or call information necessary for Qwest to appropriately record and bill for the different types of traffic (e.g., local, transit and Qwest terminated). This prevents Qwest from recording the necessary information to appropriately bill North County Reciprocal Compensation for the traffic that terminates to Qwest local exchange customers. Qwest's language appropriately

reflects Qwest's need to appropriately record and bill traffic that may originate from North County.

Q. HOW DOES QWEST'S LANGUAGE IN SECTION 7.2.1.1 ADDRESS QWEST'S NEED TO APPROPRIATELY BILL NORTH COUNTY FOR TRANSIT TRAFFIC?

A. Section 7.2.1.1 relates to how the parties will bill for transit traffic.

> 7.2.1.1 This Section 7.2 addresses the exchange of traffic between CLEC's network and Qwest's network. Where either Party interconnects and delivers traffic to the other from third parties, each Party shall bill such third parties the appropriate charges pursuant to its respective Tariffs or contractual offerings for such third party terminations. Unless otherwise agreed to by the Parties, via an amendment to this Agreement, the Parties will directly exchange traffic between their respective networks without the use of third party transit providers. **In addition, as discussed in Section 7.1.1 above, unless a later amendment is mutually negotiated by the Parties, CLEC will send no traffic to Qwest either for termination or for Qwest to send to other Telecommunications Carriers connected to Qwest.**

Where MF signaled interconnection trunks are used by North County, Qwest is unable to record call detail information for North County originated traffic that transits Qwest's network and terminates with other LECs or Wireless Service Providers ("WSPs"). As a result, this prevents other service providers from obtaining transit records from Qwest in order to bill North County when appropriate. In addition, other service providers would be unable to identify local traffic due to the limitations of MF signaling to signal calling party information for local calls. Qwest's language in section 7.2.1.1 provides Qwest the necessary

capability to record traffic that enables Qwest to appropriately bill North County transit under terms of the ICA, similar to how Qwest's language in section 7.1.1 accommodates Qwest's ability to bill North County for North County local traffic that Qwest may terminate. Qwest's language also enables other service providers' ability to bill North County for traffic that transits Qwest's network.

Q. HOW DOES QWEST'S LANGUAGE IN SECTION 7.8 ACCOMMODATE NORTH COUNTY'S ABILITY TO APPROPRIATELY BILL QWEST AND ALSO ALLOW QWEST TO VALIDATE NORTH COUNTY'S BILLS?

A. Qwest's section 7.8 language, set forth in Ms. Albersheim's testimony, is dedicated to the terms to accommodate North County's use of MF signaling and the methodology that should be used so North County's billing of Qwest is as accurate as possible. Section 7.8 also allows Qwest to audit North County's billing of Qwest.

Section 7.8.1 addresses the need for a reciprocal compensation methodology to ensure North County bills Qwest only for network usage that North County is entitled.

Section 7.8.1.1 describes the traffic totals that North County will provide to Qwest each month that are potentially subject to compensation by Qwest.

Section 7.8.1.2 explains that the minutes calculated in section 7.8.1.1 will be segregated into tandem minutes and end office minute. These are local minutes that Qwest either sends to North County from a Qwest tandem switch or a Qwest end

office switch. This section also provides Qwest with the ability to audit North County's billing of Qwest. Qwest's language accommodates North County's use of MF and enables Qwest's ability to validate North County's bills due to the limitations that are imposed upon Qwest by North County's use of MF. Finally, section 7.8.1.2 places a limit upon the MF terminated minutes to North County. This was calculated based upon the existing traffic levels between the party's networks and minimizes the manual work necessary to validate North County's bills.

Section 7.8.1.3 describes the methodology applied to the total potential Qwest tandem routed traffic subject to compensation by Qwest to derive the actual local minutes for which Qwest would compensate North County. Of all traffic that Qwest routes to North County from Qwest's tandem, Qwest's reciprocal compensation requirements only apply to the traffic that originates from Qwest's local exchange customers and terminates to North County's network. Thus, the traffic that is described in section 7.8.1.3 subsections (a) through (f) is excluded from the total traffic volume routed from Qwest's tandem to North County's network. The result is the tandem local minutes of use that, combined with the end office local minutes of use, are the local minutes of use for which Qwest will compensate North County.[6]

[6] Local minutes of use exclude ISP bound and VNXX traffic as described in the ICA.

Q. IS NORTH COUNTY'S INSISTENCE TO USE MF SIGNALING FOR LOCAL INTERCONNECTION WITH QWEST UNIQUE COMPARED TO OTHER CLECS?

A. Absolutely. North County is the only CLEC across Qwest's 14 state region that interconnects with Qwest exclusively using MF trunking. I am unaware of any other CLEC that has insisted on interconnection using MF signaling especially when the CLEC's switch is either capable or upgradeable to SS7 signaling technology.

V. SUMMARY/CONCLUSION

Q. PLEASE SUMMARIZE YOUR TESTIMONY.

A. My testimony explains the difference between SS7 and MF signaling and why the nature of the Interconnection Agreement that requires reciprocal compensation for the mutual exchange of local traffic requires SS7 signaled interconnection. Specifically, my testimony explains that although Qwest can accommodate North County's use of MF signaled interconnection for traffic that terminates to North County, there are technical obstacles that prevent Qwest from recording and billing for local or transit traffic that North County routes to Qwest.

My testimony also explains that Qwest's Interconnection Agreement language accommodates North County's continued use of MF signaling. Qwest's language also provides the ability for Qwest to record traffic necessary to validate North County's bills to Qwest as well as bill North County in the event that North County decides to change the one-way nature of the traffic that exists today.

Qwest has proposed Interconnection Agreement language that is reasonable and accommodates both North County and Qwest. Thus, the Commission should approve Qwest's language.

Q. DOES THIS CONCLUDE YOUR TESTIMONY?

A. Yes.