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**BEFORE THE PUBLIC SERVICE COMMISSION  
OF THE STATE OF UTAH**

IN THE MATTER OF THE PETITION )  
OF QWEST CORPORATION FOR )  
ARBITRATION OF AN INTERCONNECTION )  
AGREEMENT WITH UNION TELEPHONE ) Docket No. 04-049-145  
COMPANY UNDER § 252 OF THE FEDERAL )  
TELECOMMUNICATIONS ACT OF 1996 )

**SURREBUTTAL TESTIMONY**  
**OF**  
**ALAN HINMAN**  
**ON BEHALF OF**  
**UNION TELEPHONE COMPANY**

November 7, 2005

1 Q. Please state your name and employer for the record.

2 A. My name is Alan Hinman and I am employed by Union Telephone  
3 Company.

4 Q. Are you the same Alan Hinman who previously provided direct testimony in  
5 this proceeding?

6 A. Yes.

7 Q. What is the purpose of your surrebuttal testimony?

8 A. The purpose of my surrebuttal testimony is to respond to the rebuttal  
9 testimony of Qwest witness, Peter Copeland. Mr. Copeland made certain  
10 representations in regard to Union's asymmetrical cost study as it relates to  
11 Union's network that need to be addressed. As an engineer employed by  
12 Union Telephone Company, I have been asked to provide testimony to the  
13 Commission in regard to Union's network to show that in fact the subject  
14 facilities are traffic sensitive in that they vary in proportion to the calls.

15 Q. What is your position with Union Telephone Company?

16 A. I am employed as an Engineer for the company.

17 Q. And what are your duties and responsibilities in that position?

18 A. My responsibilities include the network design for the Company, network  
19 engineering, network management, radio frequency (RF) engineering,  
20 circuit order management, traffic engineering, site acquisition, project  
21 engineering, FCC licensing, FAA compliance and other tasks as assigned or  
22 required. I have previously provided my résumé to the Commission.

23 Q. Mr. Hinman, would you describe the nature of Union's systems to the  
24 Commission?

25           A.     Yes, Union initially started as a wireline telecommunications carrier  
26                     providing wireline services to its certificated territory in the three state  
27                     region. When the opportunity to provide wireless services arose, Union  
28                     developed an analog cellular system to provide service to cellular users. As  
29                     technology changed, it converted its wireless system to a digital TDMA  
30                     system to meet customer demand for the changes in technology. As  
31                     technology is changing in the wireless market, Union is upgrading its system  
32                     to a GSM system in order to address the changes in technology and meet  
33                     customer demand for services. Union's wireless system is based with its  
34                     facilities in Mountain View, Wyoming.

35           Q.     Would you describe how a particular call is routed on Union's system?

36           A.     Yes, I will first describe how a wireline call is processed. A wireline call in-  
37                     bound from Qwest, for instance, enters the Union system at the point of  
38                     interconnection. The call then is transported to Union's tandem in Mountain  
39                     View, Wyoming. The tandem identifies the call as a wireline call and  
40                     switches the call to Union's DMS 100 switch for routing. If the wireline  
41                     call is destined for a remote area, the call is routed to one of Union's  
42                     subtending remote switches; if the call is destined to a customer in the local  
43                     community, it is simply switched and terminated to that customer.

44           Q.     How is a wireless call processed?

45           A.     Although wireless calls utilizing the TDMA and GSM systems are  
46                     processed differently, as the cost study is premised on the use of the GSM  
47                     system, I will trace a call over that system.

48                             Again, a call destined for a wireless customer is transported to the

49 point of interconnection and then is further transported to Union's Mountain  
50 View facilities. Initially, the call is recognized by Union's tandem as a  
51 GSM wireless call and switched to Union's GSM switch. The call is then  
52 processed by the mobile switching center (MSC) to ascertain identifying  
53 information about the call. Once the point of destination is established, the  
54 call is routed to a base station controller (BSC) and from there to a base  
55 transceiver station (BTS). The BTS, which is typically identified as the  
56 wireless tower, transmits the call to the customer's handset.

57 Q. Would a wireless call to Qwest be processed in the same manner?

58 A. While the routing might take the same path, I believe that tracing a call from  
59 a wireless customer illustrates the complexity of the wireless system. For  
60 instance, a wireless call from a wireless customer initially goes to the BTS.  
61 The BTS must first recognize the caller as one that is able to utilize the  
62 system. If the call is one that is destined for another wireless user within the  
63 BTS range, the BTS can actually switch the call directly. It is helpful to  
64 conceptualize the wireless system in terms of ascending hierarchies. For  
65 instance, if the call is destined to another user, connecting through another  
66 BTS, the call is first routed to a base station controller and then routed to the  
67 appropriate BTS. In the same sense, if the call is destined to a user attached  
68 to a BTS supervised by a separate base station controller, the call must first  
69 be routed to the MSC for call completion.

70 At the next level, if the call is destined for a Qwest customer in Salt  
71 Lake City, the call is routed from the handset to the BTS, to the BSC, to the  
72 MSC (GSM switch), to the tandem and is then transported through the point

73 of interconnection to Qwest. In this latter scenario, Union bears  
74 transportation responsibilities beyond the point of interconnection.

75 Q. In Union's wireless GSM system, is it only the GSM switch or the tandem  
76 that can process information associated with a call?

77 A. No. Any wireless call initiated through the BTS must first be recognized in  
78 order to process the call. As mobile customers and potential mobile users  
79 enter and exit the area within the range of a particular BTS, the BTS is  
80 monitoring that user or potential user. As the BTS receives the signal from  
81 a user, it makes queries within its processor and to other processors to  
82 identify the potential user. If a call is subsequently made, the BTS will have  
83 identified the caller in order to route the call. If the call's destination is  
84 identified as one within the range of the BTS, the BTS will switch the call.  
85 If the call destination is outside of the BTS coverage area, the system and  
86 other processors are queried to identify the destination of the call. This  
87 processing identifies and allows the routing and completion of the call.

88 In order to understand Union's GSM system, it is critical to  
89 understand the functionality of a BTS: It does not simply pass calls; it has a  
90 switching and processing function that is very dynamic. As I engineer  
91 Union's network, I need to take into account not only Union's GSM  
92 customers within the range of a particular BTS, but also the potential traffic  
93 as users move through an area. All of these factors impact the design of the  
94 wireless system as they are very sensitive to changes in traffic.

95 Q. Once set in place, does the BTS remain unchanged?

96 A. No. As I attempted to illustrate in describing the routing of a wireless call, a  
97 BTS serves a very dynamic function and is very traffic sensitive. Not only  
98 is a BTS engineered for Union customers within an area, but an accounting  
99 needs to be made of transiting traffic and even customer demand for more  
100 services, features and capacity.

101 Q. How do you keep a BTS current with changing needs and traffic demand?

102 A. There are a number of ways in which a BTS is changed to meet changing  
103 demands or needs: A company can add more base station transceivers to a  
104 base station; the antennas can be added or changed; the radios can be  
105 changed. The cards and the processors or even the voice coders can be  
106 changed. As traffic increases, the company may need to increase the  
107 channels to accommodate more traffic to the BSC. All of these software and  
108 hardware changes can be done collectively or individually in order to  
109 address changing needs and traffic demands. Again, maintaining a BTS is a  
110 very dynamic process and is constantly subject to change. The BTS  
111 hardware and software are very much dependent on the changing traffic that  
112 is processed by the facility. These dynamic changes are needed throughout  
113 the wireless system. As the BTS changes, so does the interconnecting  
114 facilities as well as the BSC and the MSC. Again, these facilities are traffic  
115 sensitive.

116 Q. Are there other areas in which Qwest has failed to recognize Union's unique  
117 system?

118 A. Yes, Qwest seems to repeatedly ignore the rural nature of Union's system.  
119 For instance, at one point in his testimony, Mr. Copeland examines the costs

120 of site connected trunks and notes that Union's are comparatively expensive.  
121 The witness fails, however, to address the rural nature of Union's service  
122 area. While Qwest is serving more populated areas, Union is serving an  
123 area larger than some Midwestern states with a population somewhat like  
124 Provo. This illustrates exactly the reason for Union's request for an  
125 asymmetrical rate. Not only are Union's costs higher, but Union is often  
126 required to transport traffic over great distances to even interconnect with  
127 Qwest. Moreover, Qwest does not equally share in these costs. It  
128 consistently requires Union to bear a greater part of the transportation costs.

129 For instance, Union at one point requested an interconnection with  
130 Qwest using a fiber network directly to Qwest's facilities in Salt Lake City.  
131 Qwest refused and required Union to interconnect on a more expensive  
132 basis; this increases Union's costs.

133 In like manner, the changing traffic patterns and demand for more  
134 features requires Union to constantly change its facilities. Qwest will not  
135 recognize this. The new GSM switch will, for instance, require any number  
136 of upgrades and changes as customers demand more services and features.  
137 The switch itself will be changed more rapidly than a wireline switch.  
138 Union's wireline switch has remained in place for a number of years with  
139 comparatively few changes. The GSM switch, on the other hand, will  
140 change much more rapidly as technology changes and as customers demand  
141 more features and capabilities. In fact, upgrades to the switch are made on  
142 at least an annual basis if not more frequently. Union must make these  
143 changes to meet demand in a very competitive environment. Just as

144 computers are changed frequently, so must switches be upgraded and  
145 changed as the technology and needs change.

146 Q. Does this complete your testimony?

147 A. Yes.