BEFORE THE WASHINGTON UTILITIES AND TRANSPORTATION COMMISSION

IN THE MATTER OF THE CONTINUED COSTING AND PRICING OF UNBUNDLED NETWORK ELEMENTS, TRANSPORT AND TERMINATION	)	**DOCKET NO. UT- 003013** **PART D**

REBUTTAL TESTIMONY OF

JOSEPH CRAIG

ON BEHALF OF

QWEST CORPORATION

MARCH 7, 2002

I. IDENTIFICATION OF WITNESS

Q. PLEASE STATE YOUR NAME, JOB TITLE AND BUSINESS ADDRESS.

A. My name is Joseph P. Craig. I am employed by Qwest Corporation ("Qwest") as a Director, Technical Regulatory in the Local Network Organization. My business address is 700 W. Mineral, Littleton, Colorado, 80120.

Q. ARE YOU THE SAME JOSEPH CRAIG WHO FILED DIRECT TESTIMONY IN THIS DOCKET?

A. Yes I am.

II. PURPOSE OF TESTIMONY

Q. WHAT IS THE PURPOSE OF YOUR TESTIMONY?

A. The purpose of my testimony is to respond to issues raised in the direct testimony of WorldCom witness Mr. Edward Caputo regarding Qwest's Customized Routing product. I will describe this product from a technical, engineering perspective. My purpose is to assist the Commission and the parties in understanding this product and the nature of the elements that go into it. I also respond to issues raised in the direct testimony of WorldCom witness Mr. Sidney Morrison regarding Qwest's use of Operation Support Systems ("OSS").

III. CUSTOMIZED ROUTING

Q. WHAT ISSUES RAISED BY MR. CAPUTO WILL YOU BE ADDRESSING?

A. I will be addressing issues raised by Mr. Caputo regarding Qwest's Customized Routing product. In particular, I will identify and describe Customized Routing components and how these components function. I will also explain the development and implementation process for these components.

Q. ON PAGE 9, LINES 15 AND 16 OF HIS DIRECT TESTIMONY, MR. CAPUTO STATES THAT "WORLDCOM HAS SPECIFICALLY AND REPEATEDLY INFORMED QWEST OF ITS NEED FOR FEATURE GROUP D ROUTING." HAS WORLDCOM EVER MADE ANY SUCH REQUEST PRIOR TO THIS PROCEEDING?

A. No, they have not. In fact, to my knowledge, there has not been a single request from WorldCom, or any other Competitive Local Exchange Carrier ("CLEC") in Washington, nor in the entire Qwest 14-state region, for any Customized Routing, including the use of Feature Group D trunks.

Q. WHAT IS CUSTOMIZED ROUTING?

A. Customized Routing is a optional service that Qwest provides to CLECs who purchase either resold services or who purchase Qwest's Unbundled Switch Analog Line Port product. Customized Routing is a software function of a Qwest

end office that allows a CLEC to designate a particular outgoing trunk that will carry certain classes of traffic originating from the CLEC's end users. For example, this product allows a CLEC the ability to have its end users' originating Directory Assistance ("DA") and Operator Services ("OS") calls routed differently than Qwest end users when both parties originate calls from the same Qwest end office switch and dial the same digits.

In other words, a Qwest end user dials 411 to reach Qwest Directory Assistance. Customized Routing allows a CLEC end user, being served by the same Qwest end office switch, to dial 411 to reach the CLEC's Directory Assistance platform. Both the Qwest end user and the CLEC end user dial 411 for Directory Assistance, from the same switch, and are routed differently. Thus the term Customized Routing. With Customized Routing, the Qwest end user will reach Qwest Directory Assistance, while the CLEC end user being served by the same Qwest end office switch will reach the CLEC's Directory Assistance service.

Customized Routing is available as an application with either Unbundled Local Switching or Resale.

Q. HOW DOES A CLEC ORDER CUSTOMIZED ROUTING FROM QWEST?

A. The CLEC issues a Customized Routing Service Request for Line Class Code or Service Inquiry form to Qwest, detailing its routing and facility requirements. A

copy of the Customized Routing Service Request form is attached to this testimony as Exhibit JPC-4. Upon receipt of the Customized Routing Service Request for Line Class Code or Service Inquiry form, a jointly established pre-order meeting is scheduled with the requesting CLEC to provide Qwest with the CLEC's comprehensive network plan, specific routing requirements and desired due dates.

Q. HAS WORLDCOM ISSUED A CUSTOMIZED ROUTING SERVICE REQUEST FOR LINE CLASS CODE OR SERVICE INQUIRY FORM TO QWEST FOR CUSTOMIZED ROUTING?

A. No they have not. As I stated earlier, to my knowledge there has not been a single Customized Routing Service Inquiry form issued by WorldCom or any other CLEC in the state of Washington, or anywhere else in the Qwest 14-state region for Customized Routing.

Q. WHAT ELEMENTS MUST BE IN PLACE FOR A CLEC TO REQUEST CUSTOMIZED ROUTING?

A. First, the requesting CLEC must have purchased unbundled switching from Qwest or be a reseller of Qwest facilities. Second, the CLEC must have transport facilities and trunk ports on these facilities between the Qwest switch and the desired end location. This combination of trunk ports and transport is commonly referred to as dedicated Interoffice Facilities ("IOF"). While the provisioning of

these IOF can be done concurrently with Customized Routing, they must be in place before Customized Routing can be implemented.

Q. IN ORDER TO IMPLEMENT CUSTOMIZED ROUTING, WHY MUST A CLEC HAVE OBTAINED UNBUNDLED SWITCH LINE PORTS?

A. Unbundled switch line ports are typically connected to an unbundled loop and provide a CLEC's end user customers access to the basic functionality of a Qwest end office switch. It allows a CLEC to purchase switching functionality without purchasing an actual switch. When a CLEC purchases unbundled switching from Qwest, the same Qwest end office switch serves CLEC end users and Qwest end users. In other words, unbundled switch line ports allow CLEC end users access to the Public Switch Telephone Network ("PSTN") using the same imbedded switch software and routing tables of the Qwest end office switch that is used for Qwest end users. It is this switch hardware and routing capability that is used to implement Customized Routing.

Q. IN ORDER TO IMPLEMENT CUSTOMIZED ROUTING, WHY MUST A CLEC HAVE OBTAINED UNBUNDLED TRUNK PORTS?

A. Unbundled switch trunk ports allow CLECs the option of providing their own message trunks, or communication paths, between switches. With the implementation of Customized Routing, this communication path can be established between a Qwest end office and the requesting CLEC's Directory Assistance (DA) or Operator Services (OS) switches. These Interoffice Facilities

provide the path over which a call using Customized Routing travels to its end destination. Without IOF, a call placed via Customized Routing would have nowhere to go.

Q. HOW DOES CUSTOMIZED ROUTING APPLY IN THE RESALE ENVIRONMENT?

A. In essence, the same network components are involved in the resale environment as in the unbundled network environment and as such, Customized Routing is implemented in the same manner.

Q. PLEASE PROVIDE AN EXAMPLE OF HOW CUSTOMIZED ROUTING IS EXPERIENCED BY THE CLEC'S END USER?

A. Through the application of Customized Routing, the CLEC's end users can originate DA and OS traffic that will be routed onto the CLEC's unbundled trunks and onto the CLEC's own DA and OS platforms. This allows the CLEC's end user customers to dial the same digits as a Qwest end user customer to access the same types of services as offered by the CLEC as opposed to those offered by Qwest.

Q. WHAT COMPONENTS MAKE UP THE QWEST CUSTOMIZED ROUTING PRODUCT?

A. A single component, called a Line Class Code ("LCC"), makes up the Qwest Customized Routing product. Line Class Codes are unique to each requesting

CLEC and determine, among other things, what an end user customer assigned to that specific code can and cannot dial and how the dialed digits are to be routed and how it will be billed.

Q. WHAT IS A LINE CLASS CODE?

A. Line Class Codes are unique alphanumeric codes assigned by service provider for classes of service. Line Class Codes ("LCC") are used to identify the unique classes of service and the dialing patterns or restrictions for each class of service. Within the switch, LCCs determine what an end user customer assigned to that particular LCC can and cannot dial, how dialed digits are to be routed and how dialed digits will be billed.

Q. HOW IS A LINE CLASS CODE DEVELOPED FOR CUSTOMIZED ROUTING?

A. When a CLEC requests Qwest's Customized Routing, it provides information necessary for Qwest to establish and deploy an LCC by end office location. This information includes: 1) What type of calls will be allowed or blocked (such as local, IntraLATA, InterLATA, Operator Services, Directory Assistance, toll free, 976 and 911); 2) What is the originating class of service desired (such as measured or flat rate); 3) What is the terminating class of service desired (such as multiparty service); and, 4) What routing and screening data (such as billing and dialing plan) the CLEC wants to use.

Qwest then develops and assigns the unique three digit alphanumeric LCC that can only be used by the requesting CLEC for its end user customers. The LCC will reference all the above information and determine the correct routing for any given end user customer call.

Q. DO DIFFERENT CLASSES OF SERVICE, SUCH AS MEASURED AND FLAT RATE, REQUIRE DIFFERENT LINE CLASS CODES?

A. Yes they do. Both originating and terminating classes of service require a unique Line Class Code be developed for each class of service. In addition, each class of service can have unique call types allowed or blocked. Each unique combination of call type, class of service and billing requires a unique Line Class Code. Since each LCC has different and unique parameters depending on the requirements of the requesting CLEC, each LCC has different requirements for implementation.

Q. HOW IS A LINE CLASS CODE IMPLEMENTED?

A. Upon completion of Line Class Code development, the CLEC specifies each individual Qwest switch they would like their Line Class Code to be provisioned in. Each Qwest switch has an embedded software matrix of data parameters used in processing calls that are unique to that switch. Data parameters that apply to Line Class Codes are routing, trunking and screening.

Therefore, when implementing a new Line Class Code in a Qwest switch, Qwest is required to change the *existing switch specific* routing, trunking and screening data. Each data parameter must be modified to correctly provision the new LCC and is unique to the switch where the LCC is to be implemented.

Currently, Qwest has four different switch types manufactured by three different switch vendors deployed throughout its network. Each of the four switch types require different implementation intervals depending on the number and combination of different parameters that must be accessed before the appropriate data can be input.

Q. ON PAGE 13, LINE 20 THROUGH PAGE 14, LINE 2 OF HIS DIRECT TESTIMONY, MR. CAPUTO COMPLAINS THAT CUSTOMIZED ROUTING IS NOT CORRECTLY PRICED. PLEASE RESPOND TO MR. CAPUTO'S COMPLAINT.

A. It is important to note again, that Qwest has yet to receive any formal requests for its Customized Routing product. The costs that have been submitted are those for the development of the LCC itself, and for the implementation of the LCC on a per switch basis. Pricing for the development and implementation of multiple LCCs in a single switch or implementation of a single LCC in multiple switches is still in the theoretical phase and as such must be assessed on an individual case basis.

Contrary to Mr. Caputo's belief, there is no "standard" timeframe for Line Class Code deployment. And, since the costs to develop and implement Customized Routing will vary greatly from switch to switch, and by specific CLEC request, standardization of pricing at this stage is premature and therefore inappropriate.

Q. ON PAGE 9, LINE 18 THROUGH PAGE 10, LINE 2 OF HIS DIRECT TESTIMONY, MR. CAPUTO CLAIMS THAT QWEST'S LINE CLASS CODE BASED CUSTOMIZED ROUTING DOES NOT MEET FCC REQUIREMENTS. IS MR. CAPUTO'S CLAIM CORRECT?

A. No, his claim is inaccurate. The FCC allows for a customized routing function as an alternative to offering DA or OS platforms on an unbundled basis. Qwest's Customized Routing product does in fact meet this FCC requirement. Qwest's Customized Routing product is readily available should WorldCom, or any other service provider, choose to request it.

In addition, it should be noted that the use of Line Class Codes when deploying Customized Routing has no bearing on whether the product does or does not meet those requirements.

WorldCom has not requested Customized Routing from Qwest, and as such Qwest has not had the opportunity to either accept nor reject their request. It is, therefore, inappropriate for Mr. Caputo to make a claim that Qwest's Customized

Routing product will not meet WorldCom's needs, let alone that this product does not meet FCC requirements.

Q. ON PAGE 12, LINES 13 AND 14 OF HIS DIRECT TESTIMONY, MR. CAPUTO STATES THAT WORLDCOM HAS REQUESTED CUSTOMIZED ROUTING THROUGH FEATURE GROUP D-BASED LINE CLASS CODES. IS THIS IN FACT A TRUE STATEMENT?

A. To date, Qwest has received no such request via the ordering process as previously outlined.

Q. IS THERE CURRENTLY A FEATURE GROUP D-BASED LINE CLASS CODE?

A. No, there is not. Again, Mr. Caputo appears to be confused as to the function of Line Class Codes. As I explained above, Line Class Codes only determine what digits can and cannot be dialed by the end user customer, how to route dialed digits, and how to bill the end user customer for the digits dialed. It is a function of the end user line. Feature Group D, on the other hand, is a trunk-side switching arrangement that functions independently of Line Class Codes.

Q. PLEASE EXPLAIN FEATURE GROUP D IN FURTHER DETAIL.

A. Feature Group D (FGD) is a service generally associated with equal access arrangements. It is an originating switched access service that allows end user

customers to access long distance providers networks, or Interexchange Carriers ("IXC"), on either a pre-subscribed basis (1+ dialing) or by dialing 1010XXX.

Q. WHAT ISSUES WOULD BE INVOLVED WITH THE CUSTOMIZED ROUTING OF DA AND OS TRAFFIC ONTO FEATURE GROUP D TRUNKS?

A. Implementation of customized routing onto FGD trunks would face multiple obstacles. Feature Group D uses industry standard Equal Access SS7 signaling protocols. Customized Routing, on the other hand, routes CLEC Operator Service and Directory Assistance calls using industry standard traditional signaling. These differences in signaling create inconsistencies when gathering data for accurate ordering, provisioning, billing, and maintenance of these facilities. As I previously mentioned, FGD is a tariffed offering. The current tariffs do not support a Customized Routing option.

Of major concern to Qwest, and of major impact to WorldCom, would be the fact that FGD trunks generally terminate at an Access Tandem and not at the end office as would be the case for Customized Routing. Qwest's Customized Routing functions occur at the end office and at present these calls can not be "tandemed." I am unaware of any signaling technology that would allow for the routing of these types of calls to any type of tandem switch. This being the case, WorldCom would have to extend its FGD trunks beyond the Access Tandem to the end office at substantial expense to WorldCom.

Before Customized Routing can be implemented across FGD, these issues would have to be addressed.

IV. OPERATING SUPPORT SYSTEMS

Q. WHAT ISSUES RAISED BY MR. MORRISON REGARDING OPERATING SUPPORT SYSTEMS WILL YOU BE RESPONDING TO?

A. I will be responding to Mr. Morrison's proposal that Qwest deploy automated metallic cross connect devices, specifically the SMART-MDF.

Q. IN MR. MORRISON'S DIRECT TESTIMONY, ONE OF THE ISSUES HE RAISES IS THE INTRODUCTION OF OPERATING SUPPORT SYSTEMS THAT ELIMINATE MANUAL INTERVENTION ON PLANT THAT IS NOT ALREADY PHYSICALLY CONNECTED. DOES QWEST CURRENTLY EMPLOY SUCH SYSTEMS?

A. At present, Qwest does not nor to my knowledge does any other carrier.

Q. QWEST ASKED MR. MORRISON, VIA DATA REQUEST 21 IN SET NUMBER 2, ABOUT THE EXISTENCE OF ANY SUCH OPERATING SUPPORT SYSTEMS. HAVE YOU REVIEWED MR. MORRISON'S RESPONSE?

A. Yes I have. Mr. Morrison identified a device manufactured by Oki of Japan called a SMART-MDF. This is basically an automated metallic cross connect device that is used to establish connections between a subscribers central office equipment and outside plant facilities. The device may be located at the central office or at a remote location.

Q. HAS QWEST PREVIOUSLY EVALUATED THIS TYPE OF DEVICE?

A. Yes, Qwest has. The SMART-MDF was lab tested by Qwest along with a similar device manufactured by a company named Con-x. The SMART-MDF was not able to provide bandwidths greater than one Megahertz ("MHz") or power levels greater than plus or minus 130 volts DC. To put this in perspective, DS1 facilities provide a bandwidth of 1.544 MHz and require power levels of up to (plus or minus) 230 volts DC.

The device Mr. Morrison proposes Qwest use in place of manual cross connects and the current central office main distribution frame, behaves much like a fuse or circuit breaker in an electrical circuit. When the metallic cross connect voltage limits are reached, the cross connect breaks, causing the circuit to go out of service since the cross connect is no longer in place.

Q. MR. MORRISON ALSO CLAIMS IN HIS RESPONSE TO THE ABOVE DATA REQUEST THAT "OSS INTERFACES WILL INTEGRATE INTO

THE OVERALL ILEC OSS PROVISIONING NETWORK." DO YOU AGREE WITH MR. MORRISONS CLAIM?

A. No, I do not. Both the Oki and Con-x automated metallic cross connect systems utilize manufacturer specific and proprietary operating systems. To date, no one has developed an interface that will integrate the proprietary operating system of these automated metallic cross connect devices with the legacy ILEC OSS provisioning systems, such as LFACS. In fact, Mr. Morrison acknowledges that even he is not aware of any company, ILEC or otherwise, that has successfully integrated metallic cross connect devices into their provisioning networks. It would seem that Mr. Morrison's claim of pending integration of systems is unrealistic and unsupported.

Based on Qwest's lab tests, automated metallic cross connect devices will not be easily or readily adapted to Qwest's provisioning network, or that of any other carrier. Without an integrated interface into Qwest's provisioning network, metallic cross connect devices will still require manual input from wherever the remote terminal is located. And while Mr. Morrison complains at length in his testimony about manual intervention requirements necessitated by Qwest's provisioning network, he proceeds to suggest that Qwest implement an architecture that will not only *not* meet basic DS1 circuit requirements or offered bandwidth, but will also require *additional* manual intervention.

V. CONCLUSION

Q. DOES THIS CONCLUDE YOUR REBUTTAL TESTIMONY?

A. Yes it does.