

March 29, 2004

**VIA E-MAIL & HAND DELIVERY**

Carol J. Washburn  
Executive Secretary  
Washington Utilities and  
Transportation Commission  
1300 S. Evergreen Park Drive S.W.  
Olympia, WA 98504-7250

Re: WECA, et al. v. LocalDial  
WUTC Docket No. UT-031472  
Response Testimony of William Page Montgomery Submitted on  
Behalf of LocalDial

Dear Ms. Washburn:

Enclosed for filing in the above-referenced docket are the original and 16 copies of the Response Testimony of William Page Montgomery submitted on behalf of LocalDial. Copies of this document have also been sent to the parties on the attached Certificate of Service via the method(s) indicated therein.

If you have any questions, please feel free to contact me.

Sincerely,

ATER WYNNE LLP



Arthur A. Butler

Enclosure

243248\_1

cc: Parties of Record

## CERTIFICATE OF SERVICE

I hereby certify that I have this 29th day of March, 2004, served the true and correct original, along with the correct number of copies, of the foregoing document upon the WUTC, via the method(s) noted below, properly addressed as follows:

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

DATED this 29th day of March, 2004, at Seattle, Washington.

  
\_\_\_\_\_

BEFORE THE  
WASHINGTON UTILITIES AND  
TRANSPORTATION COMMISSION

WASHINGTON EXCHANGE CARRIERS  
ASSOCIATION, *et al.*,

Complainants,

v.

LOCALDIAL CORPORATION, an Oregon  
corporation,

Respondent.

Docket No. UT-031472

**RESPONSE TESTIMONY OF**  
**WILLIAM PAGE MONTGOMERY**  
**ON BEHALF OF**  
**LOCALDIAL CORPORATION**

**March 29, 2004**



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1                                   **I.       INTRODUCTION AND SUMMARY**

2   **Q.     WHAT IS YOUR NAME AND BUSINESS AFFILIATION?**

3   A.     My name is William Page Montgomery. I submitted Direct Testimony in this proceeding on  
4         February 27, 2004, on behalf of LocalDial Corporation.

5   **Q.     WHAT IS THE PURPOSE OF THIS TESTIMONY?**

6   A.     My testimony discusses the direct testimony filed by other parties on February 27, 2004. The  
7         Washington Exchange Carrier Association (“WECA”) submitted testimony by Robert Smith,  
8         Craig Phillips and Terrance Martin. The Commission Staff (“Staff”) submitted testimony by  
9         Robert Williamson. I also discuss the FCC’s Notice of Proposed Rulemaking on VoIP and  
10        other IP-Enabled services (“NPRM”), which was released on March 10, 2004, after Direct  
11        Testimony was filed in this case.<sup>1</sup>

12   **Q.     CAN YOU SUMMARIZE WECA’S TESTIMONY?**

13   A.     Yes. The WECA witnesses discuss the operation of the Washington Carrier Access Plan  
14         (“WCAP”) and the three pools that are used to transfer support funds among the WCAP  
15         participants. Mr. Smith noted that the primary pool has not met the indicated revenue  
16         objective for several years (Smith Direct Testimony, p. 5), generally confirming my Direct  
17         Testimony at pp. 47-48. The witnesses also reiterate WECA’s primary argument that the  
18         routing of calls to LocalDial’s access numbers is similar to the routing of traditional long  
19         distance calls (a point discussed in my Direct Testimony at pp. 22-26).

1 Two of WECA's witnesses, Mr. Smith and Mr. Martin, dispute that LocalDial's  
2 service is an enhanced or information service. Mr. Smith says that use of compression and  
3 filter techniques to improve the quality of voice calls occurs in traditional basic  
4 telecommunications services. (Smith Direct Testimony, p. 9). Mr. Martin avers that the sole  
5 purpose of LocalDial's use of Internet Protocol-based technologies is to provide management  
6 and control of a telecommunications service. (Martin Direct Testimony, pp. 6-7).<sup>2</sup>

7 **Q. CAN YOU SUMMARIZE YOUR RESPONSE TO WECA'S DIRECT**  
8 **TESTIMONY?**

9 A. Yes. WECA's direct testimony does not address my point that the routing of all types of  
10 local and long distance calls within each WECA member's network is functionally identical.  
11 The witnesses do not state a precise basis for including or excluding each of the multiple  
12 types of end user or intercarrier compensation by which the individual calls could be priced,  
13 ranging from flat-rated local service, to various bill-and-keep arrangements to the  
14 extraordinarily high intrastate switched access charges. As the complainant, WECA should  
15 address all possible forms of intercarrier compensation in more detail.

16 Moreover, LocalDial operates its service using only telecommunications services  
17 offered by properly-certificated providers who are subject to several possible forms of

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<sup>1</sup> In the Matter of IP-Enabled Services, *Notice of Proposed Rulemaking*, WC Docket No. 04-36 (FCC 04-28) (March 10, 2004).

<sup>2</sup> Mr. Martin also states, incorrectly, that LocalDial's customers use a "local (*sic*) phone, provided and maintained by" an ILEC. (Martin Direct Testimony, p. 5.) Regulated telephone companies have not provided or maintained telephone instruments for many years.

1 intercarrier compensation, and LocalDial is not a customer of any WECA member.  
2 Therefore, as the complainant, WECA should specify in detail the basis for overlaying a  
3 single form of compensation, switched access charges, on the company. WECA members  
4 cannot actually bill LocalDial for their customers' usage of LocalDial's access numbers.

5 Furthermore, I demonstrate in more detail below that the technology used by  
6 LocalDial's service fully qualifies as an enhanced or information service under the current  
7 FCC rules. The technology involves far more than just compression and filter techniques or  
8 the mere management and control of a telecommunications offering, as WECA alleges.

9 **Q. PLEASE SUMMARIZE THE STAFF TESTIMONY.**

10 A. Staff's witness provides a summary of the development of the Internet and a high-level  
11 description of how LocalDial operates its service that is generally similar to my Direct  
12 Testimony. Mr. Williamson concludes that LocalDial's service is a telecommunications  
13 offering based on essentially two considerations. (Williamson Direct Testimony, pp. 14-18).  
14 First, he cites the broad definition of "telecommunications" in R.C.W. § 80.04.010, which I  
15 also discussed at pp. 42-43 of my Direct Testimony. Second, Mr. Williamson relies on the  
16 shorthand description of "phone-to-phone" IP Telephony service first formulated in the 1998  
17 Stevens Report on Universal Service, which I discussed in my Direct Testimony at pp. 14-16.

18 **Q. WILL YOU SUMMARIZE YOUR RESPONSE TO STAFF'S DIRECT**  
19 **TESTIMONY?**

20 A. Given the broad scope of the nominal statutory definition of "telecommunications" in  
21 Washington State, it should be incumbent upon Staff to address the factual basis why the  
22 Washington Utilities and Transportation Commission ("Commission") has not applied

1 intrastate switched access charges to ISP access, interexchange transport of voice mail traffic,  
2 foreign exchange services and switched data services like point of sale transaction  
3 processing. Staff's testimony is silent on this point. Relying on the shorthand description in  
4 the Stevens Report is misguided because the description itself is not a correct definition of  
5 enhanced services.

6 The FCC noted this shorthand description again in the recently released NPRM on  
7 VoIP service.<sup>3</sup> However, as it had done in the Stevens Report itself, in the recent Free World  
8 Dialup order<sup>4</sup> and in the IP-Enabled Services NPRM, the FCC explicitly refused to apply the  
9 "phone-to-phone" shorthand description (as well as the "computer-to-computer" and  
10 "computer-to-phone" descriptions of IP Telephony). The NPRM noted, "by seeking  
11 comment on whether access charges should apply to the various categories of service  
12 identified by the commenters, we are not addressing whether access charges apply or do not  
13 apply under existing law."<sup>5</sup>

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<sup>3</sup> "[A] 'phone-to phone' IP telephony service" may "bear the characteristics of 'telecommunications services,'" so long as the particular service met four criteria: (1) it holds itself out as providing voice telephony or facsimile transmission service; (2) it does not require the customer to use CPE different from that CPE necessary to place an ordinary touchtone call (or facsimile transmission) over the public switched telephone network; (3) it allows the customer to call telephone numbers assigned in accordance with the North American Numbering Plan, and associated international agreements; and (4) it transmits customer information without net change in form or content." IP-Enabled Services NPRM, ¶ 29. (Footnotes omitted.)

<sup>4</sup> Petition for Declaratory Ruling that pulver.com's Free World Dialup is Neither Telecommunications nor a Telecommunications Service, WC Docket No. 03-45, Memorandum Opinion And Order (FCC 04-27), February 19, 2004, ¶ 14.

<sup>5</sup> IP-Enabled Services NPRM, ¶ 32.

1 **Q. CAN YOU SUMMARIZE YOUR TESTIMONY CONCERNING WHY**  
2 **LOCALDIAL'S SERVICE IS NOT BASIC TELECOMMUNICATIONS?**

3 A. Yes. The current three-part definition of enhanced or information services is long standing.  
4 The "no net protocol" change concept referred to in the FCC's shorthand description of  
5 "phone-to-phone" IP Telephone is nothing more than a limited exception to the broader  
6 definitions (as I will discuss further below). The technology used by LocalDial's VoIP  
7 gateways, the ITU G.723.1 standard technology, is not limited to compression and filter  
8 techniques or the mere management and control of a telecommunications offering. It  
9 actually involves complex, mathematical, real-time computations that act on the pitch and  
10 other characteristics of the human voice.

1 The technology does provide a "net protocol conversion" as defined by the FCC,  
2 considering the technology's provision of different and restructured information and use of  
3 stored information, in addition to protocol processing. I also show that the four-part  
4 shorthand description used in the *Stevens Report* is not a correct statement of existing rules  
5 and the Staff should *not rely* on that description, as indeed that the FCC has been wont to do  
6 itself.

7 LocalDial's service, therefore, is unquestionably an enhanced service under FCC  
8 rules, and should not be labeled a "telecommunications" service merely because of the literal  
9 breadth of that term in the Washington State statute. Similar services already are not treated  
10 as telecommunications by the Commission.

11 Thus, nothing in the other parties Direct Testimony causes me to alter any of the  
12 recommendations I made to the Commission in my Direct Testimony at pp. 9-10.

1                   **II. THE COMMISSION SHOULD RULE THAT LOCALDIAL'S**  
2                   **SERVICE IS NOT A TELECOMMUNICATIONS SERVICE SUBJECT TO**  
3                   **ITS REGULATION, OR DEFER RULING PENDING THE FCC'S IP-**  
4                   **ENABLED SERVICES RULEMAKING**

5   **Q. DOES THE FCC IP-ENABLED SERVICES NPRM HAVE ANY BEARING**  
6   **ON THIS PROCEEDING?**

7   A. Yes. The NPRM affects this proceeding in at least three ways. All of these considerations  
8   indicate that the Commission should rule that LocalDial's service is not a  
9   telecommunications service subject to Commission regulation and defer to the FCC unless or  
10   until there is some new basis by which it could assert jurisdiction over LocalDial's  
11   information service.

12               First, in the IP-Enabled Services NPRM, the FCC again passed up the opportunity to  
13   apply the Stevens Report shorthand description of so-called "phone-to-phone" VoIP services.  
14   There are good reasons why the FCC might want to avoid using this four-part description, as  
15   I describe in detail below.

16               Second, the FCC NPRM is clear that the proceeding will review the basis or bases for  
17   exclusive federal jurisdiction with respect to various classes of IP-Enabled Services,  
18   including any classification of VoIP services.<sup>6</sup> Until this review is complete, the general rule  
19   as enunciated in the NPRM is that "courts have recognized the preeminence of federal  
20   authority in the area of information services, particularly in the area the Internet and other

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<sup>6</sup> IP-Enabled Services NPRM, ¶ 41.

1 interactive computer services.”<sup>7</sup> The NPRM makes it clear that the FCC intends to decide in  
2 the first instance the scope of its primary jurisdiction over all IP-Enabled services including  
3 but not limited to VoIP services. Any state jurisdiction over VoIP services seems to be, at  
4 best, unsettled.

5 Finally, the NPRM is very broad and may take a significant amount of time to  
6 resolve.<sup>8</sup> Recognizing this, the NPRM expressly reserves the FCC’s ability to move forward  
7 earlier on specific petitions regarding VoIP services and other pending matters, such as the  
8 Unified Intercarrier Compensation rulemaking. The FCC will thus have to reconcile these  
9 various initiatives. For example, the NPRM indicated a preference for more uniformity in  
10 intercarrier compensation.<sup>9</sup> The FCC also has expressed a preference for bill-and-keep

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<sup>7</sup> *Id.*, ¶ 39. (Footnote omitted.)

<sup>8</sup> The NPRM covers VoIP impacts on E911 access and critical infrastructure deployment, disability access, carrier compensation, universal service, regulation of wireless carriers and regulation of cable service providers. The NPRM will be joined in the near future by another rulemaking involving the Communications Assistance for Law Enforcement Act (“CALEA”).

<sup>9</sup> “[W]e believe that any service provider that sends traffic to the PSTN should be subject to similar compensation obligations, irrespective of whether the traffic originates on the PSTN, on an IP network, or on a cable network. We maintain that the cost of the PSTN should be borne equitably among those that use it in similar ways.” *Id.*, ¶ 33.



1 arrangements as the uniform type of intercarrier compensation.<sup>10</sup> Under the circumstances,  
2 this Commission might find it prudent not to resolve the current proceeding until the FCC  
3 has taken further action.

4 **Q. COULD LOCALDIAL BE SUBJECT TO STATE ACCESS CHARGE**  
5 **TARIFFS WITHOUT CONFLICTING WITH THE FCC'S REVIEW?**

6 A. I think it would be impossible to avoid a conflict. I describe in more detail below why  
7 LocalDial's service is an information service and thus subject to the "the preeminence of  
8 federal authority." There is no "intrastate" component of LocalDial's service that could be  
9 somehow split off from the interstate calls of LocalDial's customers. I noted that WECA's  
10 switched access charges are *100 times* higher than the default intercarrier compensation  
11 established by the FCC for calls to ISPs (about \$0.07 per minute in WECA tariffs versus the  
12 FCC's default rate of \$0.0007/mou).<sup>11</sup> Application of WECA's switched access tariffs  
13 would likely end LocalDial's ability to do business, because of this cost and because the

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<sup>10</sup> "In this *NPRM*, we envision that a bill-and-keep regime would fulfill the goals of the two interim measures, combined with the larger goal of a unified regime. We seek comment on the potential adoption of a bill-and-keep approach to reciprocal compensation payments governed by Section 251 of the 1996 Act, and the eventual application of bill-and-keep to interstate access charges regulated under Section 201 of the Communications Act of 1934..." Developing a Unified Intercarrier Compensation Regime, *Notice of Proposed Rulemaking*, CC Docket No. 01-92, April 27, 2001, FCC 01-132, 16 FCC Rcd 9610 (2001), ¶ 4.

<sup>11</sup> The figure shown on p. 27, l. 1 filed February 27, 2004, was incorrect. The correct figure is reflected in the revision to Montgomery Direct Testimony, p. 27, l. 1, filed March 29, 2004. The FCC default rate is \$0.0007; In the Matter of Implementation of the Local Competition Provisions in the Telecommunications Act of 1996 and Intercarrier Compensation for ISP-Bound Traffic, CC Docket Nos. 96-98 and 99-68, *Order On Remand and Report And Order*, (April 27, 2001), ¶ 8.

1 gateway technology used by the company does not separate “intrastate” and “interstate”  
2 components. The technology does not use telephone numbers of route calls, unlike circuit  
3 switching technology, because IP addresses are used instead. In providing WECA with  
4 monthly usage data pursuant to discovery, LocalDial has to manually adjust aggregate usage  
5 data after the fact in order to identify “local” traffic, “interstate” traffic and “intrastate traffic.

6 It is not clear that LocalDial would be able to add other devices to segregate calls  
7 jurisdictionally without compromising the existing functions of its technology, and, in any  
8 event, the costs of doing so would represent a deadweight economic cost to LocalDial. Any  
9 added costs would not improve LocalDial’s service or add to the functionality of its existing  
10 hubs. (These steps would only permit LocalDial to pay intrastate access charges that would  
11 themselves render its business uneconomic). In any event, the “intrastate” and “interstate”  
12 components are irrelevant to the classification of LocalDial’s service because it is enhanced.

13 **III. THE OTHER PARTIES’ DIRECT TESTIMONY**  
14 **MISCHARACTERIZES THE FCC’S ENHANCED SERVICES RULE AND**  
15 **FAILS TO PROPERLY ANALYZE THE FUNCTIONING OF THE**  
16 **TECHNOLOGY USED BY LOCALDIAL**

17 **Q. YOU NOTED THAT THE FCC HAS ON THREE OCCASIONS**  
18 **EXPLICITLY NOT APPLIED THE FOUR-PART DESCRIPTION OF**  
19 **“PHONE-TO-PHONE” IP TELEPHONY. DO YOU HAVE AN OPINION**  
20 **WHY THIS IS SO?**

21 **A.** Yes. The four-part description is not a very robust or workable test of whether a particular  
22 VoIP service is an enhanced service or a basic service. As I said, it is more of a shorthand  
23 description than a meaningful guideline. Therefore, it is not surprising that the FCC has  
4 never formally applied the *Stevens Report* description.

1           The other parties to this proceeding have relied on this description to a significant  
2 degree, however. As noted, Staff's Direct Testimony uses the description as one of two  
3 reasons for classifying LocalDial's service as "telecommunications." Although not discussed  
4 explicitly in its Direct Testimony, WECA also has relied on the FCC's four-part  
5 description.<sup>12</sup>

6 **Q. IS THE FCC LIKELY TO APPLY THE SHORTHAND DESCRIPTION OF**  
7 **"PHONE-TO-PHONE" IP TELEPHONY IN THE FUTURE?**

8 A. No. The FCC likely will never apply the four-part shorthand description to VoIP services.  
9 Some elements of the description are overbroad and may be viewed by the FCC as  
10 conflicting with its overall policy goals for VoIP services. Fundamentally, the fourth part of  
11 the test, involving "no net change in protocol or content," is not a correct or complete  
12 statement of the demarcation under the current rules between basic (*i.e.*, telecommunications  
13 and enhanced services) and actually confuses the rules as they have been applied since the  
14 FCC's 1985 *Computer Inquiry III* proceeding. When the current rules are applied properly to  
15 LocalDial's computer processing of voice signals, the service is an enhanced service.

16 **Q. FROM A FACTUAL STANDPOINT, WHY IS THE FOUR-PART**  
17 **SHORTHAND DESCRIPTION OVER BROAD IN ITS OWN TERMS?**

18 A. The elements of the description concerning the use of a customer's normal customer  
19 premises equipment ("CPE") and the use of North American Numbering Plan ("NANP")

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<sup>12</sup> Complainants' Brief in Support of Motion for Summary Disposition, Docket No. UT-031472, February 26, 2004, pp. 20-23. Plaintiffs' Memorandum in Opposition to Defendant's Motion to Dismiss, Cause No. C03-5012RBL, July 10, 2003, pp. 20-21.

1 routing clearly apply not only to “computer-to-phone” VoIP services as well as to “phone-to-  
2 phone” services but also to a variety of other IP-Enabled services that use dial-up  
3 connections to the Internet. These two elements if applied literally might limit any type of  
4 enhanced services treatment for VoIP services only to “computer-to-computer” transmission  
5 and then only if neither of the computers accessed the Internet by means of a dial-up  
6 connection or other telecommunications service. VoIP services would then be free of  
7 regulation and perhaps end user or intercarrier compensation if and only if a dedicated  
8 broadband connection were used at both ends of the VoIP service.

9 Although broadband connections like cable modems and DSL are proliferating  
10 rapidly, at the present time such a restriction to pure broadband only Internet connections  
11 would vastly limit the potential market for VoIP services because, not only would two  
12 broadband connections be required, the computers would be required to have at least full  
13 audio capabilities (microphones, speakers, headsets and so on), have compatible software,  
14 and perhaps other features. Only a subset of computers with broadband connections  
15 (themselves a subset of computers with Internet access) would qualify for such a “pure” VoIP  
16 service.

17 The FCC, however, appears to view future use of VoIP and other IP services much  
18 more broadly, predicting widespread public interest benefits.

19 [A]s use of IP expands, the technology’s transformative effect on the  
20 communications landscape will likely become only more prominent, giving  
21 rise to a “virtuous circle” in which competition begets innovation, which in  
22 turn begets more competition. End users are likely to enjoy greater and  
3 greater flexibility in designing or selecting communications packages that suit

1           their individual needs, and can be expected to access those packages over  
2           networks of their choosing, on devices of their choosing. Many parties  
3           contend that, in all probability, cross-platform competition will sharpen as  
4           distinctions between “voice,” “video,” and “data” services blur. This  
5           competition will likely force more innovation and lower prices, resulting in  
6           more individual choice and hence even greater competition.<sup>13</sup>

7           Thus, the FCC might reasonably be wary of applying the four-part shorthand  
8           description of “phone-to-phone” IP Telephony if the CPE and NANP  
9           elements could arguably cut back significantly on the scope and use of other  
10          VoIP offerings or other IP services.

11 **Q. ARE THERE ANY OTHER PROBLEMS WITH THESE ELEMENTS OF**  
12 **THE STEVENS REPORT’S SHORTHAND DESCRIPTION?**

13 A. Yes. The NANP element that I just discussed seems to suggest that “phone-to-phone IP  
14 Telephony” uses the North American numbering scheme in the same manner as traditional  
15 basic telecommunications services. This is incorrect. Traditional telephone companies use  
16 the NANP for multiple purposes. These include customer billing (LocalDial uses the  
17 numbers for this purpose, as well), and for routing, management and control of traffic flows.  
18 Traditional telephone company circuit switches use telephone numbers to differentiate  
19 between “local,” “intrastate long distance” and “interstate” calls, among other things. VoIP  
20 services such as LocalDial’s do not use customer telephone numbers for routing purposes;  
21 routing is accomplished by means of the IP addressing system rather than the NANP.  
22 Because LocalDial is now using IP backbone circuits in its network, the NANP numbers  
23 input by its customers are used only after a call has been routed, using IP addresses, to the  
24 last point where the call is connected to the called party. This means that VoIP services like

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<sup>13</sup> IP-Enabled Services NPRM, ¶22.

1 LocalDial's do not create data while the call is being set up (*i.e.*, in the switching and  
2 transmission process) that could be used to classify the jurisdictional (*e.g.*, "local") nature of  
3 the call. This type of information can only be assembled after the call is completed, outside  
4 of the VoIP technology itself. The Stevens Report's shorthand reference to the use of NANP  
5 numbers does not consider this significant difference. This is another example why the  
6 Stevens Report's off-hand characterization of "phone-to-phone" IP Telephony is basically  
7 inadequate.

8 **Q. CAN YOU EXPLAIN HOW THE FOUR-PART DESCRIPTION RELIED**  
9 **ON BY STAFF AND WECA MISAPPLIES THE "NO NET CHANGE"**  
10 **TEST REGARDING ENHANCED SERVICES?**

11 A. Yes. In order to understand this misapplication, one has to consider the entire history of the  
12 FCC enhanced service definition.<sup>14</sup> The "no net change" criteria has been applied only in  
13 order to grant *exceptions* to the enhanced services rule to regulated, facilities-based  
14 telephone companies, like the RBOCs and AT&T, so that certain services that would  
15 otherwise be deemed "enhanced" could instead be treated as "basic" services. This type of  
16 exception was important to fully-regulated telephone companies in the 1980s when, pursuant  
17 to the previous Computer Inquiry II rules, the "enhanced" services of regulated telephone  
18 companies had to be provided by means of the "fully separated subsidiary." Such  
19 subsidiaries were required to operate separately from the regulated company, maintain

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<sup>14</sup> 47 CFR § 64.702(a).

1 accounting separation of their costs and revenues, and could not integrate the “enhanced”  
2 services equipment with regulated “basic” services.

3 The “no net change” exception was created outside of the actual enhanced services  
4 definition itself, in order to free regulated, facilities-based telephone companies from the  
5 burdens of creating fully separated subsidiaries for *specific* protocol conversions that  
6 optimally needed to be integrated with the regulated telcos’ basic services. In that era, the  
7 exception was limited to a small number of protocol processing services, particularly  
8 conversions from asynchronous to X.25 data communications protocols and X.25 to X.75  
9 protocols.<sup>15</sup>

10 **Q. HAS THE “NO NET CHANGE” EXCEPTION EVER BEEN APPLIED BY**  
11 **THE FCC AS THE FOUR-PART SHORTHAND DESCRIPTION**  
12 **SUGGESTS?**

13 A. I have found no evidence that the “no net change” exception has ever been so applied by the  
14 FCC. *Computer III* eliminated the fully separated subsidiary requirement in favor of the  
15 much less restrictive “comparably efficient interconnection” requirements devised by the  
16 FCC. Hence, the need for additional exceptions to the underlying definition of enhanced  
17 services for regulated telephone companies’ basic services essentially ended, and the “no net  
18 change” criteria has been applied only once since 1987 to regulated facilities-based telephone

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<sup>15</sup> These issues were most recently explored by the FCC in 1987, as I will discuss in more detail below. Amendment to Sections 64.702 of the Commission's Rules and Regulations (Third Computer Inquiry); and Communications Protocols under Sections 64.702 of the Commission's Rules and Regulations, Report and Order CC Docket No. 85-229. FCC 87-103 2 FCC Rcd 3072 (1987). *Computer III, Phase II Order*.

1 companies. The “no net change” *exception* has never been applied under either Computer II  
2 or Computer III to any provider of information services or computer processing services that  
3 did not: (a) provide regulated, basic telephone services under monopoly conditions; and  
4 (b) operate its own telecommunications network facilities.

5 Thus, to the extent that the “no net change” element in the four-part shorthand  
6 description of IP Telephony first enunciated in the Stevens Report suggests that a basis  
7 already exists for regulating a VoIP service like LocalDial’s as a telecommunications service  
8 it is incorrect. The Stevens Report four-part test thus is not a correct summary of the  
9 treatment of enhanced services. This is why I stated in my Direct Testimony (at p. 40) that if,  
10 hypothetically, the FCC were to decide that some or all forms of VoIP were not information  
11 or enhanced services, it would have to formulate a new or extended definition to amend  
12 Section 64.702(a). The VoIP gateways used by LocalDial do satisfy the current definition  
13 with the functionality of those devices, as I discuss in more detail below.

14 **Q. HAS THE FCC EVER CONSIDERED CHANGES TO THE SECTION**  
15 **64.702(A) RULE?**

16 A. Yes. In the Computer III Phase II Order, the FCC considered two alternatives to the  
17 Section 64.702(a) rule, labeled “A” and “B;” the existing rule was “Alternative C”.<sup>16</sup> It also  
18 considered adding language to Alternative C (the existing rule) to codify the exception that I

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<sup>16</sup> *Id.*, ¶¶15-35.



1 discussed above.<sup>17</sup> Ultimately, the FCC made *no changes* whatsoever in this existing rule.  
2 It rejected the two alternatives and determined that the added language with respect to the  
3 “no net change” exception was not needed. Indeed, it clarified that most forms of protocol  
4 processing were then and are today enhanced services. Noting evidence that “protocol  
5 processing is intrinsically a data processing function, rather than a functional component of  
6 transmission...there is a great diversity of protocol processing applications that do not  
7 change information content and are integral to data processing,”<sup>18</sup> the FCC concluded:

8 [W]e affirm the status of protocol processing as an enhanced service...The  
9 extensive record compiled in this proceeding, when viewed as a whole,  
10 supports the conclusion we initially reached in Computer II that protocol  
11 processing services should not be treated as regulated, basic offerings.<sup>19</sup>

12 Equally important for this proceeding, the FCC also clarified that the specific type of  
13 computer processing that occurs in LocalDial’s VoIP gateway devices constitutes an  
14 enhanced service.

15 **Q. CAN YOU EXPLAIN THIS LAST CLARIFICATION IN MORE DETAIL?**

16 A. Yes. The Section 64.702(a) rule contains three clauses that define “enhanced services.”  
17 Enhanced services “employ computer processing applications that act on the format, content,  
18 code, protocol or similar aspects of the subscriber's transmitted information [clause 1];

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<sup>17</sup> *Id.*, ¶¶66-67.

<sup>18</sup> *Id.*, ¶35.

<sup>19</sup> *Id.*, ¶43.

1 provide the subscriber additional, different, or restructured information [clause 2]; or involve  
2 subscriber interaction with stored information [clause 3].”

3 As I described in my Direct Testimony (at pp. 35-39) – and describe further below –  
4 the VoIP gateway technology used by LocalDial incorporates the ITU G 723.1 standard.  
5 That standard involves clause 1, clause 2 and clause 3 functions under the existing definition.  
6 The gateways alter the telephony protocols inherent in the LocalDial customer’s first call to  
7 the local access number (clause 1). The gateways then act on specific physical characteristics  
8 of the human voice (clause 1, too) and provide both parties on the call additional, different  
9 **and** restructured information (clause 2). The voice encoding also requires storage and  
10 retrieval of data (clause 3).<sup>20</sup>

11 The FCC clearly and unambiguously clarified that these functions constitute  
12 enhanced or information services:

13 The concept of having the enhanced service definition apply only to protocol  
14 processing taking place during end-to-end communications was introduced to  
15 [quoting the Computer III, Phase II NPRM]: make clear that the tests  
16 embodied in the three principal clauses of the [enhanced service] definition  
17 apply only to end-to-end communications between or among subscribers, and  
18 not to communications between a subscriber and the network itself for call  
19 setup, call routing, call cessation, calling or called party identification, billing,

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<sup>20</sup> It is, of course, absolutely irrelevant that the “subscriber” (*i.e.*, LocalDial’s customer) may not be entirely aware of how his/her transmitted information (Hi, Mom how’s it going?) is acted upon by the enhanced service, how he/she is obtaining different and restructured information in the packet switching bit stream, or how he or she is interacting (in real time) with stored information. Very few of the hundreds of millions of email users are able to precisely determine how email services satisfy clauses 1, 2 and 3 of the FCC rule – but these services unquestionably are “enhanced”.

1 and accounting<sup>21</sup>.... We also wish to clarify that for those subscriber-to-  
2 network communications in which the carrier itself is providing *second and*  
3 *third clause enhanced services*, the carrier's information system computing  
4 facilities being used to provide those services *are treated as the equivalent of*  
5 *an end user for the purpose of [interpreting] this exemption. Thus, if a net*  
6 *protocol conversion between the user and the carrier's information*  
7 *facilities were to take place, that particular conversion would be treated as*  
8 *an enhanced service.*<sup>22</sup>

9 The latter underscored language was also incorporated into the 1996  
10 Telecommunications Act which limited “telecommunications” to transmissions “without  
11 change in the form or content of the information as sent and received.”<sup>23</sup> LocalDial’s  
12 AudioCode gateways are clearly information service computing facilities. Thus, with the  
13 functions of the gateways under Clauses 2 and 3 of the FCC rule, a “net protocol conversion”  
14 does in fact occur between the end user’s telephony protocols and the end user-equivalent  
15 facilities used by LocalDial’s service.

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<sup>21</sup> This limitation was later incorporated into the Telecommunication Act of 1996: “The term ‘information service’ ... does not include any use of any such capability for the management, control, or operation of a telecommunications system or the management of a telecommunications service.” 47 U.S.C. 153 (20).

<sup>22</sup> *Computer III Phase II Order*, ¶69. (Emphasis added; footnote citation omitted.)

<sup>23</sup> 47 U.S.C. 153(43). Note that the phrase “net change” is not part of this definition, which provides further evidence the shorthand four-part description of IP Telephony set out in the *Stevens Report* incorrectly incorporated an *exception* to the general rule as some sort of affirmative substantive criteria.

- 1   **Q.   DOES THE G.723.1 TECHNOLOGY OPERATE DIFFERENTLY**  
2   **DEPENDING ON THE TYPE OF CALL PLACED BY LOCALDIAL'S**  
3   **CUSTOMER?**
- 4   A.   No. Any type of call (that might be labeled "local," "intrastate" or "interstate" if it were  
5   traditional telephony) always transits a gateway for coding the voice signal and a gateway for  
6   decoding the signal. WECA has argued that the fact that sometimes the gateways are located  
7   in some proximity to each other is somehow relevant to the classification of the service.  
8   WECA is not correct. The architecture of the technology is *inseverable* and does not rely on  
9   whether a traditional call would be labeled "local" or "interstate" or whatever. As I said,  
10   LocalDial has to manually process usage data outside the VoIP system in order to break  
11   down usage by these categories. In addition, as I noted in my Direct Testimony (at p. 34) all  
12   traffic transits Internet Protocol backbone circuits in common with other Internet traffic.  
13   Thus, the fact that some gateways are in the same building and others are located across the  
14   continent has absolutely no bearing on the enhanced nature of the service. WECA seems to  
15   believe the technology is severable, but it is not.

1 **Q. YOU SAID THE “NO NET CHANGE” EXCEPTION HAS ONLY BEEN**  
2 **APPLIED ONCE SINCE 1987 BY THE FCC. DOES THIS HAVE ANY**  
3 **BEARING ON WHETHER LOCALDIAL’S SERVICE IS ENHANCED**  
4 **UNDER THE CURRENT RULE?**

5 A.. No. In 1995, the FCC concluded that AT&T’s “InterSpan Frame Relay Service” was a basic  
6 service not an enhanced service.<sup>24</sup> A “frame” is essentially an extended or combined group  
7 of packets in a packet switching system. AT&T had initially declined to file a tariff for the  
8 InterSpan service, arguing that it was an enhanced service. AT&T claimed that the way in  
9 which defective frames were discarded by the service (an error correcting mechanism) meant  
10 that the service provided a “net change in content” to the end user’s CPE. With the Interspan  
11 service, the end user’s own data communications CPE had to identify which frames had been  
12 discarded by the network and the CPE itself had to request retransmission of the lost frames.  
13 So, the data that entered the Interspan service network might seem to be different from the  
14 data that exited the service. The FCC found to the contrary that the fact that end user CPE  
15 equipment had to identify discarded frames, and regain them from the source transmitting the  
16 data, was not ultimately any sort of net change.<sup>25</sup>

17 In placing the InterSpan frame relay service within the ambit of “basic”  
18 telecommunications service the FCC relied in part on the “no net change” exception to

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<sup>24</sup> Independent Data Communications Manufacturers Association, Inc. Petition for Declaratory Ruling that AT&T’s InterSpan Frame Relay Service is a Basic Service, *Memorandum Opinion and Order*, (DA 95-2190), 10 FCC Rcd. 13717 (1995).

<sup>25</sup> *Id.*, ¶¶ 31-32. AT&T did not contest this determination; it simply asked that all similar interexchange packet processing services should likewise be tarified, and the FCC so ordered.

1 Section 64.702(a) that it had used to determine that X.25 data protocol services (and  
2 conversions involving X.25) were not enhanced – in the era when regulated monopoly  
3 telephone companies were still subject to the fully separated subsidiary requirement. In  
4 effect, the FCC found that frame relay was even more “basic” than X.25:

5 Protocols like frame relay and X.25 are often described through comparison  
6 to the International Standards Organization's Open Systems Interconnection  
7 (OSI) Reference Model, which includes “physical,” “link,” and “network”  
8 bottom layers. Frame relay operates in only the bottom two physical and link  
9 layers, which do not allow for network recognition and correction of missing  
10 frames. X.25, however, uses all three bottom layers, including the network  
11 layer.<sup>26</sup>

12 The ITU G.723.1 standard that supports the Audiocode Corporation VoIP technology used by  
13 LocalDial does not operate at the lower levels (physical, link and network) of the OSI  
14 reference model. LocalDial acquires physical, link, network and other lower level OSI  
15 reference functions (transport) from CLECs, Qwest, long distance carriers and so on. The  
16 G.723.1 technology operates at the highest levels of the OSI reference model: The domain of  
17 pure data processing that puts LocalDial's service squarely in the current FCC definition of  
18 an enhanced service.

19 **Q. WHAT IS THE OSI REFERENCE MODEL?**

20 A. The OSI (Open Systems Interconnection) reference model is a standard system for  
21 identifying the properties of data communications packet switching networks. Broadly  
22 speaking, the concept defines a hierarchical system of “layers” or levels (there are seven

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<sup>26</sup> *Id.*, ¶ 7, footnote 8.

1 “layers”) at each of which one network can interconnect with another. One or more systems  
2 or components can operate functionally within each of the seven levels.

3 The levels are (1) the lowest *physical* layer, such as a type of jack or connector;  
4 (2) the next is the *data link* layer, which identifies the types of framing and addressing of  
5 data; (3) the *network* layer that specifies how addressing controls the routing of data bits;  
6 (4) the *transport* layer defining (for example) if and how retransmissions will be used to  
7 ensure delivery of the data; (5) the *session* layer describes the organization of data sequences  
8 larger than the packets handled by lower layers; (6) the *presentation* layer defines the syntax  
9 of data being transferred, such as how floating point numbers can be exchanged between  
10 different math formats; and (7) the highest *application* layer where the actual data processing  
11 is performed (email or instant messaging creation and control, for example).

12 Each component or system interacts directly with the next lower level (*e.g.* the data  
13 link layer operates over the physical layer) while providing the capability(ies) used by the  
14 next level above it (*e.g.*, the session layer is used by the presentation layer). Among different  
15 systems or hosts, network interaction occurs at the same corresponding level in each one  
16 (*e.g.*, a physical level of one system interacts with the physical level of a second system, and  
17 so on). G.723.1 technology operates at the three highest levels, unlike the frame relay packet  
18 switching service.

19 **Q. CAN YOU DEMONSTRATE MORE COMPLETELY YOUR ANALYSIS**  
20 **OF THE G.723.1 TECHNOLOGY?**

21 **A.** Yes. I can demonstrate how G.723.1 technology operates to satisfy all three clauses of the  
22 enhanced service rule. I cannot specifically address the multiple mathematical algorithms

1 and software coding that implements the technology. Therefore, I acquired from the  
2 International Telecommunications Union all of the reference specifications. These are  
3 included with my Response Testimony as Exhibit WPM-5, so that the Commission and other  
4 parties may evaluate the documents directly.<sup>27</sup>

5 **Q. CAN YOU SUMMARIZE HOW THE G.723.1 SPECIFICATION**  
6 **SATISFIES THE FCC'S ENHANCED SERVICES RULE?**

7 A. Yes. Clause 1 of the rule states that the enhanced service may “employ computer processing  
8 applications that act on the format, content, code, protocol or similar aspects of the  
9 subscriber’s transmitted information.” In this case, the transmitted information is the human  
10 voices of the called and calling parties once the second phone call has been set up. G.723.1  
11 samples the digitized voice signals (the content) and mathematically creates several types of  
12 filters in real time. The technology measures the pitch of the human voices and adapts the  
13 filters to the pitch. The technology also measures the “excitation” of the digitized voice,  
14 *i.e.*, the random signals or waveforms that cannot be mathematically measured in terms of the  
15 pitch of the sound. The technology uses two additional mathematical processes to make  
16 computations based on the excitation. The process is summarized as follows:

17 The coder is based on the principles of linear prediction analysis-by-synthesis  
18 coding and attempts to minimize a perceptually weighted error signal. The

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<sup>27</sup> These documents are, respectively “Dual Rate Speech Coder for Multimedia Communications Transmitting At 5.3 And 6.3 Kbit/S;” “Annex A: Silence compression scheme;” “Annex B: Alternative specification based on floating point arithmetic;” and the ITU “Implementors' Guide for G.723.1. (October 2002)” Annex C concerns speech coding for wireless networks and is not included in the Exhibit.



1 encoder operates on blocks (frames) of 240 samples each. That is equal to  
2 30 msec at an 8 kHz sampling rate. Each block is first high pass filtered to  
3 remove the DC component and then divided into four subframes of 60  
4 samples each. For every subframe, a 10<sup>th</sup> order Linear Prediction Coder  
5 (LPC) filter is computed using the unprocessed input signal. The LPC filter  
6 for the last subframe is quantized using a Predictive Split Vector Quantizer  
7 (PSVQ). The unquantized LPC coefficients are used to construct the short-  
8 term perceptual weighting filter, which is used to filter the entire frame and to  
9 obtain the perceptually weighted speech signal.

10 For every two subframes (120 samples), the open loop pitch period,  $L_{OL}$ , is  
11 computed using the weighted speech signal. This pitch estimation is  
12 performed on blocks of 120 samples. The pitch period is searched in the  
13 range from 18 to 142 samples.

14 Using the estimated pitch period computed previously, a harmonic noise  
15 shaping filter is constructed. The combination of the LPC synthesis filter, the  
16 formant perceptual weighting filter, and the harmonic noise shaping filter is  
17 used to create an impulse response. The impulse response is then used for  
18 further computations.

19 Using the pitch period estimation,  $L_{OL}$ , and the impulse response, a closed  
20 loop pitch predictor is computed. A fifth order pitch predictor is used. The  
21 pitch period is computed as a small differential value around the open loop  
22 pitch estimate. The contribution of the pitch predictor is then subtracted from  
23 the initial target vector. Both the pitch period and the differential value are  
24 transmitted to the decoder.

25 Finally the non-periodic component of the excitation is approximated. For the  
26 high bit rate, Multi-pulse Maximum Likelihood Quantization (MP-MLQ)  
27 excitation is used, and for the low bit rate, an algebraic-code-excitation  
28 (ACELP) is used.<sup>28</sup>

29 Human voices are sufficiently unique that analysis of voiced patterns can identify a unique  
30 individual similar to fingerprint analysis. The above description shows that the technology  
31 uses a number of different computing process to act on each unique voice signal to construct

1 information components that model the voice of the speaking party, create a series of filters  
2 that respond to the unique voice, re-compute the variables by repeated sampling of the  
3 information and perform other computing processes. All of these computations are designed  
4 to affect the perception of a speaker's individual voice. The ITU technology standard also  
5 shows that within the discrete steps described above, such as the operation of the predictive  
6 coder, additional, complex mathematical computations are used to create short-term filters  
7 weighting the perception of the voice signal.<sup>29</sup>

8 **Q. WHAT ABOUT CLAUSE 2 OF THE RULE?**

9 A. Clause 2 provides that the enhanced service may "*provide the subscriber additional,*  
10 *different, or restructured information.*" The additional, restructured information provided by  
11 G.723.1 technology is part of what makes the human voice signal intelligible to the listener.  
12 Neither the speaker nor the listener may be cognizant of these computer processes, but they  
13 perceive what is in fact a synthetic manipulation of voice sounds as more intelligible and  
14 natural-sounding human voices. The process involves mathematical algorithms to detect  
15 voice activity, an algorithm to create "comfort noise," and a process to insert a reduced bit  
16 stream during periods of silence. The process is described as:

17 Silence compression techniques are used to reduce the transmitted bit rate  
18 during silent intervals of speech. Systems allowing discontinuous  
19 transmission are based on a Voice Activity Detection (VAD) algorithm and a  
20 Comfort Noise Generator (CNG) algorithm that allows the insertion of an

<sup>28</sup> G723.1, §2.1 General description.

<sup>29</sup> *Id.*, §2.4.

1 artificial noise during silence periods. This feature is necessary to avoid noise  
2 modulation introduced when the transmission is switched off: if the  
3 background acoustic noise that was present during active periods abruptly  
4 disappears, this very unpleasant noise modulation may even reduce the  
5 intelligibility of the speech.

6 The purpose of the VAD is to reliably detect the presence or absence of  
7 speech and to convey this information to the CNG algorithm. Typically, VAD  
8 algorithms base their decisions on several successive frames of information in  
9 order to make them more reliable and to avoid producing intermittent  
10 decisions. The VAD is constrained to operate on the same 30 ms speech  
11 frames which will subsequently either be encoded by the speech coder or  
12 filled with comfort noise by the comfort noise generator. The output of the  
13 VAD algorithm is passed to the CNG algorithm.

14 The largest difficulty in the detection of speech is the presence of any of a  
15 diverse range of background noise conditions. The VAD must be able to  
16 detect speech even in very low signal-to-noise ratio conditions. It is  
17 impossible to distinguish between speech and noise using simple level  
18 detection techniques when parts of the speech utterance are buried below the  
19 noise. The distinction between these conditions can only be made by taking  
20 into consideration the spectral characteristics of the input signal. In order to  
21 do this, the VAD incorporates an inverse filter, the coefficients of which are  
22 derived during noise-only periods by the CNG.<sup>30</sup>

23 Not only is the technology constantly providing each speaker with new and restructured  
24 information, this information is stored for reference purposes as part of the voice activity  
25 detection and comfort noise generation. So, these functions relate to both Clauses 2 and 3 of  
26 the FCC rule.

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<sup>30</sup> G.723.1, Annex A, § A.1.

1 **Q. DOES THE G.723.1 TECHNOLOGY SATISFY CLAUSE 3 OF THE FCC**  
2 **RULE IN OTHER WAYS?**

3 A. Yes. Clause 3 covers enhanced services that “*involve subscriber interaction with stored*  
4 *information.*” G.723.1 stores and retrieves the most recent adaptation of several variables  
5 created under clauses 1 or 2, including the encoded pitch information, data stored in the  
6 excitation buffer, signal quantization from both the high-rate and low-rate excitation  
7 processing, the computations from the impulse response calculations, and (possibly) the  
8 combined LPC synthesis, perceptual weighting and harmonic noise shaping filters. This  
9 storage allows the technology to update the information it is using to configure the real-time  
10 voice signal with the best currently available data (*i.e.*, if the real-time data being used is  
11 better than the data stored in memory at that point in time the memory swaps its stored  
12 information for the better real-time data, in order to maintain or improve the quality of the  
13 synthetic voice signal.) If the technology operates as specified, the parties to the voice  
14 conversation would not be aware of any change in the data being transmitted, because to their  
15 ears the quality of the signal would be as good or better than it was (nanoseconds or  
16 milliseconds) earlier.

17 **Q. IS THERE ANY REASON WHY G.723.1 TECHNOLOGY WOULD NOT**  
18 **BE A COMPUTER PROCESSING APPLICATION?**

19 A. None whatsoever. The fact that the computer resides on chips in the gateway devices makes  
20 the devices indistinguishable from a computer using an Intel chip, for example. The fact that  
21 the information starts out as a human voice and is then digitized makes the information  
22 indistinguishable from any other data stream.

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**IV. CONCLUSION**

**Q. IF LOCALDIAL'S SERVICE IS AN ENHANCED SERVICE WHAT DOES THIS MEAN?**

A. It means, as I stated in my Direct Testimony, that LocalDial's service is not a telecommunications offering under the current FCC rule. The FCC's recent IP-Enabled Services NPRM will undertake to consider whether the FCC's current primary jurisdiction over enhanced or information services might be modified, but until this examination is complete the Commission should refrain from regulating LocalDial's service. The Commission should not rule that the service involves "telecommunications" under the R.C.W. definition because the service qualifies as an enhanced service and because the enhanced service component cannot be segregated into "intrastate" and "interstate" components. WECA members should not be allowed to try to levy intrastate switched access charges on LocalDial for all the reasons I noted in my Direct Testimony, and because of the pending FCC review. The original depiction of LocalDial's service as an information service is still correct, as I have just shown. Thus, regardless of the FCC's treatment of IP Telephony in the future, or whether the FCC limits its primary jurisdiction over information services in the future, levying switched access charges on LocalDial retroactively would be unjust and unreasonable.

**Q. DOES THIS CONCLUDE YOUR REPLY TESTIMONY?**

A. Yes, at this time.