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April 9, 1999

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Magalie Roman Salas
Secretary
Federal Communications Commission
445 12th Street, S. W.
Washington, D.C. 20554

Re: In the Matter of Implementation of the Local Competition Provisions of the Telecommunications Act of 1996; CC Docket No. 96-98

Dear Ms. Salas:

On behalf of MCI WorldCom, Inc., enclosed is a letter that was submitted to Commissioner Michael Powell today. MCI WorldCom requests that this letter be entered into the record for the above-referenced docket.

In accordance with Section 1.1206(b)(2) of the Commission's Rules, an original and one copy of this notice are being submitted to the Secretary.

Sincerely,

Lisa B. Smith
Senior Policy Counsel

cc: Commissioner Michael Powell
Kyle Dixon, Legal Advisor

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JONATHAN B. SALLET
CHIEF POLICY COUNSEL

April 9, 1999

Honorable Michael Powell
Commissioner
Federal Communications Commission
445 12th Street, S.W.
Washington, D.C. 20554

Re: In the Matter of Implementation of the Local Competition Provisions in the Telecommunications Act of 1996;
CC Docket No. 96-98

Dear Commissioner Powell:

This letter serves as a response to your recent inquiry as to whether the Federal Communications Commission (the "Commission") should retain the requirement that loop rates should be averaged into, at least, 3 rather than 2 zones. The analysis we have conducted indicates that a 3-zone system is a better choice. This conclusion is based on the relative performance of the two averaging options under two standards: *rate efficiency* and *entry efficiency*.

The Commission has made clear its preference that unbundled element rates should approximate their true (or TELRIC) cost and "...that deaveraged rates more closely reflect the actual costs of providing interconnection and unbundled elements."[1] Thus, the standard of *rate efficiency* measures how closely the rates for unbundled loops approximate their costs. Pricing every loop at its true cost maximizes rate efficiency. Of course, the more zones used, the more *rate efficient* is the loop averaging system. That is, in terms of rate efficiency, 3 zones is better than 2 zones, 4 zones is better than 3 zones, and so forth.

The extent of averaging also may have an effect on the number of residential access lines that are "profitable." To be profitable, net revenue for the local customer, defined as total local revenue minus all non-loop expenses, must exceed the loop rate for that

[1] In the Matter of Implementation of the Local Competition Provisions of the Telecommunications Act of 1996, CC Docket No. 96-98, released August 8, 1996, para. 764. ("Thus, we conclude that rates for interconnection and unbundled elements must be geographically deaveraged.")

customer. The standard of *entry efficiency* measures the efficacy of alternative averaging systems in producing profitable access lines.

Unlike rate efficiency, the relationship between entry efficiency and the number of zones is not direct. In fact, for this efficiency measure standing alone, it is true that for any possible 3-zone combination of loop rates, there is an equally entry efficient 2-zone combination. Likewise, for any possible 2-zone combination of loop rates, there is an equally entry efficient 3-zone combination. Note, however, that for 2 and 3-zone combinations of equal entry efficiency, the 3-zone combination is always more rate efficient.

Finding the 'optimal' 2-zone or 3-zone set may be difficult, however, and will vary considerably by state. Because the Commission's rule applies generally across all states, an important question is whether a 2-zone combination performs better (i.e., local market entry is encouraged) on average than the current 3-zone requirement. As we explain below, our analysis shows that 3 zones are better than a 2-zone system under both the rate and entry efficiency standards. This conclusion is unambiguous across all relevant net revenues. Moreover, it is generally, but not always, true that more than three zones is preferable to three zones. Thus, this study reinforces the view that the Commission correctly adopted a minimum 3-zone requirement and correctly permitted states to adopt more zones if deemed necessary to "...adequately reflect the costs of interconnection and access to unbundled elements."[2]

ANALYSIS

In order to respond to your inquiry, we evaluated the performance of five *n*-zone averaging systems (1-zone, 2-zone, 3-zone, 4-zone, and 9-zone) using our two efficiency standards. Loop costs are based on the HAI Model, which divides loop densities into 9 zones. These nine zones can be arranged into 8 unique 2-zone sets, 28 unique 3-zone sets, and 56 unique 4-zone sets (see Attachment). Only one unique set can be constructed for the 1-zone and 9-zone sets. For each of these possible permutations, the average loop cost is calculated by zone. For example, consider a 2-zone set of one high density zone (HAI zones 1 through 3) and a low-density zone (zones 4 through 9).[3] For each zone group (1-3, 4-9), a weighted average loop rate is calculated, and the number of access lines in that group is determined. Say, for illustrative purposes, that the averages are $7 and $17.00 for the high density (1-3) and low-density (4-9) groups, respectively. Also, assume that 50% of the lines are in the high-density group and 50% in the low-density group. If the net revenue (total revenue minus all non-loop costs) is

[2] Local Competition Order, para. 765

[3] The zones are ranked from highest density (1) to lowest density (9).

$8.00, then only those customers in the high-density zone, 50% of the lines, are profitable (because $8.00 exceeds $7.00).

With respect to net revenue, we simply assumed a net revenue figure. Our profitability models indicate that net revenues (as defined above) are quite low. But rather than quibble about specific assumptions, we provide a range of possible net revenues for sensitivity analysis. The range of net revenue falls between two values: the loop cost for the highest density zone and the 1-zone average loop cost. No lines are profitable if net revenue is below the former, and all are profitable (under the 1-zone system) if net revenue exceeds the latter.

Our question is which *n*-zone combination performs best *on average*, and specifically whether a 3-zone system performs better than a 2-zone system. Our approach attributes no specific action to the regulatory body choosing how to combine the zones. The output of this analysis is the expected value of rate efficiency and entry efficiency for each *n*-zone combination. For example, if the entry efficiency of 2-zone combinations is 30%, then we expect a 2-zone combination chosen at random will make 30% of access lines profitable. Of course, some of the 2-zone combinations will produce fewer profitable lines and some will produce more profitable lines. But, on average, 30% of the lines will be profitable. As mentioned above, the number of profitable lines from any 3-zone combination can be matched by a carefully chosen 2-zone combination (and vice versa). Our approach avoids the need to choose carefully, asking only which performs better on average. Because this Commission will not determine the manner in which zones are grouped, we believe this approach to the problem is sensible.

The performance statistics of alternative averaging systems are summarized in the table below. While these statistics can be computed individually for each state, we have created a "representative" state by averaging the loop costs across all 50 states. The results do vary by state, but not enough to alter the conclusion.

Rate efficiency is measured from 0 to 1, where 1 is most efficient and 0 is least efficient.[4] Since HAI has nine zones, the 9-zone system is most rate efficient (= 1) because every loop rate equals its cost. Moving from a 2-zone to a 3-zone system improves rate efficiency by 10 points, or 15%. It should also be noted that while increasing the number of zones increases rate efficiency, it does so at a decreasing rate. In other words, rate efficiency increases by more when moving from a 2-zone to a 3-zone system (15%) than from a 3-zone to a 4-zone system (9%). As expected, rate efficiency is best accomplished through the use of a larger number of density zones.

Entry efficiency is measured in two ways. First, we calculate how many profitable lines the *n*-zone combination produces on average (*Entry Efficiency 1*). From the table we

[4] The rate efficiency index is the weighted average percentage difference between the loop rate and its cost for each of the *n*-zones in the *n*-zone combination.

see that a 2-zone system with net revenue of $8.00 makes 13% of access lines profitable on average. Without ambiguity, the 3-zone system has a higher entry efficiency than a 2-zone system. For example, at net revenue of $8.00, 21% of lines are profitable with a 3-zone system while only 13% are profitable with 2 zones.

An alternative measure of entry efficiency (*Entry Efficiency 2*) measures how often a 3-zone system is better than a 2-zone system in terms of profitable access lines. Again, at $8.00 net revenue, the 3-zone system will outperform the 2-zone system 48% of the time whereas the 2-zone system outperforms the 3-zone system only 22% of the time.

Across all values of net revenue, the 3-zone system outperforms the 2-zone system without ambiguity. In some cases, using more than three zones improves entry efficiency.[5] However, under certain conditions, and certainly in some states, the 3-zone option performs best (on average). For example, for net revenue of $9, the 4-zone option has lower entry efficiency than the 3-zone option. Likewise, for net revenue of $10, both the 3 and 4-zone options have higher entry efficiency than the 9-zone option. Therefore, while it is clear that 3 zones are preferred to 2 zones, we cannot conclude that 4 or more zones will always increase entry efficiency.

Please feel free to contact the undersigned should you have any additional questions or concerns.

Sincerely,

Jonathan Sallet
Chief Policy Counsel

cc: Chairman William Kennard
Commissioner Susan Ness
Commissioner Harold Furchtgott-Roth
Commissioner Gloria Tristani
Kathy Brown, Chief of Staff
Kyle Dixon, Legal Advisor
Tom Power, Legal Advisor
Linda Kinney, Legal Advisor
Kevin Martin, Legal Advisor
Paul Gallant, Legal Advisor
Lawrence Strickling, Chief, Common Carrier Bureau

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[5] More zones always improves rate efficiency.

Calculations of Entry and Rate Efficiency for Alternative Averaging Systems

Net Revenue	$5.00	$6.00	$7.00	$8.00	$9.00	$10.00	$11.00
Entry Efficiency 1*(measured in percent)*							
1 Zone	0%	0%	0%	0%	0%	0%	0%
2 Zones	2	2	6	13	43	55	55
3 Zones	4	4	11	21	51	62	71
4 Zones	6	6	14	25	49	63	74
9 Zones	16	16	16	31	53	53	76
Entry Efficiency 2 *(measured in percent)*							
1, 2	0, 13[a]	0, 13	0,25	0, 38	0, 75	0, 88	0, 88
2, 3	9, 22	9, 22	17, 38	22, 48	37, 50	41, 47	33, 55
3, 4	16, 28	16, 28	25, 41	30, 46	42, 37	42, 38	40, 40
4, 9	0, 63	0, 63	27, 36	18, 45	25, 38	50, 13	43, 20
Rate Efficiency							
1 Zone	0.47	0.47	0.47	0.47	0.47	0.47	0.47
2 Zones	0.65	0.65	0.65	0.65	0.65	0.65	0.65
3 Zones	0.75	0.75	0.75	0.75	0.75	0.75	0.75
4 Zones	0.82	0.82	0.82	0.82	0.82	0.82	0.82
9 Zones	1.00	1.00	1.00	1.00	1.00	1.00	1.00

[a] Cell reads "1-Zone beats 2-Zones 0% of the time, while 2-Zones beats 1-Zone 13% of the time.

Zone Combinations

(Based on the 9 zones of the HAI Model)

HI	LO	HI	MID	LO	HI	HI MID	LO MID	LO
1-1	2-9	1-1	2-2	3-9	1-1	2-2	3-3	4-9
1-2	3-9	1-1	2-3	4-9	1-1	2-2	3-4	5-9
1-3	4-9	1-1	2-4	5-9	1-1	2-2	3-5	6-9
1-4	5-9	1-1	2-5	6-9	1-1	2-2	3-6	7-9
1-5	6-9	1-1	2-6	7-9	1-1	2-2	3-7	8-9
1-6	7-9	1-1	2-7	8-9	1-1	2-2	3-8	9-9
1-7	8-9	1-1	2-8	9-9	1-1	2-3	4-4	5-9
1-8	9-9	1-2	3-3	4-9	1-1	2-3	4-5	6-9
		1-2	3-4	5-9	1-1	2-3	4-6	7-9
		1-2	3-5	6-9	1-1	2-3	4-7	8-9
		1-2	3-6	7-9	1-1	2-3	4-8	9-9
		1-2	3-7	8-9	1-1	2-4	5-5	6-9
		1-2	3-8	9-9	1-1	2-4	5-6	7-9
		1-3	4-4	5-9	1-1	2-4	5-7	8-9
		1-3	4-5	6-9	1-1	2-4	5-8	9-9
		1-3	4-6	7-9	1-1	2-5	6-6	7-9
		1-3	4-7	8-9	1-1	2-5	6-7	8-9
		1-3	4-8	9-9	1-1	2-5	6-8	9-9
		1-4	5-5	6-9	1-1	2-6	7-7	8-9
		1-4	5-6	7-9	1-1	2-6	7-8	9-9
		1-4	5-7	8-9	1-1	2-7	8-8	9-9
		1-4	5-8	9-9	1-2	3-3	4-4	5-9
		1-5	6-6	7-9	1-2	3-3	4-5	6-9
		1-5	6-7	8-9	1-2	3-3	4-6	7-9
		1-5	6-8	9-9	1-2	3-3	4-7	8-9
		1-6	7-7	8-9	1-2	3-3	4-8	9-9
		1-6	7-8	9-9	1-2	3-4	5-5	6-9
		1-7	7-8	9-9	1-2	3-4	5-6	7-9
					1-2	3-4	5-7	8-9
					1-2	3-4	5-8	9-9
					1-2	3-5	6-6	7-9
					1-2	3-5	6-7	8-9
					1-2	3-5	6-8	9-9
					1-2	3-6	7-7	8-9
					1-2	3-6	7-8	9-9
					1-2	3-7	8-8	9-9
					1-3	4-4	5-5	6-9
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