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*A Fox in the Hen House:
An Evaluation of Bell Company Proposals to Eliminate their
Monopoly Position in Local Telecommunications Markets*

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Abstract: In this brief Policy Paper, the incentives of the Bell Companies to promote “real competition” by eliminating the Unbundled Network Element-Platform as an entry mode are examined. As common sense dictates, the Bell Company anti-Unbundled Network Element Platform message is not driven by a desire for “real competition,” but an effort to shift competitive entry toward slower, less ubiquitous entry modes such as UNE-Loop and facilities-based entry. The increase and protection of profits is the goal of the Bell Company, not the altruistic promotion of consumer benefits created by the rapid introduction of competition into the local exchange market. Policymakers, at least wise policymakers, should not ignore this fact.

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I. Introduction

It is wise to be skeptical of those who seek to assist in their own demise. Despite the pedestrian nature of the observation, this bit of wisdom is frequently lost on telecommunications policymakers. In their efforts to promote competition and eliminate monopoly in the local exchange telecommunications marketplace, regulators and other policymakers frequently seek and, even worse, adhere to the advice of the incumbent monopolists – the Bell Companies.¹ Having incumbent monopolists as advisors for competition policy is like having the hen house guarded by a fox.

One policy proposal of the Bell Companies is that to promote “real” competition, regulatory agencies should eliminate the availability of loop-switching combinations (UNE-Platform) and entrants should be required to replicate substantial portions of the incumbent’s network -- primarily digital switching equipment – to provide service. If entrant-deployed digital switching helps promote “real competition,” then why would a monopolist encourage regulators to mandate this entry strategy (or, eliminate other possible entry strategies that do not require switch redundancy)? If switch deployment by entrants does, in fact, promote “real competition,” then presumably such entry would reduce the profits of the incumbent monopolists and *leave potentially billions of dollars of their own local exchange network stranded*. Are then the Bell Companies acting contrary to the interests of their shareholders? Or, is the “real competition” promoted by the Bell Companies a sham? The answer, quite fortunately, is found in a straightforward algebraic analysis.

In this brief paper, we examine the incentives of the Bell Companies to promote “real competition” by eliminating the UNE-Platform as an entry mode. As common sense dictates, the Bell Company efforts to eliminate UNE-Platform are shown to be an effort to raise Bell Company profits by shifting entry to slower, less ubiquitous entry modes such as UNE-Loop (unbundled loop with self-supplied switching).² Thus, eliminating UNE-Platform will result in *less* competition (and ultimately less of the redundancy that the Bell Companies claim to advocate, given that switch deployment is a complement to UNE-

¹ The Bell Companies are, for all practical purposes, monopolists in the local exchange market with demand penetration rates of over 90%.

² By no means is this observation meant to imply that UNE-Loop entrants should be impeded in any way by regulatory policy. All modes of entry should be encouraged by federal and state policy.

Platform).³ This finding is unsurprising, given that securities law makes it difficult for the Bells to promote policies that will indeed promote “real competition” and thereby reduce its profits. Increasing and protecting profits is the goal of the Bell Companies, not the altruistic promotion of consumer benefits realized from the rapid introduction of competition into the local exchange market. Policymakers should not ignore this fact.

II. A Simple Economic Analysis

In order to find an answer to the question of whether the Bell Companies are legitimately trying to promote “real competition,” thereby acting in conflict with the interest of their shareholders, or whether “real competition” is their hen house, a very simple economic analysis is used. As always, a few simplifications will make the analysis more tractable and accessible. While the following analysis is mathematical, it is relatively easy to follow. For those who prefer, numerical examples are provided in Section III that illustrate plainly the symbolic computations of this section.

To begin, first assume that a Bell Company has one retail service it sells at a regulated price P . This service is comprised of two inputs, namely input L and input S (e.g., loop and switching/transport).⁴ The production of these inputs requires fixed (and probably sunk) cost F , and additional units of the input are supplied at marginal costs C_L and C_S , respectively. The per-unit price-marginal cost margin, therefore, is $(P - C_L - C_S)$, which is positive. Observe that this margin is computed as price over marginal cost, not average cost (either embedded or forward-looking). Marginal cost for embedded loop and switching plant should be very low, and well below average cost. Profit maximizing decisions are based on marginal cost, not average cost; so, our focus is on marginal cost.

In addition to its retail offering, the Bell Company also sells to other telecommunications carriers the inputs L and S at wholesale prices R_L and R_S , where the sum of the wholesale prices is less than the retail price ($P > R_L + R_S$). The wholesale prices (R_L, R_S) are set equal to average cost (i.e., TELRIC), and therefore exceed marginal cost ($R_L > C_L, R_S > C_S$).

³ See T. Randolph Beard, George S. Ford, and Thomas W. Koutsky, *Facilities-Based Entry in Local Telecommunications: An Empirical Investigation*, Unpublished Manuscript (www.telepolicy.com), June 2002.

⁴ The production technology is fixed proportions; each unit of output requires one L and one S .

The (annual) profit function of the Bell Company is

$$\pi = (P - C_L - C_S)n_B + (R_L + R_S - C_L - C_S)n_P + (R_L - C_L)n_U - kF, \quad (1)$$

where k is factor that converts the fixed cost into depreciation and an annual “payment” to the capital (i.e. because profits are measured in annual terms), and n_i is the number of units sold by the Bell Company to either its own retail customer (subscript B), a wholesale-customer buying both L and S (subscript P , for “UNE-Platform”), or a wholesale customer buying just L (subscript U , for “UNE-Loop”). It should not be a surprise to anyone that the Bell Companies do not wish to wholesale inputs to their competitors; they have made their preference clear.

The question of interest is what “type” of entrant the Bell Company seeks to promote, and whether or not its decision is compatible with profit maximization and, thus, shareholder interests. In order to evaluate this issue, the total differential of Equation (1) is required:

$$\Delta\pi = (P - C_L - C_S)\Delta n_B + (R_L + R_S - C_L - C_S)\Delta n_P + (R_L - C_L)\Delta n_U, \quad (2)$$

where the Δ symbol indicates “the change in.” Equation (2) can be used to compute the change in profit for changes in the number of customers of each type, including the movement of a customer from, say, a retail product to a wholesale product. To illustrate, a one-unit increase in n_B increases profit by $[\Delta\pi/\Delta n_B = (P - C_L - C_S)]$.

The Bell Companies’ distaste for the Telecommunications Act’s unbundling mandates (i.e., forcing the Bells to offer wholesale products L and S) is revealed by Equation (2). If the Bell Company loses a retail customer ($\Delta n_B = -1$) to a UNE-P provider ($\Delta n_P = +1$), its profits change by

$$\Delta\pi/\Delta n_P - \Delta\pi/\Delta n_B = (R_L + R_S - C_L - C_S) - (P - C_L - C_S) = R_L + R_S - P, \quad (3)$$

which is clearly negative because the retail price exceeds the sum of the wholesale prices ($P > R_L + R_S$).⁵ Equation (3) shows that the Bell Company

⁵ The regulated price is assumed to include all revenue from the customer, including universal service receipts.

continues to incur the marginal cost of both L and S , but loses retail revenue P that is replaced by wholesale revenue R_L and R_S .

Similarly, if the Bell Company loses a retail customer ($\Delta n_B = -1$) to a UNE-L competitor ($\Delta n_L = +1$), then its profits decline by

$$(R_L - C_L) - (P - C_L - C_S) = R_L - P + C_S, \quad (4)$$

which again is plainly negative because the retail price exceeds the wholesale price of both L and S and the wholesale prices exceed marginal cost ($R_L + C_S < P$).

Finally, if the Bell Company loses a retail customer to a full facilities-based competitor, the change in Bell profits is

$$-(P - C_L - C_S), \quad (5)$$

which is the largest loss of profit of any of the alternatives.

A more interesting scenario for the issue at hand is what happens to profits when a UNE-Platform customer ($\Delta n_P = -1$) migrates to UNE-Loop ($n_U = +1$). In this scenario, Bell Company profits change by

$$(R_L - C_L) - (R_L + R_S - C_L - C_S) = -R_S + C_S, \quad (6)$$

which again is negative because wholesale prices exceed marginal cost ($R_S > C_S$). Thus, promoting switch-based entry and the elimination of UNE-Platform entry *reduces* Bell Company profits. Bell Company advocacy of switch-based entry, consequently, is contrary to the interest of Bell Company shareholders! Or is it?

This simple analysis of one-customer migrations from UNE-Platform to UNE-Loop is a bit misleading, or even counterfactual. History shows that in New York State, about six times as many UNE-Platform lines as UNE-L lines are installed each month (about 30,000 to 5,000 per month), on average. This evidence suggests that for every one-customer migrating from the retail arm of the Bell Company to a competitor, there is a 15% chance that customer migrates to UNE-Loop and an 85% chance that customer migrates to UNE-Platform. For every successful acquisition by a competitor, therefore, the expected reduction in profits is

$$\begin{aligned} \Delta\pi &= 0.15(R_L - C_L) + 0.85(R_L + R_S - C_L - C_S) - (P - C_L - C_S) \\ &= R_L + 0.85R_S + 0.15C_S - P, \end{aligned} \quad (7)$$

which again is negative ($P > R_L + R_S$ and $R_S > C_S$). As a general matter, any migration of a retail customer to a wholesale customer reduces profits. Now, if the UNE-Platform is eliminated as an entry option, the expected reduction in profits is

$$\begin{aligned}\Delta\pi &= 0.15(R_L - C_L) - (P - C_L - C_S) + 0.85(P - C_L - C_S) \\ &= 0.15R_L + 0.15C_S - 0.15P,\end{aligned}\tag{8}$$

which is negative ($P > R_L + R_S$ and $R_S > C_S$). Note that we treat the expected migration to the UNE-Platform (0.85 customers) as a migration to the Bell Company (i.e., the customer is retained).

What remains to be determined is whether the expected change in profits after eliminating UNE-Platform as an entry option is less than the expected change in profits with UNE-Platform. Subtracting Equation (7) from Equation (8), we have

$$(0.15R_L + 0.15C_S - 0.15P) - (R_L + 0.85R_S + 0.15C_S - P) = 0.85(P - R_L - R_S),\tag{9}$$

which is clearly positive ($P > R_L + R_S$). Because the growth rate of UNE-Loop is considerably less than that of the UNE-Platform, eliminating UNE-Platform increases profits, despite the fact that a UNE-P wholesale account has a higher margin than a UNE-L wholesale account. In essence, the Bell Company loses more per lost customer, but they make it up in reduced volume.

If UNE-Platform and UNE-Loop are substitutes, an issue addressed and rejected by Beard and Ford (2002), then eliminating UNE-P may simply increase the number of UNE-Loop customers.⁶ Assuming perfect substitution between UNE-Loop and UNE-Platform, and ignoring the capacity constraint on UNE-Loop caused by the hot-cut bottleneck, the promotion of UNE-Loop competition by eliminating the UNE-Platform is plainly unprofitable for the Bell Company and contrary to the interest of Bell Company shareholders. If the Bell Companies are profit-maximizing firms, therefore, then the inevitable conclusion

⁶ T. Randolph Beard and George S. Ford, *Make or Buy? Unbundled Elements as Substitutes for Competitive Facilities in the Local Exchange Network*, Unpublished Manuscript (July 2002), www.telepolicy.com.

is that the Bells do not believe that UNE-Platform and UNE-Loop are highly substitutable.

III. Numerical Examples

The symbolic analysis of the previous section can be presented as a numerical example, without loss of force. In order to do so, assume the following: the retail price for the Bell Company's service is \$40 ($P = 40$); the wholesale price for input L (i.e., the loop) is \$16 ($R_L = 16$), the wholesale price for input S (i.e., switching) is \$10 ($R_S = 10$), and the marginal cost for input L and S are \$2 and \$1, respectively ($C_L = 2$, $C_S = 1$). Specifying a value for fixed cost (F) is not required, since it does not affect the analysis of profit changes. The change in Bell Company profit from various migration scenarios is summarized in Table 1.

Table 1.		
Scenario	Change in Bell Company Profit	Equation from Text
Retail to UNE-Platform	$(16+10-2-1) - (40 - 2 - 1) = -14$	Equation (3)
Retail to UNE-Loop	$(16-2)+(40-2-1) = -23$	Equation (4)
Retail to Facilities-Based	$(40 - 2 - 1) = -37$	Equation (5)
UNE-Platform to UNE-Loop	$(16-2) - (16+10-2-1) = -9$	Equation (6)
Avg Retail to Wholesale	$0.15*(16-2)+0.85*(16+10-2-1) - (40-2-1) = -15.35$	Equation (7)
Avg Retail to Wholesale w/o UNE-Platform	$0.15*(16-2)+0.85*(40-2-1) - (40-2-1) = -3.45$	Equation (8)
Per-customer Profit Change from Eliminating UNE-Platform	$0.85(P - R_L - R_S) = 11.90$	Equation (9)

From Table 1, it is plain to see that losing a customer to a UNE-Loop provider (-\$23) has a larger effect on profits than losing a customer to the UNE-Platform provider (-\$14). *Most harmful to Bell Company profits is a loss to facilities-based provider (-\$37).* Migration from a UNE-Platform competitor to a UNE-Loop competitor reduces profits by \$9 per month.

The expected loss in margin from a lost retail customer is \$15.35, but that expected loss is reduced to \$3.45 per lost customer by eliminating UNE-Platform as a viable entry strategy. Thus, eliminating the UNE-Platform increases Bell Company profits.

IV. Conclusion

In this brief Policy Paper, the incentives of the Bell Companies to promote “real competition” by eliminating the UNE-Platform as an entry mode were examined. As common sense dictates, the Bell Company anti-UNE Platform message is not driven by a desire for “real competition,” but an effort to shift competitive entry toward slower, less ubiquitous entry modes such as UNE-Loop. The analysis also shows reveals that of all the entry modes, pure facilities-based entry generates the largest reduction in Bell Company profits. Consequently, Bell Company pleas for policies aimed at promoting facilities-based entry should be viewed with great skepticism.

As should be expected, the increase and protection of profits is the goal of the Bell Company in its policy recommendations, not the altruistic promotion of consumer benefits created by the rapid introduction of competition into the local exchange market. Policymakers, at least wise policymakers, should not ignore this fact.