Interconnection Compensation

The Critical Issue for Local Exchange Competition

Adapted From
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TCG
Teleport Communications Group
Two Teleport Drive
Staten Island, New York 10311-1004
INTERCONNECTION COMPENSATION
The Critical Issue: for Local Exchange Competition

This issue update, prepared for NARUC's Summer Meeting in July 1995, is intended to be a companion to "The Economics of Interconnection", three papers on key aspects of the interconnection compensation issue authored by Gerald W. Brock and published as a collection by TCG in April 1995. Please refer to page 15 of this document for information about how to obtain copies of this and other TCG Policy Papers.

In the three papers, Mr. Brock explained how reciprocal compensation arrangements that are administratively simple, economically correct and consistent with maximum network efficiency would arise in a competitive marketplace. He also explained why regulators must guide a previously monopolized market in transition to competition towards an economically correct interconnection compensation system and why such regulation must limit compensation to no more than the incremental cost of the peak period capacity required to terminate the traffic. Because such an incremental cost is so trivial, he suggested why a zero-priced interconnection ("sender keep all" or "bill and keep"), such as has been agreed to by commercial service providers on the INTERNET, meets these economic requirements.

WHY IS "INTERCONNECTION COMPENSATION" SO IMPORTANT?

Competing local exchange carrier (LEC) networks must be seamlessly interconnected to avoid a repeat of the situation, which existed at the turn of the century, when local exchange service was competitive and unregulated but consumers had to bear the expense and inconvenience of having to subscribe to two or more telephone systems that did not connect, in order to reach all the parties they wanted to talk to.

"Seamless interconnection" means more than simply physically interconnecting competing local exchange carriers' networks. It also means that the competing local exchange carriers must establish the administrative and financial arrangements necessitated by the exchange of calls between their competing networks. And the single most critical issue is the establishment of a system by which each LEC will be compensated for terminating local telephone calls originated on another, competing LEC's network: one compensation system will promote vigorous local exchange competition that strongly benefits all consumers; another system will stifle competition or, perhaps worse, create only the illusion of competition that results in a virtually deregulated monopoly.

If the traditional, mature LECs and the emerging, start-up competitive LECs cannot negotiate a mutually acceptable compensation system, as seems likely, regulators will have to decide the issue and do so quickly. Their selection of one system or the other will largely determine whether effective local exchange competition will be economically viable, or not.

If local exchange competition is economically viable, then competition can safely be substituted for regulation and substantial changes in the

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regulation of the traditional local telephone industry can and should be made. But if the interconnection compensation system does not allow for economically viable local exchange competition, then the result, eventually, will be greater regulation of the telephone monopolies and the loss to this country of the economic and social benefits of a vigorously competitive market.

Which system should be adopted? Which system will be adopted?

The transitional problem facing local exchange carriers and their regulators is that, in the near and medium term, the traffic exchange between immature, start-up Competitive LECs (CompLECs) such as TCG and the mature, Traditional LECs (TLECs) that have market power and all of the customers is likely to be substantially imbalanced. In the period of imbalance, the CompLECs will terminate substantially more traffic on the TLECs' networks than the TLECs will terminate on the CompLECs' networks.

To attain a reasonably balanced exchange of traffic with a TLEC, a CompLEC must serve a customer mix that is similar to the TLECs'. This means, for example, that CompLECs would have to serve a full range of customers with predominantly outbound usage, as well as a full range of customers with predominantly inbound usage. But without effective, efficient number portability, CompLECs will have great difficulty attracting "inbound customers" (compounding the traffic imbalance problem) and some consumers will be discouraged from subscribing to the CompLECs' outbound service.

Regulators must recognize that Service Provider Number Portability ("SPNP") is a prerequisite to the natural "balanced traffic" that characterizes mature interconnection relationships and should therefore insist that effective, database-driven Service Provider Number Portability be in place before they give serious consideration to permitting the competition-stifling compensation systems advocated by some TLECs.

Time is required to allow CompLECs to mature in the marketplace. And time is also required to develop a database-driven SPNP system needed to allow consumers with substantial inbound traffic to be served efficiently by CompLECs.

In summary, as the traffic between a CompLEC and TLEC becomes reasonably balanced as the result of the natural maturation of the CompLEC and the availability of SPNP, interconnection compensation will become a "non-issue" because any charges that are assessed reciprocally will cancel out. But will CompLECs have a reasonable opportunity to mature? The answer is, only if the substantial short-term reciprocal compensation problem is resolved immediately.
CONFLICTING APPROACHES TO INTERCONNECTION COMPENSATION

Mature traditional local exchange carriers and the emerging, start-up competitive LECs are proposing mutually exclusive compensation models. If the carriers cannot come to negotiated agreements, regulators will have to choose between them. The alternatives are:

- **USAGE-SENSITIVE**

  TLECs are proposing usage-sensitive schemes (i.e., minutes-of-use), often based on the existing "switched access charges" imposed as a matter of public policy on the termination of interexchange carriers' long distance traffic. Since the interexchange access charges are by design "uneconomic", it follows logically that a usage-sensitive system would tend to maintain the status quo, advantaging the incumbent dominant LECs and disadvantaging the new entrants.

- **USAGE-INSENSITIVE**

  TCG and other actual and potential CompLECs are proposing usage-insensitive compensation systems, either "bill and keep" or flat-rated capacity charges or some combination of the two. (A "bill and keep" arrangement can be thought of as a "zero priced" flat-rate capacity charge.) Because any costs incurred by TLECs to terminate CompLECs' traffic are both trivial and not related to usage, a usage-insensitive compensation system would be "economic" and encourage a more competitive local telecommunications marketplace.

  It is obvious that CompLECs will not start out with the extensive networks and customer base of incumbent LECs. It will take a considerable period of time for CompLECs to develop their networks and build their customer base, particularly in the absence of Service Provider Number Portability. To establish the effective, sustainable competition that would justify and perhaps require substantial changes in the regulation of TLECs, regulators must ensure that interconnection compensation systems favor *competition* (not a particular competitor) and that they are based on sound economic and policy principles.

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1. "Bill and keep" (or "sender keep all") refers to a system whereby each carrier reciprocally terminates the other carriers' traffic for no explicit charge so that the originating carrier "bills" the originating subscriber and "keeps" all of the billed revenue.

2. In a "capacity charge" compensation system, the carrier originating a call terminates it through a fixed amount of switching capacity on the terminating carrier's network (i.e., a DS1 switch port) at a fixed monthly charge.
EVALUATING CONFLICTING MODELS

Establishing an appropriate mechanism and level of compensation between competing local carriers is critical for the development of competition. Thus, regulators should evaluate each of the basic proposals on the basis of whether it satisfies the following criteria:

- creating an environment that encourages viable local competition;
- encouraging innovative retail pricing;
- favoring administrative simplicity and low administrative cost; and
- encouraging investment in, and the development of, a rugged, disaster-resistant local telecommunications infrastructure.

As explained more fully below and summarized in the matrix attached to this paper, ComptECs' various usage-insensitive proposals generally satisfy all these criteria. By contrast, the TLECs' usage-sensitive proposals satisfy none and would thwart effective, sustainable competition because they are inefficient, administratively burdensome, and prevent economically viable competition.

Usage-sensitive interconnection rates will not encourage the sort of vigorous competitive market that benefits consumers. Rather, at best, (or at worst, depending on one's viewpoint), they would allow the TLECs to create just enough of an illusion of competition to justify their demand for radical changes in the regulatory system. That is because usage-sensitive interconnection would set the ComptEC's price floor, constrain the new entrant's ability to devise innovative pricing plans, and transfer all the economic benefit of any ComptEC marketing success to the TLEC. Regulators should not settle for such an illusion of competition; they must encourage the reality of vigorous, sustainable competition.

To illustrate the issue, consider the case of Oregon. Local exchange telephone service in Oregon is provided under almost every type of rate plan used elsewhere in the country: both usage-sensitive and flat-rate/unlimited use retail rates are available with optional volume discounts to both business and residential consumers. And US WEST's proposed interconnection compensation for Oregon is typical of TLEC proposals for a usage-sensitive call completion rates. Therefore, while the circumstances in each State are unique and must be taken into account, Oregon provides an excellent framework for examining the full range of interconnection compensation issues. As the following analysis of US WEST's compensation interconnection proposal demonstrates, it, like other such usage-sensitive systems, is uneconomic, unworkable and anticompetitive.
Under its proposal, US WEST would impose a charge of 2.0 cents/min. for terminating local exchange calls originated by CompLECs. This 2.0 cents/min. rate is uneconomic and unreasonable because it is probably at least 10 times higher than the incremental cost. Such high usage-sensitive rates make it impossible for a CompLEC to economically address any market segment, as the following examples illustrate:

- **Competing for Small and Medium Business Users**

Small businesses in Portland currently have two options: they can purchase a measured rate complex business line for $18.00 per month plus 3 cents/min. for local exchange calls, or they can purchase a line with unlimited local calling for $34.77 per month.

It has been estimated that about 10 percent of Portland’s business lines are measured rate. Upon first impression, it appears that CompLECs would have a 1 cent/per min. gross margin when competing for measured rate service users at the proposed 2.0 cent/min. interconnection rate. But this margin is illusory: most of the businesses that choose measured service use discount calling plans based on the number of minutes of use per month on each line. The plans for 6, 9, 12, and 18 hours of usage drop the average marginal rate of a local call below the proposed interconnection rate (to 1.47 cents/min. for 6 hours; 1.65 cents/min. for 18 hours).

It has been estimated that more than 90% of the business lines in Portland are purchased on a flat-rate basis with unlimited local calling and it is likely that most of these lines are used by "medium" sized businesses. Indeed, Oregon law mandates that LECs offer a flat-rate option to both business and residential customers. To address this substantial market, CompLECs will need to offer a flat rate/unlimited use option.

The $16.77 difference between the measured rate line ($18.00) and the flat rate service ($34.77) is the price to purchase unlimited local usage.

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3 See, Brock, "Incremental Cost of Local Usage," where it is noted that studies done by or supported by TLEC's indicate that 0.2 cents/min. is a reasonable estimate of a TLEC's average incremental cost of terminating a CompLEC's traffic. It is also noted that the cost is determined by peak period capacity and therefore the true cost is considerably higher than the 0.2 cents/min. average during the peak period and is zero during the non-peak period. Because TLEC’s have been modernizing their networks and lowering their costs in recent years, it is highly likely that incremental costs are now substantially less than 0.2 cents/min.
Table 1, below, compares the effective calling rate per minute for business customers purchasing the flat rate/unlimited use service with the proposed 2.0 cents/min. interconnection charge.

In every instance, CompLECs are left with negative operating margins. In other words, under the TLEC's proposal, even before the CompLECs address their own costs of providing service, they would lose money if they tried to match the TLEC's effective calling rate.

<table>
<thead>
<tr>
<th>Local Calling Mins./Month</th>
<th>Effective Calling Rate per Minute</th>
<th>Proposed Interconnect Rate</th>
<th>CompLEC's Margin</th>
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<tr>
<td>900</td>
<td>1.86</td>
<td>2.0</td>
<td>0.14</td>
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<tr>
<td>1000</td>
<td>1.68</td>
<td>2.0</td>
<td>0.33</td>
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<tr>
<td>1100</td>
<td>1.52</td>
<td>2.0</td>
<td>0.48</td>
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<tr>
<td>1200</td>
<td>1.40</td>
<td>2.0</td>
<td>0.60</td>
</tr>
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</table>

All per minute values expressed in cents.
Effective Rate per Minute = $16.77 / Local Minutes per Month
Operating Margin = Effective Calling Rate - USWC Proposed Inter-carrier Compensation rate

- Competing for Large Business Users

In Oregon, low cost local calling is available for large business users (those with digital PBXs) through the TLEC's Digital Switched Services ("DSS"). The following chart shows the market realities faced by prospective CompLECs in that market, which is the initial "core" market for CompLECs:

DS1 Charge: $150.00
24 Outbound Advanced Trunks ($23 each): 552.00
EUCL Charge ($6 each): 144.00
Total Monthly Charges: $846.00

A large business customer using these services would typically generate a total usage of about 160,000 minutes per month per DS1. This would yield an effective local calling rate of 0.529 cents/min ($846.00/160,000 mins.), meaning that a CompLEC would lose 1.471 cents/min. (and probably more since the CompLEC may have to offer lower retail rates to attract the large user in the first place).
Unattractive retail rates caused by a usage-sensitive interconnection scheme would result in lower demand by large business users for CompLECs services. This, in turn, would make it impossible for CompLECs to achieve the capacity utilization factors needed for the CompLEC to be an active and effective competitor in the residential and smaller business markets.

- Competing for Residential Consumers

Residential users in the Portland area can purchase a measured service phone line from the TLEC at a monthly rate of $6.37. They can also purchase 3- and 6-hour usage discount plans whose effective retail prices range from 1.27 to 1.33 cents/min., well below the proposed CompLEC call completion rate of 2.0 cents/min.

It has been estimated that about 90% of residential customers in Portland purchase flat-rate/unlimited use service, which they can obtain for $12.80 per month.

Thus, the customer can purchase unlimited local usage for $6.43 per month -- the difference between the flat rate service ($12.80) and the measured service phone line rate ($6.37). Table 2, below, which assumes an average call duration of 5 minutes, provides some frame of reference:

<table>
<thead>
<tr>
<th>Local Calls Per Day</th>
<th>Local Minutes Per Month</th>
<th>Proposed Retail Rev. Per Min.</th>
<th>CompLEC's Interconnect Rate</th>
<th>Margin Per Min.</th>
</tr>
</thead>
<tbody>
<tr>
<td>3</td>
<td>450</td>
<td>1.43</td>
<td>2.0</td>
<td>(0.57)</td>
</tr>
<tr>
<td>4</td>
<td>600</td>
<td>1.07</td>
<td>2.0</td>
<td>(0.93)</td>
</tr>
<tr>
<td>5</td>
<td>750</td>
<td>0.86</td>
<td>2.0</td>
<td>(1.14)</td>
</tr>
<tr>
<td>6</td>
<td>900</td>
<td>0.71</td>
<td>2.0</td>
<td>(1.29)</td>
</tr>
</tbody>
</table>

Revenues, rate, and margin expressed in cents.
Local Minutes per Month = Local Calls per Day x 30 x 5
Retail Revenue per Minute = $6.43 / Local Minutes per Month
Margin = Proposed TLEC Termination Rate - Retail Revenue per Minute

As Table 2 demonstrates, if CompLECs in Oregon had to pay 2.0 cents/min. to TLECs to terminate a local call, the CompLECs would not
be able to compete for residential callers who make more than 2 calls per day.

In a jurisdiction with mandatory measured use for ALL classes of users, it might be possible to devise usage-sensitive interconnection compensation rates that provide for some "positive" margin between the TLEC’s effective retail rates and the interconnection rates paid by the CompLECs. But this would defeat a major consumer benefit of local exchange competition: because such interconnection rates would have to parallel the TLEC’s retail volume and time-of-day/day-of-week discounts, they would force CompLECs to become clones, not competitors. 4

Usage-sensitive interconnection rates are even less workable in jurisdictions with mandatory or optional "flat-rate/unlimited use" local calling. The fundamental mis-match between a usage-sensitive wholesale rate and retail flat-rates would strongly discourage CompLECs from serving high volume customers, particularly INTERNET users and information services subscribers.

In contrast to the TLECs’ usage-sensitive proposals, the usage-insensitive arrangements advocated by TCG and other CompLECs are likely to establish the basis for a competitive local telecommunications market that strongly benefits all consumers.

- Usage-insensitive compensation is fair and appropriate where costs vary based on capacity, not utilization.

All carriers make rather "lumpy" investments in switching and interoffice trunking capacity-based on peak busy hour forecasts. As Gerald Brock’s "Economics of Interconnection" points out, the bulk of the TLECs’ interconnection-related costs are incurred when termination capacity is created, based on peak load demands. And these investments in peak period termination capacity will be made regardless of whether the traffic is originated by a TLEC or a CompLEC and regardless of any forecast off-peak usage levels. Consequently, there are few, if any, incremental facility costs associated with terminating a CompLEC’s peak

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4 Complex volume and time-of-day/day-of-week discounts in the interconnection rates would impose substantial, additional measurement, billing and reconciliation problems and costs on both carriers.
period traffic and there are virtually no variable costs associated with off-peak usage.

The usage-sensitive compensation schemes proposed by TLECs so substantially overstate the cost of completing calls at most times of the day that they could not satisfy the "just and reasonable" test of general public utility law and policy.

By the same token, a usage-insensitive compensation system, which fully compensates a carrier for all of the net incremental costs incurred in making peak period capacity available, clearly would be just, reasonable and, because it encourages effective -- not illusory -- competition, in the consuming public's interest.

- Usage-insensitive compensation allows CompLECs to offer aggressive and innovative retail pricing to consumers

"Bill and keep" or, to a lesser extent, capacity charges based strictly on incremental costs, afford CompLECs the freedom to introduce the innovative pricing plans that are a hallmark of a competitive market.

Each carrier in the competitive market must be able to independently develop its retail price strategy, including time-of-day and volume discounts in a measured use environment or different plans in a flat-rate retail environment. Such innovation and competitiveness is not possible in an environment where the dominant carrier is allowed to impose per-minute interconnection charges that set an effective price floor for "competitors".

With usage-insensitive interconnection, it will be more difficult for TLECs to control CompLECs' rate levels or to force CompLECs to clone the traditional rate structures. Rather, CompLECs would have the freedom to price their services in a manner that responds to consumers' preferences and, thereby, to maximize their volume and revenue.

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5 Vigorous price, promotional and quality competition between CompLECs and TLECs could stimulate additional total traffic volume and require some additional capacity. However, CompLECs will be providing much of the additional total capacity required by the total "network of networks" so that TLECs will also enjoy some avoided costs.
- Usage-insensitive interconnections are much simpler and less expensive than usage-sensitive arrangements.

Usage-sensitive interconnection charges will require complex and costly measuring, recording, and billing capabilities that few local exchange carriers possess today.

Indeed, there is a question as to whether some TLECs currently even have the technical capability to measure terminating local exchange traffic. (Terminating local exchange traffic coming from a CompLEC will not trigger the TLEC's measuring system that is used to record terminating traffic.)

In any case, it is likely that the costs of measuring, billing, collecting and reconciling interconnection compensation are so high relative to the cost of providing the underlying service, that -- absent an anticompetitive intent -- it makes good business sense to avoid these costs altogether. The "bill and keep" arrangements proposed by TCG and other CompLECs does just that.

In fact, testimony filed in a pending interconnection compensation case in Washington State notes that US WEST's own cost studies demonstrate that the costs of measuring, billing and collecting inter-carrier compensation far exceed the costs of terminating local calls at the end office. Although this cost may differ somewhat in other States, it demonstrates, at the very least, that billing and administrative costs are significant relative to the incremental costs of the switching itself.

And if "bill and keep" is not adopted for some reason, flat-rate capacity charges are almost as easy and inexpensive because they entail only one monthly measurement of traffic (to allocate expenses on two-way interconnection trunks) and counting a few physically identifiable, permanent facilities (i.e., switch ports).

In summary, for the reasons outlined above, local exchange carriers should compensate each other by terminating each others' traffic on a usage-insensitive basis.

Public policy should encourage the evolution of a public switched telecommunications network which is as resistant as reasonably possible to catastrophic service outages caused by natural and man-made disasters and accidents. Such disaster resistance is produced by avoiding "single points of failure" and maximizing switch and transmission facility diversity.

In a usage-sensitive interconnection scheme, it is likely that the price of interconnection at a TLEC's tandem switch would be higher than the price of interconnection at the end office. (Such two-tier pricing is used for interexchange access services.) If the tandem-end office differential
is large enough, CompLECs would have an incentive to interconnect more at the end office and less at the tandem. From a public policy perspective, this is probably a desirable result since it would increase the physical diversity and therefore the disaster resistance of the public "network of networks": a catastrophic outage at the TLEC tandem would have less impact on the overall network and CompLECs would deploy diverse transmission facilities that could provide route redundancy on inter-switch trunks for both CompLEC and TLEC.

However, a usage-insensitive system -- whether "bill and keep" or "capacity charges"-- which applies equally at both the end office and the tandem would sacrifice this public benefit: it could encourage CompLECs to over-rely on the tandem interconnection and it would not encourage CompLECs to build diverse facilities to the proximity of more TLEC end offices, thereby minimizing CompLECs' contribution to the overall telecommunications infrastructure.

The best way to encourage a more diverse and disaster-resistant "network of networks" is not to impose a usage-sensitive interconnection compensation system. Rather, the solution is to graft the one redeeming feature of the usage-sensitive system onto the otherwise superior usage-insensitive system. A usage-insensitive system can be adapted to provide CompLECs with an incentive to make greater use of "end office" interconnections with the TLEC by, for example:

- Having "bill and keep" at the end office and a flat rate capacity charge at the tandem.

- Transitioning from mandated "bill and keep" to a cost-based interconnection (i.e., flat-rate capacity charges) at the tandem some number of years before such a transition occurs at the end office. (This transition period could begin when database-driven Service Provider Number Portability becomes available so that CompLECs have a reasonable period in which to achieve the actual traffic balance that "bill and keep" emulates but cost-based interconnection would apply if the CompLEC was unable to achieve balanced traffic because of its own marketing decisions or other factors.)

The compensation system applied to the exchange of traffic between TLEC and CompLEC is not the only factor that will encourage or discourage the evolution of a disaster-resistant public switched network. The cost of the interconnection facilities -- the fiber optic cables or microwave links -- between the CompLEC switching center and the TLEC switching center will also play a very significant role in determining whether the public network will be vulnerable to disasters or not.
The cost of "collocation" arrangements (either physical or virtual) developed for special access and private line services make such arrangements totally inappropriate as the sole means of establishing the physical interconnection for local exchange service (although existing special access collocation arrangements should be used for local exchange service at the option of the collocating carrier). The high cost of collocation would strongly discourage end office interconnection and would therefore encourage a disaster-vulnerable network. Instead of collocation, CompLECs and TLECs should interconnect physically for local exchange service in the same way that adjacent TLECs currently do: over a shared, jointly constructed and paid for "meet point" facility with each carrier being responsible for the electronics at its end of the transmission facility.

With a "two-tier" interconnection compensation system that encourages end office interconnection and limiting the length a joint interconnection facility to a few miles, CompLECs would tend to extend their networks to the vicinity of TLEC end offices. This would establish the diverse transmission facilities that add disaster resistance to the overall public network.

As noted briefly at the beginning of this paper, TCG and other actual or potential CompLECs have proposed two types of usage-insensitive reciprocal compensation systems:

- "Bill and Keep", in which each LEC terminates the other's traffic for no explicit monetary fee in return for the reciprocal right to terminate its traffic also for no explicit payment.

- Capacity Charges, based strictly on the incremental cost of providing the units of peak period capacity made available to the interconnecting LEC.

A "bill and keep" compensation arrangement clearly has many benefits:

- **First**, it implicitly nets the trivial incremental costs associated with the carriage of the traffic during the period of substantial traffic imbalance against the relatively substantial billing and administrative costs which won't be needed once balance is achieved;

- **Second**, it is the simplest and least expensive system administratively, as no recording, or creation and payment of bills is required. (This has the additional benefit of eliminating conflicts between TLECs and CompLECs that would require arbitration by regulators.)
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- **Third**, it allows CompLECs the greatest freedom and flexibility in designing innovative and competitive retail pricing plans so as to maximize the benefit to consumers; and,

- **Fourth**, it anticipates the development of the "balanced traffic" which is likely to occur if CompLECs have a reasonable opportunity to mature after Service Provider Number Portability is implemented.

A flat-rate capacity charge (based strictly on the incremental cost of the peak period capacity\(^6\)) shares many of the fundamental advantages of a "bill and keep" arrangement although administrative costs might be a little higher. Nevertheless, TLECs won't be able to complain about not being compensated in cash and all the consumer benefits of a bill and keep arrangement will be preserved.

Regulators are being presented with a clear choice that will have profound consequences:

- They could choose the volume-insensitive reciprocal interconnection compensation systems being proposed by TCG and other prospective competitive local exchange companies to solve the **transitional problem** caused by relatively temporary traffic imbalances. If they do, it will dramatically increase the likelihood that vigorous local exchange competition will be economically viable and sustainable, with all the beneficial economic and social consequences that implies.

- They could choose the volume-sensitive reciprocal compensation scheme being proposed by the traditional local telephone companies to preserve the **status quo**, particularly their market dominance, **permanently**. If they do, it will dramatically increase the likelihood that local telecommunications services will continue to be the weak link in a state's "information infrastructure", with all the adverse economic and social consequences that implies.

The choice seems obvious as the matrix attached to this paper makes clear: regulators must embrace volume-insensitive compensation arrangements, such as "bill and keep," to give effective local exchange competition a reasonable chance.

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\(^6\) The incremental cost of DS1 capacity at an end office should be approximately $150-$200 per month for an efficient TLEC.
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<th>Usage-Insensitive</th>
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<td>Two-Tier</td>
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<td>Initial Bill &amp; Keep;</td>
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<td></td>
<td>Access Minus</td>
<td>Two-Tier</td>
<td>Capacity Charges</td>
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<td>Emulates Competitive Market</td>
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<td>1</td>
<td>4</td>
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<td>Outcome (e.g., INTERNET)</td>
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</table>

5 = Best; 3 = Neutral; 0 = Worst

Two tier: one rate for end office interconnection; a cost-based higher rate for tandem interconnection

One tier: same arrangement for end office and tandem