

approximately 50,000 subcontractors. Each of those subcontractors is obligated to meet specific and enforceable quality standards. The carriers are the only vendors with which Boeing currently does business that -- because of regulation and their tariffs -- do not obligate themselves to satisfy anything approaching quality of service standards. Thus, requiring the LECs to include quality standards in their tariffs would do nothing more than require the carriers to operate in the same commercial environment as the customers they serve.

Tariffed quality of service standards, like those which typically appear in commercial contracts, would provide both carriers and users with certainty, and would ensure that there is a meeting of the minds as to the quality of the service being provided. This certainty has substantial value. It is Boeing's experience, which it does not believe to be atypical, that most businesses abide by their contracts. It is also Boeing's experience that contractual disputes are most likely to arise where the parties' relative obligations are unstated or unclear. By contrast, where performance standards are clearly stated, a party's failure to perform is usually quickly and informally resolved.

The need for objective performance standards is particularly acute in the case of services, such as

communications, which are provided on a continuing basis. Boeing, for example, is a major purchaser of digital private lines. Although Boeing engages in testing before accepting new circuits to determine whether they are of the desired quality, private lines can and do deteriorate in quality. In the absence of tariffed standards against which to measure the performance of these lines, Boeing is handicapped in its ability to require the LECs to repair or replace these circuits. It is also susceptible to the claim that, since Boeing accepted these circuits in the first instance, they must be of acceptable quality. Tariffed service standards would provide Boeing with the means to ensure that the carriers continue to provide the same quality of service which they did when Boeing first accepted these circuits.

Quality of service standards are also critical because of the growing importance of communications, noted above, to the productivity of many U.S. businesses. Such standards are certainly consistent with this Administration's economic policy, which formally recognizes achievements in quality with the Malcolm Baldrige Award. Moreover, tariffed standards, unlike after-the-fact reporting, would

provide the carriers with a present incentive to provide users with high quality service.²

B. The LECs Should Be Required to Include Availability and Bit Error Rate Standards in Their Interstate Access Tariffs for Digital Private Lines.

Neither the Commission nor users will benefit from tariffed quality of service standards unless they measure the relevant parameters of service. It is therefore important that the Commission identify the particular standards which should appear in the LECs' tariffs. This will also ensure that all LECs include the same service standards in their tariffs.

In the case of digital private lines, there are two quality of service standards that are absolutely critical in measuring performance: availability and bit error rate. Availability is, as its name suggests, the percentage of time that a full-period private line is available for use by a subscriber. Although stated in terms of a percentage, availability is a binary measurement, in that it measures

2 Furthermore, after-the-fact reports -- unlike tariffed quality of service standards -- can be routinely falsified, as appears to have been the practice of certain BellSouth employees in Florida. See "Southern Bell Falsified Repair Reports, Employees Testify," Communications Daily, Apr. 2, 1991, at 2-3; "Allegations About Southern Bell Employees Falsifying Maintenance Records Heading Toward Formal Investigation in Florida; Telco Conducting Own Internal Investigation," Telecommunications Reports, Apr. 8, 1991, at 7-9.

whether a line is "up" and available for use or whether a line is "down" and incapable of transmitting information. Availability is very easily measured because it reflects extremes. There is rarely any doubt whether and when a given line is "available."

Bit error rate is a complementary measure of quality; it is also a much finer measurement than availability. Whereas availability measures the amount of time that a circuit is available for use, bit error rate measures the quality of transmission over that line. More specifically, bit error rate is a measure of the number of bits transiting a digital private line that are errored (i.e., incorrectly transmitted) during a given period of time. Bit error rate is stated as a negative exponent.

Taken together, availability and bit error rate provide an accurate measure of the quality of digital private lines. Although more granular measurements are possible (e.g., white Gaussian noise), the additional granularity would not meaningfully contribute to an understanding of the quality of service which a carrier is providing. Merely requiring the LECs to include availability and bit error rate standards in their tariffs, however, will not -- standing alone -- prevent price cap regulation from resulting in a deterioration of service quality. In order to be successful in preventing such a