

## PIRP PERSPECTIVES

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### Using Competing Carriers to Ensure the Survivability of Corporate Information Systems

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Many discussions surrounding the AT&T divestiture involved economies of scale and the benefits of a single integrated telecommunications network: The System was the Solution, at least for some parties. In this issue of PIRP Perspectives, we explore the potential benefits of multiple competing networks. For some users, systems appear to be the solution.

#### In the News

During January 1987, the 110,000 technical workers of the National Communications Union struck British Telecom over a variety of economic and automation issues. The strike proved largely ineffective and was settled 17 days later on terms close to those initially offered by management.

Some accounts of this strike attribute its ineffectiveness to the increased automation of BT's telephone network. The same phenomenon has been noted in recent strikes by telephone workers in the United States. Another factor, less noted, may have been the existence of a competitive telecommunications carrier, C&W's Mercury Communications, Ltd., whose employees continued to work while BT's were out. The existence of an alternative telecommunications system provided systems redundancy for major telecoms customers, especially for those in the City of London. According to The Economist (1/24/87), "the biggest financial firms . . . have already asked for links to both BT and Mercury -- precisely as an insurance against the failure of one or another."

We are also seeing redundancy elsewhere as dependence on computerized information systems increases. The April 20, 1987, edition of Aviation Week and Space Technology described the opening of American Airlines' new data center. The article reported American's Chairman, Robert Crandall, as saying the new secure computer center was built because management had concluded that the airline simply could not operate if its computer system failed.

The article went on to explain how American had constructed its new computer center with alternative communications rooms at opposite ends of the building. One room provides access to AT&T network links in Tulsa and Oklahoma City, while the other is linked to Southwestern Bell facilities in Tulsa and Fort Worth. According to an American

spokesman, "We have designed the network so that it is totally redundant and in no place does it come in common, either in the buildings or other kinds of facilities."

### System Survivability

Over the years, a number of companies in the computer business (Tandem and Stratus, among others) have built their reputations and revenues on the principle of redundancy, or system survivability. Telecommunications hardware vendors have come to recognize the same principle, as evidenced by AT&T's recent introduction of a PBX (the System 85 SE), designed for hospitals and government agencies, which features a backup processor. "System," by definition, has come to include communications links as well as computers and CPE. Presumably system-dependent users, whether London financial institutions or U.S. airlines (plus hundreds of other corporations), will come to see the survival of their systems as entailing the use of alternative, or redundant, telecommunications carriers in addition to on-site hardware redundancy.

The pre-divestiture Bell System offered redundant network services and parallel local connections to customers with critical system requirements. For very large customers normally using extensive private line services, the ability to fall back on the ubiquitous, public MTS network if their private networks failed provided a high degree of system redundancy. AT&T and the regional holding companies continue to market such network protection services. The effectiveness of such offerings may be limited, however, to the degree that carriers share common labor unions or (by virtue of history) common route planning.

### Redundancy: Illusion vs. Reality

Corporate users must be vigilant, of course, to avoid purchasing illusory redundancy. A large portion of corporate private line services travel through the same wires and switches as MTS. A corporate user who loses service on its AT&T circuits does not achieve much redundancy if its second carrier is a reseller dependent upon the same AT&T facilities. Absolute physical separation of plant is required to achieve real redundancy.

Industry and the military have seen that backup or redundant systems are also useless if not exercised regularly. A corporation relying upon British Telecom for network communications would be foolish to believe that it could simply push a button and have Mercury as an immediately functioning alternative network. In the longer term, this factor presumably will lead many major corporate users to develop load-sharing networks with each of two carriers providing 75% to 80% of the company's total requirements. Then in the event of failure of one network, the user -- with predesigned load-shedding and blocking routines -- would have sufficient network capacity to process its critical communications until the second carrier recovered.

### Cost-Effective Caution

However, U.S. military experience suggests that effective load-shedding techniques require extremely costly and complex software. Thus in the shorter term, a cautious communications manager might be well advised to acquire 100% of his required capacity from each of two carriers. With surveys indicating that the network communications bill for large-system users tends to be a tiny percentage of their revenues, the cost of having two carriers might be a cheap price to pay for corporate survival.

### Competition and Market Potential

While most carriers would normally oppose competitive entries within "their" territory, all carriers and their regulators might benefit from the development of marketing plans and tariffs that encourage "backup" capabilities for large customers. If large-scale users understand the depth of the problem, there might be a huge new market for all potential vendors, whether interexchange carriers or local exchange carriers.