

THE MARRIAGE OF CABLE AND SATELLITES (REVISITED)

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There is great potential in the long-predicted marriage of satellites and cable. The public service community and the cable industry have many mutual interests in such a liaison.

The satellite does not provide an alternative way to provide conventional terrestrial services. Rather, it makes feasible the development of services which are not otherwise possible; e.g., clinical support services for health care in remote areas, interactive education services to widely distributed student populations, a more diversified system of television and radio networking.

Satellites of relatively high power, coupled with small, inexpensive ground terminals, make these and other developments possible.

Five years ago it was fashionable to observe that a satellite and cable television could transform the marketplace for wideband communications from an economy of scarcity to one of abundance. At about that time, a lot of people set out to get rich quick in cable. Not many of them have done it.

Nevertheless, in spite of all the intervening difficulties, when one looks again at the opportunities predicted for the cable industry five years ago, most of the important options remain. We can still make the satellite-cable marriage work. But time and technology are moving on, and the relationship can become obsolete before the honeymoon is properly begun.

Before I overwork that analogy, let me bring you up-to-date on the Public Service Satellite Consortium. The PSSC was incorporated about a year ago, in March, 1975. For the first six months, our Interim Board coped with the arduous tasks of securing initial funding and recruiting key personnel. I came on board as President of the Consortium on October first, and our first Permanent Board was elected by the membership in December.

That membership now numbers about 50 non-profit

organizations. Our constituency is as diverse as the concept of public service itself, ranging from CPB, PBS, and NPR in the public broadcasting fraternity, to the American College of Physicians and the Academy of Orthopaedic Surgeons in the professional community, with other key fronts represented by the American Library Association, the State of Alaska, and various distinguished institutions of learning.

We are assisting our members with several major functions, beginning with aids to help them formulate precise, realistic statements of their requirements as they exist today and as they can be projected into the future. Additionally, the Consortium provides coordination services and technical support to its members for appropriate experiments. Under the terms of our founding grant, the Consortium will become responsible for the transmission facilities in Denver and nearby Morrison, Colorado, which were major elements of the health and education telecommunications experiments on ATS-6. The excellent technical staff which served as Operations Manager of these experiments is now the engineering arm of the Consortium.

Once we understand the composite communications requirements of our members, the staff will prepare and analyze alternatives in terms of technology, financing, and organization to help individual members implement working plans to satisfy their requirements. Finally, the Consortium will maintain an active policy and administrative structure in order to coordinate the joint activities of our members.

The Consortium will perform a brokerage function in behalf of our members by integrating their traffic requirements and by assisting in negotiations with suppliers. Pools of interest will be aggregated on a national basis; so that the more users there are, the lower the cost of service will be for each member.

The Consortium is by no means limited to the sole use of communications satellites as a distribution mechanism. Even if the cost of satellite distribution continues to decline, it probably will be more economical to use a mixture of satellite and terrestrial facilities to reach all but the most isolated users.

As you know, public broadcasting is planning to implement a nationwide network of satellite earth stations and has already expressed interest

in developing the non-broadcast uses of such a system. The stations are scheduled to be operational by the summer of 1978. We are working with public broadcasting to develop the full public service implications of these stations. There is a clear role for cable in that process.

In fact, our institution and yours have many common interests. As cable moves toward specialized service in urban markets, we mutually have an opportunity and obligation to think further about the nature and variety of services rendered, and to redefine the concept of a network.

With that brief introduction to the Consortium, let me concentrate on a conviction that we are riding some favorable trends, and we think you are, too. The communication satellite has opened up new opportunities, and the FCC is encouraging competition in the marketing of "new and innovative" communication services. This climate of competition has had a very positive impact on the domestic satellite industry. However, it is not clear whether present FCC policy will prevail indefinitely. This policy is intended to result in a greater diversity of service and more attractive prices to the consumer. The PSSC, of course, would welcome such a development. What AT&T calls the "experiment" in competition, however, may not last long enough to result in such an outcome. Thus, the PSSC feels a need to move quickly while opportunities are available. You have a stake in moving quickly too.

Unquestionably, the communication satellite is one of the most significant outgrowths of the \$50-billion commitment to place a man on the moon. As yet, however, the full impact of this technological breakthrough has not been realized. Satellite technology has been used historically to supplement terrestrial trunks between major population centers. A good example of this approach is the Westar system of Western Union, which consists of five earth stations that are integrated into the Bell system and other microwave facilities owned by Western Union. The RCA system also uses low-powered satellite transponders to serve a small number of relatively large, expensive ground stations.

The principal utility of a satellite, however, is not to provide an alternate means of moving conventional terrestrial services. Rather, it makes feasible the development of services which are not otherwise possible. NASA's experimental satellite programs have conclusively demonstrated the feasibility of transferring the burden of performance in a satellite communication network from the earth stations to the satellite itself. The resultant decrease in both the cost and complexity of the earth stations could put satellite communication into the budgetary grasp of the small, independent user.

I believe that the future lies with low-cost satellite earth stations which tie in with comprehensive local distribution facilities. It is imperative to reduce the end-to-end cost of distributing wideband signals and interactive narrowband signals to small users. For systems using substantial numbers of earth stations, the small

earth station coupled with a more powerful satellite, seems to be the way to go. It should be of great interest, therefore, that the 3400 individual cable television systems in the United States probably represent the largest short-term potential domestic market for satellite earth stations.

Perhaps someone is listening to the stirrings of people like ourselves who require inexpensive earth stations that can be located at the point of use. While nothing is definite, the newest satellite carrier in the U.S., known as Satellite Business Systems, has announced a system designed to serve a large number of stations. This satellite system is scheduled to become operational in 1980. SBS is an independent subsidiary of IBM, The Aetna Life Insurance Company, and Comsat General. We all know that these people do not pursue their business affairs in a casual manner. They play to win. Personally, I view the advent of SBS into the communications business with great interest.

SBS has stated that they plan to serve business and government markets using a flexible digital format. It is not clear that SBS is interested in video traffic, but modern digital coding techniques would permit video networking. The important message to the PSSC and the cable industry is that SBS plans to deploy a large number of stations at the point of use. Local origination will be possible, and presumably the stations will be relatively inexpensive.

Of perhaps greater interest to the cable industry is a preliminary announcement to the effect that SBS will make extensive use of fiber optics in their ground facilities. This new distribution medium is capable of providing gigahertz bandwidths with remarkably low attenuation. It is possible that in the next ten years these glass fibers will start to replace copper wires and coaxial cables as the principal means of routing electronic information locally. Many experts believe that these glass fibers will have a greater impact than satellites on the structure of the domestic communications industry. While SBS is making no such claims, it is likely that the cable industry as presently constituted would face serious competition in developing the Wired Nation.

Cablecasters, then, no longer have the luxury of time. There are new markets ripe for development. If the cable industry ignores them or cannot move strongly enough, others such as IBM and AT&T will reap the harvest.

What are the most promising markets for cable and satellites? The first on the list, of course, is networking. The satellite is ideally suited for interconnecting a few originating points with many receiving points. The cost of nationwide broadcasting and cablecasting will drop markedly if this market can be aggregated.

The satellite is also well suited for interconnecting many transmit points to few receiving points. IBM has stated that it will be cheaper and much more convenient to store office materials

in a central computer than in a file cabinet. Patient histories, billing information, and library functions could be accommodated more easily using a combination of satellites and cables.

If equal access to adequate health, educational, and other social services is to be made available throughout the U.S., and if service-delivery arrangements are to become more flexible, the heavy reliance on face-to-face delivery must be modified. It seems inevitable that communications will play an important role in whatever organizational arrangements evolve to cope with these expanding service arrangements. The cost reductions made possible by the marriage of cables and satellites should accelerate this organizational development. The organizational implications of increased use of telecommunications in such fields as education, however, imply a long transition between the present experimental period and the onset of operational service.

It is likely that the first serious education markets for satellite/cable service will be in the areas variously characterized as continuing education, post-graduate professional education, informal adult education, or nontraditional study. Consider continuing professional education. There are approximately 2 million professionals (doctors, lawyers, nurses, vets, engineers, etc.) in the U.S. today. An increasing number face a need for continuing education as a requirement for recertification. If one-fifth of this population took an extension course each year at an average cost of \$250 per person, \$100-million of revenue would be generated annually.

One of the successful programs in continuing education is administered by the American College of Physicians. Approximately 20,000 internists belong to this professional society. Two years ago, the College of Physicians administered an exam that was taken by 18,000 doctors, each paying a respectable fee for the test. Dr. Edward Rosenow, the Executive Vice President of the College of Physicians, and also a member of the PSSC Board of Directors, says the exam will be administered again this September. Already over 33,000 doctors have signed up. The College of Physicians has joined the PSSC to expand this and other programs through the creative use of telecommunications.

There is, then, a growing requirement for non-entertainment, non-broadcast services, and the people who want them are not all asking for a free ride. There are substantial markets in the public service sector.

In order to develop these markets, a flexible and economical interconnection system is needed, and we believe that such a system is likely to be satellite-based in a configuration that uses a large number of small, relatively inexpensive earth stations.

The interest of the Public Service Satellite Consortium is to see that needed services are rendered well and economically. You are in a business which can provide such services. We should have a lot to talk about.