HIGH-SECURITY CABLE TELEVISION ACCESS SYSTEM

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[57] **ABSTRACT**

A poach-resistant system enabling cable television subscribers to receive upon request certain programs otherwise unavailable (i.e., "secure") while precluding such reception by non-requesting subscribers as well as non-subscribers. Before transmission of such a secure program the roster of subscribers is scanned at a central control station having compiled subscribers' requests for that program, and a resulting string of pulses corresponding in sequence to the respective subscribers is punctuated with program command pulses timed to designate those subscribers who have requested the program. Transmission of the resultant program command signal string over the cable to junctions with leads to the respective subscribers' television sets results in unblocking of such junction for each of the requesting subscribers only.

The old saw has it, that opportunity knocks but once. This is probably true of those investment opportunities whose potential can only be described as mind boggling. Imagine if Henry Ford had offered the opportunity to become his partner. We are now confronted with just such an opportunity in the future of the entertainment industry. DYNAMITE seems to be the word that most comes to mind when thinking of profits to be made in the proper entertainment vehicle. For instance, in a period of just 10 days, eight million people rushed to see "JAWS".

One of the biggest success stories of TV is that of the cable companies. In 1975 there were over 3000 cable systems in the U.S. serving ten million homes. This figure is now over 4000, and is expected to go much higher. But, as with everything else, there was a negative side to the story. In spite of this tremendous proliferation of cable systems, their pentration (the proportion of the people who could sign up for cable TV and actually did) is not what the cable operators had hoped for.

An encouraging answer to this problem was the advent of the H.B.O. concept which helped its affiliates to attract new customers, thus improving their penetration. The opportunity for penetration has encouraged the increased proliferation of cable systems, which in turn increases the demand for H.B.O. In our own area, Teleprompter upon the introduction of H.B.O., sold the concept to 1000 of its subscribers in less than a month with the cable company receiving 40-45% of the H.B.O. subscription fee.

Taking the projected growth of the cable industry, added to the fact that H.B.O. has a penetration rate of 40% in those areas where it has been available for some time, it doesn't take much imagination to find ten million households on Pay TV this year, and fifteen - twenty million by 1985. Growth of this sort gives tremendous financial muscle. In fact, Everett N. Erlick, Senior VP, General Counsel of A B C says that approximately one half of the nation's homes could be converted to Pay TV for about ten billion, while it would take approximately two hundred fifty billion to wire and convert the other geographically more scattered half. Pay TV, he says would need only a fraction of the first half of the homes and none of the second to siphon off the best of what the networks have to offer. It is pretty difficult to imagine the motion picture industry refusing first run films to such a strong medium. This is especially true in light of the fact that a great many who used to go to the movies once or twice a week now only go once or twice a year. With Pay TV the movie companies have the fantastic opportunity of getting viewers back again by screening the films in their homes. This is not to mention the vastly increased market that Pay TV offers to the promoter of major sporting events and the producer of Broadway shows.

O.K. terrific, but what is Catch 22? Why isn't H.B.O. showing all these great films etc. It is, quite simple, this: When a cable subscriber signs up for H.B.O., a little black box is hooked up to his set. When he wants to switch from regular to H.B.O. programming, all he need do is turn to Channel 13, and flip a switch on the black box.

It didn't take certain do-it-yourselfers long to find out that the "black box" was a standard piece of electronic equipment known as a converter, and that it could be purchased from electronic supply retailers for less than $100.00. With minimum knowledge, any subscriber to regular cable TV could install the converter and poach on the H.B.O. system without paying the H.B.O. subscription price.

Soon there was a long list of viewers waiting for delivery of converters from electronic supply retailers, and soon there were as many nonsubscribers to H.B.O. as subscribers in the three suburban Atlantic County communities described in the example. The same thing happened in other areas where H.B.O. was promoted, sold and installed.

Some systems have sought security by means of scrambled transmissions. Under this system the broadcaster sends out a scrambled signal, rents unscramblers to viewers, then charges the viewers according to how much unscrambling time they run up. This is another "black-box" system, in which the subscriber receives a code number for each offering which he either dials or punches into his "black-box". As with the converter, the unscrambler can be purchased and installed by any do-it-yourselfer. In addition, what is to prevent a group of people, let's say 10, from chipping in to buy one subscription, 9 unscramblers, and have the one subscriber pass on the codes to his nine accomplices; hardly a desirable level of security.

The impact of the problem goes far beyond poaching, for what has happened, is that distributors of movies and promoters of special events were reluctant to allow their high quality entertainment to be seen by as many non-subscribers as subscribers. As with so many arrangements in the entertainment field, their agreement involved a flat fee and a percentage of the "gate", (the paid subscribers revenues). There was no choice but to excessively re-run the few decent events they have and can get and to run current but poor quality foreign films. Subscribers soon became disgruntled and the possibility of losing many legitimate H.B.O. customers poses a threat to the success of the venture.

Unlike the recent past, there now exists a tremendous opportunity for profitable investment in Pay T.V. This is due to the presence of CATV and the amazing capabilities of the coaxial cable. CATV provides the perfect outlet for Pay T.V. According to Reader's Disgest, both the NAB and the NCTA forsee 33 million subscribers for Pay T.V. by the late 1980's or early 1990's.

To appreciate the magnitude of this concept let us hypothesize two probable scenarios:

1. Assume 10% of the subscribers are willing to pay $1.00 to watch an average film. This single showing would produce gross revenues of $3.3 million.

2. Assume 20% of the subscribers are willing to pay $5.00 to watch a blockbuster such as "Jaws"; this single showing would produce gross revenues of $33 million.

The problem of security has now been solved by the development of a truly poach free system by SECURE CABLE SYSTEMS CORP., a subsidiary of The ELECTRONIC MECHANICAL PRODUCTS CO. (EMPCO) and its Chief Engineer, Clarence S. Ost. EMPCO is the world renowned pioneer of electronic, quality control instruments used in the graphic arts, textile and television industries. S.C.S.'s system is based on the fact that control is in the hands of the cable company, not the subscriber. In the S.C.S. system there is no hardware installed on the subscriber's premises such as the "black-box" of the CATV system. The conventional tap-off located on the telephone pole wires or in a locked pedestal with an underground cable allows the secure channel signal to enter the down-lead without interference. The "black-box" allows the receipt of the pay program which is already in the down-lead.

The unique aspect of the Secure Cable Systems' development lies in its tap-off which acts as an electronic dam. That is, it prevents the secure channel signal from entering the down-lead, until the time that a signal from the head-end, in effect, raises the dam allowing the pay program to flow into the down-lead. This special tap-off leaves the subscriber free to view his regular programming. However, he can only view the pay programming when a signal is sent to the tap-off enabling him to receive the program he selects, which may be on any of the normal channels selected by the cable company. Thus true security is achieved.

In essence, what we have here is a true theatre in the home. A theatre from which the viewer must purchase a ticket to receive admittance. A possible programming format would be as follows: A monthly bulletin would be sent to each subscriber. The subscriber would have a choice of four programs. Each in a different time slot. During the rest of the month the program time slots can be alternated so that each offering can be placed into all possible time slots, thus giving each viewer the chance to see every offering. In order to explain how the above purchase is made, let us again use scenarios. In all the following scenarios, the cable subscriber will receive a program with his monthly statement. Each offering will be identified by a code number.

1. A small cable company. Because of this company's small group of subscribers there is an obvious need to hold capital investment to a minimum. A company in this position could make use of S.C.S.'s manual system which would consist of the subscriber calling the company. Company personnel would manually take the show's code number and the subscriber's account number and punch them out on a keyboard. That data is stored in a memory bank. The memory bank is manually inserted into the command apparatus which sends a signal to the appropriate tap-offs at show time. A ledger sheet for each show containing the account numbers of those subscribers wishing that show will be manually prepared. From that ledger sheet, accounts are billed and distributors paid.

2. In a system of moderate size somewhat more automation would be needed. Orders would still be taken by personnel, however, the keystroke operation would be interfaced with a sophisticated computerized bookkeeping system.

3. In large systems, the highest degree of automation would be essential. In such a system, the subscriber would merely call a special telephone number. The call would be answered by an electronic answering device, which would tell the subscriber to please dial his account his number followed by the code numbers of the shows he desires to see. The information would be electronically interfaced with the command apparatus and the bookkeeping system.

Human nature being what it is, three questions arise; (1) What happens when a subscriber orders a film, and then claims that he didn't watch it and doesn't want to be billed for it? This could be allowed and a credit issued up to a maximum of three times during the subscription year. (2) What happens to a viewer who inadvertantly calls in late? The solution is simple. Just as in any motion picture theatre, there could be two shows nightly. Therefore, the latecomer could watch from the middle of the first show to the middle of the second show or wait until the second show, or watch the show twice. (3) As I'm sure the publishers of T.V. Guide would verify most people don't plan their T.V. watching in advance. Rather, they sit down after dinner, and glance through the program guide making mental notes as to their preference. We can assume that they will act no differently with our system. The question then occurs what happens in a large system where we could be receiving thousands of phone calls in the hour prior to show time. Two options seem to predominate as a solution to this problem. These options could be used singly or in combination. As with any other theatre we could run several shows daily. This option is attractive not only from the standpoint of the above mentioned problem, but from the standpoint of milking all possible revenue from the film. The other approach is to have many trunk lines interfaced with our electronic answering equipment so that thousands of calls could be processed in a short period of time. As mentioned above the two options could be combined to service an even greater number of customers.

If a system were large enough to require 100 trunk lines, we can more than safely assume that three calls per line could be processed every two minutes. Simple arithmetic provides us with the knowledge that we could process 9000 calls an hour. —This is an extremely conservative estimate. The transaction is so brief that it would appear more realistic to double the number of transactions, i.e. 18,000 per hour.

Additionally, it should be pointed out that this system provides an excellent outlet for other vehicles such as stage shows, sports and special events.

Thinking along these lines, it should be remembered that there are several advantages that would accrue to the systems suppliers. For instance, think how much the risk inherent in a Broadway show could be cut, if the producers had the show video-taped and shown on Pay T.V. The paying audience would be tremendously enlarged, by virtue of the fact that millions of people across the country who could never get into New York to see a show, could, at a less expensive price, opt to see it in the privacy of their own homes. The film producer would also have an expense benefit. One of the major costs of filmmaking, is the cost of duplicate prints. An average film, running about 90 minutes, costs about $900.00 per print, as compared to approximately $100.00 for a duplicate video tape.