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ABSTRACT

Surveys of 10 two-way interactive cable experiments indicate that little is happening in this field. The location of the testbeds, the names and addresses of both the parent company and its local subsidiary are included in the survey together with a description of each project. A brief note on the subscriber's right to privacy concludes this short booklet. (WCM)

CABLE TELEVISION
INFORMATION CENTER

SURVEY OF TWO-WAY CABLE TELEVISION TESTBEDS

May 1974

SURVEY OF TWO-WAY CABLE TELEVISION TESTBEDS

In 1971 and 1972 the prospects for interactive cable television looked promising. The plans for or the actual operation of several major testbeds were announced, along with optimistic predictions for the future.

TelePrompTer said in 1971, referring to El Segundo, California, "Hopefully by December we will have the entire city wired for two-way transmission...."

Oak Security reported in 1972 that the Carpentersville, Illinois security system is "operational and we plan to have a full central station in operation...by the fall using LVO's cable system."

In July 1971, a Telecable release said, "Two-way CATV experiment in Overland Park, Kansas started last week with teaching, shopping, burglar alarm and opinion survey."

Between yesterday's predictions and today's reality, something--or more accurately, nothing--happened.

The announced testbeds either remained testbeds or did not materialize after the technical check. Technical testing, never involving more than a few dozen terminals at any site, uncovered the need for additional research and development for the two-way equipment. While most of the equipment worked, it did not work well.

But before the experimenting companies could commit the necessary funds for the required R&D, they needed a full-scale market test, possibly involving several thousand terminals, to justify the expense. To date, no such market tests have been performed* since valid testing of that sort depends upon both smoothly functioning equipment and a sizeable investment of dollars--which depends, in turn, upon successful research and development.

This "chicken and egg" problem has drastically slowed the development of interactive cable systems. In the words of Gordon Herring, Director of Research for Telecable, "The existing technology needs refinement. But

*One market test still planned is the Leacom-Tocom venture in Irving, Texas, described below. The initiation of that test is still awaiting the FCC certificate of compliance.

if a magic terminal were available tomorrow it still could not be sold without extensive market analysis. Either a giant corporation or a consortium of cable companies or the federal government will have to fund the market study before anyone can get moving."

The following survey is a status report of the more widely known two-way testbeds.

Los Gatos, California
TelePrompter

Parent Co.: TelePrompTer
50 W. 44th Street
New York, NY 10036

Los Gatos was TelePrompTer's original testbed for two-way equipment. In June 1971, they tested upstream (subscriber to headend) data and three channels of video using the same cable as for downstream (headend to subscriber) transmission. The equipment was strictly prototype and the experiment reportedly interfered with regular service. The test was discontinued later the same year, and the data collected was the basis for TelePrompTer's subsequent decision to use a second cable for all two-way applications. Research in two-way cable was then transferred to the TelePrompTer system in El Segundo.

El Segundo, California
Theta Cable Company
Box 24990
Los Angeles, Cal. 90025

Parent Companies:
TelePrompTer Corp. and Hughes Aircraft
50 W. 44th St. Box 90515
New York, NY 10036 Los Angeles, Cal. 90009

Theta Cable, owned half by Hughes Aircraft and half by TelePrompTer, has 20 two-way terminals in service in El Segundo. The prototype-model terminals were built by Theta-Com Corp., a subsidiary of Hughes Aircraft, and are operating mainly in the homes of Hughes employees. The purpose of this phase of the test is to check out the equipment and to look at human engineering aspects such as convenience of the console and the size of cable connected to it in the subscriber's home. Equipment is also used for demonstrations. The testbed serves not only as a product showcase for ThetaCom, but also as a market and equipment test for TelePrompTer.

Theta Cable's plans to have 1,000 terminals in the field as part of a large scale marketing and feasibility study have been postponed as of the date of this publication. Among the services planned for testing are:

- Premium TV
- Merchandising
- Ad testing
- Audience surveys and polls
- Security systems
- Credit card verification

The terminals will be modified versions of the Theta-Com Subscriber Response system demonstrated at the annual National Cable Television Association convention last year. TelePrompTer hopes the test will guide them in deciding what the package should consist of. In any case, they report, Theta-Com's modular design permits expansion as needed.

Orlando, Florida
Orange Cablevision, Inc.
231 East Colonial 32801

Parent Co.: American Television Communications (ATC)
300 Fillmore Street
Denver, Colorado 80206

According to ATC management, the first phase of its two-way experiment in Orlando, Florida has been successfully completed and was taken down February 1, 1973. It consisted of 27 terminals in the field and was used to test services such as fire, burglar, and emergency alarm, meter reading, pay TV, merchandising, polling and credit card verification. ATC says the experiment was mainly a technical check-out and they found that the equipment made by Electronic Industrial Engineering (EIE) performed perfectly. However, phase two of the experiment, which was originally to begin in June 1973 with the marketing of about 500 new terminals, has now been postponed until the latter part of 1974. The equipment is said by ATC to be an improved version of what was used in the first phase.

The program which is to begin in late 1974 is intended to be a market test for the various services planned. These will include pay TV, specialized educational programs on a fee-per-program basis, merchandising, ad testing, security systems and data transmission for business. Films for the pay TV operation are being acquired now. Educational material will be obtained from Time-Life and, hopefully, from some of the Orlando area colleges. Computer programs for processing the various two-way services are already developed.

Placement of the terminals in phase two will be on a commercial basis: subscribers will have to pay if they want the service. There will be various kinds of terminals depending upon the desired uses, but ATC declined to say how much the terminals will cost or what will be charged.

In addition to the commercial services on the Orlando system, ATC is cooperating with the Alternate Media Center and a local medical group to mount an experiment in telemedicine. In the first phase, point-to-point services on the general system will interconnect the major

teaching hospital in Orlando with some number of satellite hospitals, possibly including a nursing home. The project is still in the fund-gathering stage.

Monroe, Georgia
City of Monroe Water, Light and Gas Commission
Box 725 30655
(100% municipally owned)

Monroe, Georgia is a town of about 10,000 people located approximately 40 miles from Atlanta. Construction of the cable system began in January 1972 and was completed the following September. The system is municipally owned through the agency of the Monroe Water, Light and Gas Commission which built and operates it. The system cost $223,000, which was financed by a $100,000 loan from a local bank, with the rest through existing funds. There are now 60 miles of plant and 800 subscribers, who pay $3.50 per month for service. Capacity is 21 channels downstream with a low band return from 5 to 35 MHz. Headend equipment is from Scientific Atlanta.

They are currently experimenting with four-or five-home security systems built by Scientific Atlanta, but none have, as yet, been installed in homes.

Some of the original computer problems are in the final stages of correction and a problem with connectors has been resolved, but the two-way features of the system had still not been implemented as of this writing.

Additional plans call for remote pick-ups from recreation centers--softball games and the like--and the system has asked each of the five schools in the county to prepare a half-hour of programming a week for play-back into the system. Schools will be able to originate from their premises.

Overland Park, Kansas
Telecable
1821 W. 119th St.
Box 4385 66204

Parent Co.: Telecable Corp.
150 W. Brambleton Avenue
Norfolk, Virginia 23510

The highly publicized educational experiment involving two home-bound school children in Overland Park has been discontinued; one of the children died and the other has recovered sufficiently to attend regular school. There are presently neither two-way services operating on the system nor any terminals in the field at present except for a two-way video hookup between two schools which is used by school administrators.

Apart from the homebound student experiment, the system also tested, in conjunction with Sears Roebuck, a merchandising project. Sears telecast several programs on which merchandise was displayed. Six viewers engaged in a simulated ordering activity, in which they punched appropriate keys on their terminals, transmitting a hardcopy order to the store. In another experiment, Overland Park's mayor took "polls" of about a dozen viewers who operated remote terminals.

None of the experiments are still operating. A Telecable official says that there were "never enough services to hold the thing together."

Telecable hopes to move the equipment to their new system in Spartanburg, South Carolina and they are hopeful it will be a more fertile site for two-way projects than Overland Park.

Carpentersville, Crystal Lake, Illinois
LVO Cable

Parent Co.:
LVO Cable of North Illinois, Inc.
300 Carpenter Boulevard
Crystal Lake, Illinois 60110

The Carpentersville system had six active two-way terminals in a subdivision behind the office. The terminals, made by Scientific Atlanta, were installed and operated by Oak Security Co. of Crystal Lake, Illinois, and provided fire, burglary, and "panic button" alarm service. Full service in an average size house cost the subscriber about $270 for installation (smoke and fire detectors, window tapes, etc.) and $9.95 per month in addition to the regular cable fee. In a year of operation there was not a fire, burglary or a panic in the houses with terminals.

Plans for full-scale marketing in 1973 have been abandoned, the test site is unused, and no further activity is contemplated in the near future.

Akron, Ohio
Akron Cablevision
1210 Brownstone Ave. 44310

Parent Co.: Warner Communications
610 Fifth Ave., Rm. 401
New York, NY 10020

Akron Cablevision is currently in the process of retrofitting its plant for two-way operation. They estimate that within six to nine months they will have converted the entire 900 mile system to two-way capability. There are no two-way terminals on the system and no immediate plans for introducing them.

The Akron system employs dual cable with a potential capacity of 60 channels using converters. At the present time there are no converters in use. Each subscriber has a switch for selecting one of two cables, providing a potential of 24 channels depending on local strong signal interference.

Irving, Texas
Total Communications of Irving
201 S.W. Bank Bldg. 75060

Parent Co.: Leacom, Inc.
Drawer 9698
El Paso, Texas 79987

Irving, Texas is a city of about 100,000 located on the outskirts of Dallas, between Dallas and Fort Worth. The franchise was originally held by TOCOM, a Dallas cable television equipment manufacturer, and the cable system was named Total Communications of Irving. It was subsequently sold to H. Leavell Company (Leacom) of El Paso, a building construction firm, but the system's name remains unchanged. Though TOCOM no longer owns Total Communications of Irving, it maintains an ongoing participation in the project.

Total Communications plans to wire one square mile of Irving (18 miles of plant) as a pilot project to serve 1,500 subscribers. Although the company has a franchise for the entire city--some 30,000 households--this is the only section they will wire until the pilot project is completed. When the company receives its certificate of compliance from the Federal Communications Commission, it will begin installing two-way terminals at the rate of about two or three hundred per month until all 1,500 households are equipped.

All conventional cable services--retransmission of broadcast television signals, plus educational, municipal and public access channels--will be provided in addition to two-way and premium channels. The system will have 26 channels, with 10 for restricted access. A home terminal will consist of a 26 channel converter; a device to handle incoming and outgoing digital information; and a key to control pay TV. The information-controlling device, called a digital transponder, is the electronic interface between the system and the subscriber. It is capable of handling either automated information--such as the subscriber's electronic identification number, and data from meter-reading or fire-detection devices--or manually activated responses from the subscriber such as those used in answering polls or ordering merchandise.

Total Communications' approach is unusual in that all homes in the area will be wired and all broadcast signals, the three access channels and a local origination channel will be available free to anyone who wants the service. There will be no charge to the subscriber for basic service

in the pilot project area, and no charge for installation or for having the equipment in the home (except possibly for a deposit). The subscriber may opt to pay a monthly charge for premium subscription channels, or to pay per-program for other pay TV attractions.

Two-way services, such as merchandising, meter reading and opinion polling will be paid for by the stores doing the merchandising, the utility doing the meter reading or the opinion surveyor doing the polling. Security devices will be paid for by the subscriber. Rates have not yet been calculated for any of these services.

The theory behind the test is that there is no market in Irving for a conventional cable system. Television reception is good, and with no difficulty, residents can receive three networks, two independents and two public TV stations. The pilot project is testing whether a two-way system can make it financially in an area where residents would see no reason to pay for conventional cable service.

If the pilot project proves that a cable system in an area with good reception and an adequate number of broadcast stations can succeed on pay TV and new services, it could have an important influence on the shape of cable systems in large cities. Total Communications' approach of providing basic cable service to everyone may be an answer to those interested in public service but who express the reservation that only a fraction of a city's population would be reached on cable, and that the ones who need most to be reached may not be able to afford it.

Total Communications says its objective in this project is to learn which services a typical urban dweller desires, what kinds of revenue can be expected and what the operating problems in providing two-way services are.

The company estimates the cost of the experiment, including anticipated operating losses in the pilot study, will be about $1 million. It estimates that the required break-even point for the system is $8-9 per subscriber per month from these services, based upon 5,000 subscribers. If the pilot project can generate only $7 per month, the rest of Irving will be wired on the basis of $2 a month for basic service (possibly more, assuming they want to do better than break even).

As of mid-December 1973, a TOCOM official stated that the company was still very enthusiastic about the program, but that the investment outlook would undoubtedly require some cutback in the scope of what the firm had been planning. He said the company was also trying to arrange a service with some community colleges in the area to provide home instruction on a two-way basis, and was optimistic that would come about at some as-yet-undefined future date.

Mesa, Arizona
Rossmoor's Leisure World
TOCOM system

Parent Co.: TOCOM, Inc.
P. O. Box 47066
Dallas, Texas 75247

By the end of 1973, TOCOM was moving ahead with another system providing two-way services initially for security purposes in Mesa. In an arrangement with Rossmoor's Leisure World, about 200 homes had been wired for two-way service and about 40 homes terminals were connected and ready for interactive service.

All elements of the system--the TOCOM Control Data System, the tower, headend and underground cable distribution system--are operating, and remote teletypewriters are working to provide services in connection with intrusion, fire and medical emergency alarms.

In the Mesa operation, every home is wired for TV distribution and alarms as it is built. Each home has two or three TV outlets; two fire detectors; two "emergency assistance required" alarms; and one intrusion alarm as the "standard package." The intrusion alarm consists of a "manual pull station" that will also accept an input from an electronic motion detector.

Other known two-way services being planned include: pay TV, opinion polling, merchandising, remote control of devices in homes, meter reading and remote video origination.

TOCOM said it would probably be about another year before the truly interactive systems were operating in Mesa, because of the need to build up a sufficient base number of users to justify the new services.

Reston, Virginia
Warner Cable of Reston
1870 Michael Faraday Dr. 22070

Parent Co.: Warner Cable Corp.
610 Fifth Ave., Rm. 401
New York, NY 10020

The MITRE Corporation (1820 Dolley Madison Boulevard, McLean, Virginia) demonstrated two-way services on a conventional, twelve channel, one-way cable system in Reston, Virginia beginning in 1971. The return link for subscriber interaction was a standard telephone. The program demonstrated was MITRE's TICCIT (Time Shared Interactive Computer Controlled Information Television) system. TICCIT provides computer-generated or computer-controlled information that can be selectively received and displayed by standard TV receivers. The information is displayed in visual/static form, e.g., a page of text, a graph or a photograph.*

*For a complete discussion, see Toward a Market Success for CAI, An Overview of the TICCIT Program. The MITRE Corporation, Westgate Research Park, McLean, Virginia 22101.

By the end of 1973, the demonstration had stopped. A related project initially planned for 3,500 homes and three elementary schools in the Reston area was reported by various sources to be in the process of being transferred to Stockton, California, with installation of equipment expected in mid-1975. It was hoped that the program would operate under National Science Foundation funding.

Prototype services were to be drawn from these categories:

1) Instruction--elementary grade computer assisted instruction.
2) Companionship for the housebound--communication services for senior citizens, the infirm, mothers, the urban-isolated and so on.
3) Community ombudsman - storage and retrieval of information on community, municipal, county, state and national government services.
4) Programming in schools and home--a do-it-yourself project which allows subscribers to program their own subjects.
5) Entertainment--including interactive games with the computer.
6) Community coherence--including immediate preference polling.
7) Community soapbox--allows on-demand viewing of opinions on a gamut of subjects from politics to poetry.
8) Health care--preventive medical information.

MITRE reports preliminary calculations indicating that a wide range of such services may be profitably offered for about $14 per month in addition to the regular one-way CATV charge. The initial phase of the trial program was expected to be free. It was expected that as the service offering expands, a modest charge, to be determined by the funding source, would be introduced.

A Note on Privacy

The idea of two-way cable provokes considerable concern over possible invasions of individual privacy. Although no two-way system allows video surveillance of the subscriber at home, two-way interactive systems using a computer for program selection do have the capability of monitoring channels being watched by subscribers.

In some cases, the subscriber may choose a service such as pay cable or a security system that requires monitoring at the headend. In pay cable, for instance, monitoring the selection of pay channels by the cable company is necessary for billing. And monitoring is necessary in security systems for detection of fires, break-ins or other emergencies. The subscriber may not, however, want his viewing of non-pay channels monitored and recorded by the cable system's computer. Most two-way testbeds as presently programmed do not allow part of the data to be retained and part ignored.

The 1972 FCC Report and Order states that "When (two-way cable television is) offered, activation of the return service must always be at the subscriber's option." The center knows of no two-way subscriber response test now underway that conforms to the FCC dictum about subscriber choice of return information. For example, subscribers on the TOCOM system in Rossmoor Leisure World, Arizona, and the Theta Com Subscriber Response System in El Segundo, California, cannot prevent their channel selections from being monitored and recorded.

Information about subscriber channel viewing is a salable commodity that rating services and advertising agencies would probably be willing to pay for. If handled properly, commercial use of aggregate viewer information may be harmless, but there is no way to obtain aggregate data without polling individual receivers. The question is whether individual viewing data should be retained after the information is collected.

It is not too late for this issue to be resolved. Development of two-way cable is still in the prototype stage. Not only could most computers used for two-way cable be programmed not to store individual viewing data, but the technology could preclude monitoring of non-pay channels altogether.

Legal provisions in the local franchise could forbid the cable operator to divulge any information by individual viewer or address, as is the case in El Segundo. But even franchise provisions are not as safe as not permitting collection of information at all.

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