CABLE ALARM SYSTEM ECONOMICS

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ABSTRACT

How many subscribers does a cable operator need in order to profit from alarms? What should he charge? How much will he make? The author uses a computer to examine an economic model of a cable system alarm operation. He presents analyses for potential alarm operations on cable systems in four cities.

INTRODUCTION

There are many ways cable operators can make money with alarms. There are also a few ways they can find themselves in Chapter eleven.

At CableBus, we decided to design an economic model of cable alarm systems so we could use a computer to see where the rewards and pitfalls of cable alarms lay. In general, we found that:

1. The larger the system, the better.
2. Two-way rebuild can be a big hidden burden.
3. Joint ventures with established alarm companies can be attractive in some cases.
4. Adding two-way services beyond alarms increases profits.

COMPUTERS

We used two computers in developing the model. We started out using one of the fast, powerful DEC machines that we otherwise use for developing applications programs for alarms and other services. Then, for the NCTA Dallas show, we transferred the model to a desktop Hewlett-Packard machine so that we can run system models for show goers at our booth or around the convention.

THE ECONOMIC MODEL

The model is very conservative. Whenever there was a choice, we picked the numbers that would show the lower returns. We wanted a sound financial decision-making tool, not a marketing gimmick. This is a list of the factors the model takes into account:

Monthly Fee
Homes Passed
Penetration
2-Way Upgrade
Headend Cost
Headend Service Contract
Home Terminal Cost
Home Terminal Installation
Liability Insurance
Customer Service
Billing and Collection
Alarm Monitoring

Figure 1 (Assumptions) gives details. There are some points for further explanation:

1. Our standard CableBus Headend package includes a DEC LSI-11 computer package that costs $42,000. At this show, we expect to introduce a low-cost $7,900 poller for systems with fewer than 500 alarm customers. This is why we put in a price break at that figure.

2. Monitoring alarms costs a lot of money. If it costs you $12 per hour including burden to have someone constantly monitoring alarms, then it costs you $8640 for a 30-day month of 24-hour days. To have an established alarm company monitor for you will cost $8-10 per customer per month. That's what we've found in Portland and that's why we have the model cable company take over its own monitoring after it has 900 alarm customers.

3. The system maintenance burden of $2.50 per customer per month includes a once-a-year checkout of each alarm customer's home alarm

FIXED COSTS

First Month:

HEADEND INSTALLATION

Alarm Customers	0-500	500-2500	2500-5000	5000-7500	7500-10,000
Headend Modem(s)	$950	950	1900	2850	3800
Foller(<500 cust)	7900	-	-	-	-
Computer System	-	42,000	42,000	42,000	42,000
Totals	$8850	42,950	43,900	44,850	45,800

UPGRADE TO 2-WAY (IF REQUIRED)

$700 for each 100 homes passed.

LIABILITY INSURANCE

$1500 initial payment (becomes a variable cost)

Monthly:

FOLLER/COMPUTER MAINTENANCE CONTRACT AND MONITORING

Alarm Customers	0-500	500-900	900-10,000
Maint. Contract	$40	150	150
Monitoring	[1]	[1]	8640 [2]

[1] This is a variable cost.

[2] 24-Hour/Day monitoring @ 12.00/Hour

VARIABLE COSTS

Monthly:

PER ALARM CUSTOMER INSTALLED LAST MONTH

Alarm Customers	1-99	100-500	500-1000	1000-plus
CableBus Home Term.	$285	259	222.25	186.44
Installation	30	30	30	30
Sub-totals	$315	289	252.25	216.44

PER ALARM CUSTOMER ON SYSTEM

Monitoring Fee (Paid to Alarm Co.)	[3]	$10	10	[4]
System Maintenance	2.50	2.50	2.50	2.50
Billing/Collection	.20	.20	.20	.20
Liability Insurance	[5]	[5]	[5]	[5]

[3] Fewer than 100 alarm customers should be set up so that alarms are reported directly to a police dispatcher.

[4] More than 900 alarm customers can more profitably be monitored in-house by the cable company at a fixed cost of $8640 per month.

[5] 1.5 percent of last month's gross income.

BUILD RATES:

INSTALLATIONS COMPLETED PER MONTH

Alarm Customers	10-100	1000-2000	2000+
Month 1	0	0	0
2	10	20	20
3	20	40	40
4	30	60	60
5	40	80	80
6	50	100	100
7	50	100	200
.	50	100	200
.	50	100	200
.	50	100	200
etc.			

UP TO MAXIMUM PENETRATION

Figure 1. Assumptions used in the computer economic model.

4. Selling alarm systems is considered to be a separate business which the cable company can treat as a profit-making venture or as a loss leader. According to reports in Paul Kagan's cable security newsletter, in new franchise applications, the MSO's are doing both. They have one or two tiers of service involving pushbuttons and smoke detectors that are loss leaders plus a third tier involving perimeter security that is a money maker.

BASIS FOR EVALUATION

The computer model produces monthly cashflow figures for two cases: pay-as-you-go and a bank loan. The bank loan incorporates an interest rate entered along with the other data. It assumes a line of credit is available and that money is not borrowed before it is required. The entire loan is paid back 5 years after the project start date. To evaluate the investment, financial people usually consider the pay-as-you-go cashflows. There are four figures of interest:

1. PAYBACK--How long before the investment starts making money. We sum the positive and negative cashflows and when the result turns positive, you have payback. An investment that starts making money after 24 months is much better than one that's still in the red at that time.

2. IRR (Internal Rate of Return)--Some refer to this as a discounted cashflow analysis. A few MBA's may be horrified at this layman's definition: IRR is the percent interest that a bank would have to pay you to match the investment represented by the cashflows.

3. NPV (Net Present Value)--This involves the same kind of discounting on cashflows as IRR, but it gives you a dollar value, rather than a percentage. Here's another layman's definition to dismay the MBA's: NPV asks you to select a percent return you can expect on your investment. It then tells you how much more (or less) money you'd be making given the cashflows you're talking about compared to that percent return you selected. To keep our analysis conservative, we always assumed you could get 20 percent from some other investment and then compared your cable alarm system to that.

4. MAXIMUM INVESTMENT--Some people like the straightforward approach. "How much is it going to cost?" This figure is simply the sum of all the negative cashflows.

Part of today's realities is the interest that you have to pay for the bank's money. That's why we included the cashflows for a bank loan. If the IRR calculated over ten years is close to the bank's loan rate, you may find that you have negative cashflows

RESULTS

On the H-P computer, the economic model produces a printout such as the one in Figure 2. Here's what that print-out tells us:

- 10,000 homes passed
- Upgrade to 2-way
- $18.50 monthly monitoring fee
- 24 percent penetration
- Payback in 35 months
- 44.9 percent IRR
- $610,255 Net Present Value compared to a 20 percent investment
- $509,962 total investment

DEMONSTRATION SYSTEM

10000 HOMES PASSED
UPGRADE TO 2-WAY AT
$700 PER 100 HOMES PASSED
24 % PENETRATION @ $ 18.5 /MO

MO	CUST	CASHFLOWS IRR	LOAN
1	20	-115,299.	-118,354.
2	60	-12,807	-16,205.
3	120	-16,515.	-20,359.
4	200	-19,913.	-24,300.
5	300	-23,000.	-28,022.
6	500	-25,776.	-31,518
7	700	-44,316.	-51,309.
8	900	-41,211.	-49,382
9	1100	-38,107.	-47,378.
10	1300	-35,002.	-45
11	1500	-31,898	
12	1700	-2	,,50.
13	190		13,750.
14		,464.	13,750.
		28,464.	13,750.
33	2400	28,464.	13,750.
34	2400	28,464.	13,750.
		PAYBACK	
35	2400	28,464.	
36	2400	28	,64.
37	2400		28,464.
38		,464.	28,464.
		28,464.	28,464.
119	2400	28,464.	28,464.
120	2400	28,464.	28,464.

MAX. INVEST.= $ -509,961.25

PERIODIC IRR = 3.747 %
ANNUAL IRR = 44.965 %

NPV =$ +610255.60

PERIODIC DISC= 1.667 %
ANNUAL DISC= 20.000 %

Figure 2. Sample printout from the model.

SYSTEM: Lake Oswego, Oregon 1865 Homes

PERCENT PENETRATION	INCLUDE 2-WAY UPGRADE?	PAYBACK (MOS.)	IRR (%)	NPV @ 20% ($)	MAX. INVEST ($)	LOAN CASHFLOW (+ OR -)
10	YES	66	14.5	-	72,843	-
10	NO	56	20.1	191	59,543	-
26	YES	57	20.8	4,117	141,514	-
26	NO	53	23.8	17,417	128,214	-
30	YES	62	17.7	-	173,960	-
30	NO	58	19.9	-	160,660	-

SYSTEM: Palos Verdes/Rolling Hills, Cal. 8900 Homes

PERCENT PENETRATION	INCLUDE 2-WAY UPGRADE?	PAYBACK (MOS.)	IRR (%)	NPV @ 20% ($)	MAX. INVEST ($)	LOAN CASHFLOW (+ OR -)
05	YES	74	12.1	-	183,430	-
05	NO	53	23.6	15,291	120,429	-
10	YES	67	15.9	-	269,359	-
10	NO	57	22.9	22,926	206,359	-
15	YES	43	32.1	189,777	358,611	+
15	NO	39	38.9	252,777	295,611	+

SYSTEM: Corvallis, Oregon 20,210 Homes

PERCENT PENETRATION	INCLUDE 2-WAY UPGRADE?	PAYBACK (MOS.)	IRR (%)	NPV @ 20% ($)	MAX. INVEST ($)	LOAN CASHFLOW (+ OR -)
05	YES	63	16.4	-	407,630	-
05	NO	46	28.6	89,285	265,530	+
10	YES	42	36.8	421,133	460,539	+
10	NO	36	49.7	563,233	318,439	+
15	YES	41	44.0	799,126	461,489	+
15	NO	38	56.3	941,225	319,389	+

SYSTEM: Portland, Oregon 385,000 Homes

PERCENT PENETRATION	INCLUDE 2-WAY UPGRADE?	PAYBACK (MOS.)	IRR (%)	NPV @ 20% ($)	MAX. INVEST ($)	LOAN CASHFLOW (+ OR -)
1.5	YES	65	16.6	-	3,141,150	+
1.5	NO	35	70.9	2,196,445	445,499	+
3	YES	63	24.3	857,805	3,143,050	+
3	NO	36	74.0	3,553,505	447,350	+
6	YES	63	26.2	1,402,323	3,147,800	+
6	NO	36	73.9	4,098,023	452,100	+

Figure 3. Summary of results from models of alarm systems in 4 cities.

REAL SYSTEMS

We applied the model to a range of cable alarm systems. For this paper we decided to analyze four real-life cable systems, representing a range of sizes. We picked three in Oregon and a fourth in California. The data on system size is from CABLEFILE/80, except for the hypothetical Portland system. We used the 1970 census figures for that. The same monthly fee, $19.95, was used in all cases. Figure 3 summarizes the results we obtained. Let's analyze those results.

Lake Oswego is a small system in a wealthy community. We used high penetration figures. In a 2000 home system, 20 sales represents one percent, and wealthy people are more apt to buy security.

It looks like 26 percent penetration makes you more money than does 30 percent. That's because the model has a break point at 500 customers. Beyond that, the model has you buying the full-scale computer system. But the real life people at CableBus are more flexible than the computer. If it's a matter of a couple of hundred alarm customers beyond 500, we'll work with you to keep you in the low-cost price range.

Palos Verdes is another wealthy community, but the system there is much bigger, so we held penetrations down. The results show a better than 30 percent rate of return with a 15 percent penetration. That includes charging the entire cost of two-way upgrade to the alarm system.

Corvallis, a university town with a light industrial base, shows better than 35 percent rate of return with only 10 percent penetration.

And Portland, a major metropolis, returns better than 20 percent with just 3 percent penetration.

VARIATIONS

There are some intriguing possibilities beyond the computer model. One is the prospect of joint ventures between cable operators and established alarm companies. In talking to alarm companies, we've noticed that the smaller, more agressive companies are more interested in discussing joint ventures than are their larger competitors. If you get involved in a joint venture, you'll want to deal with someone who's not afraid of new ideas because the mass marketing required for cable alarms is a long way from the custom one-at-a-time approach the alarm companies are used to.

We've seen two joint venture possibilities. In one, the alarm operator owns the system and leases the cable. He pays the cable operator 3 to 4 dollars per month per alarm

customer. It's a nice arrangement if the cable operator just doesn't want to be bothered with the alarm business.

In the other possibility, the cable operator owns the system and pays the alarm monitoring company for monitoring. The more progressive alarm companies we've talked to say they want 8 to 10 dollars per customer per month for monitoring, but that they might negotiate that figure down if there were large blocks of customers that required fire alarm monitoring only. The alarm companies say that the false alarm rate is much lower with fire alarms than it is with burglar alarms.

Another appealing possibility is adding more two-way services on top of alarms. With the computer already in place at the headend and the most expensive part of the home terminals already installed, it's relatively economical to add utility meter reading or power load shedding to the system.

CONCLUSIONS

Large metropolitan cable operators can almost certainly profit from alarms. Operators of smaller systems must look more carefully before they decide. There are potential economies in joint ventures with alarm companies and in selection of equipment. But there <u>are</u> cases where alarms will lose money, and no operator should enter the business without carefully examining his unique position.