SERVICE CALLS ARE NOT SCHEDULED IF CUSTOMERS DON'T CALL. EASY WAYS TO KEEP CUSTOMERS FROM CALLING.

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ABSTRACT

Simple procedures, used with preexisting software in our billing computer, allowed us to reduce our service call rate two thirds while adding 25,000 customers to our system. We use our billing computer in real time to analyze customer service requests, identifying specific problems by geographic location within the cable system. Problems are identified, located, and dispatched to the technicians before most customers know a problem exists. Eliminating the reasons customers call for service eliminates reasons for them to downgrade or disconnect.

THE BILLING COMPUTER

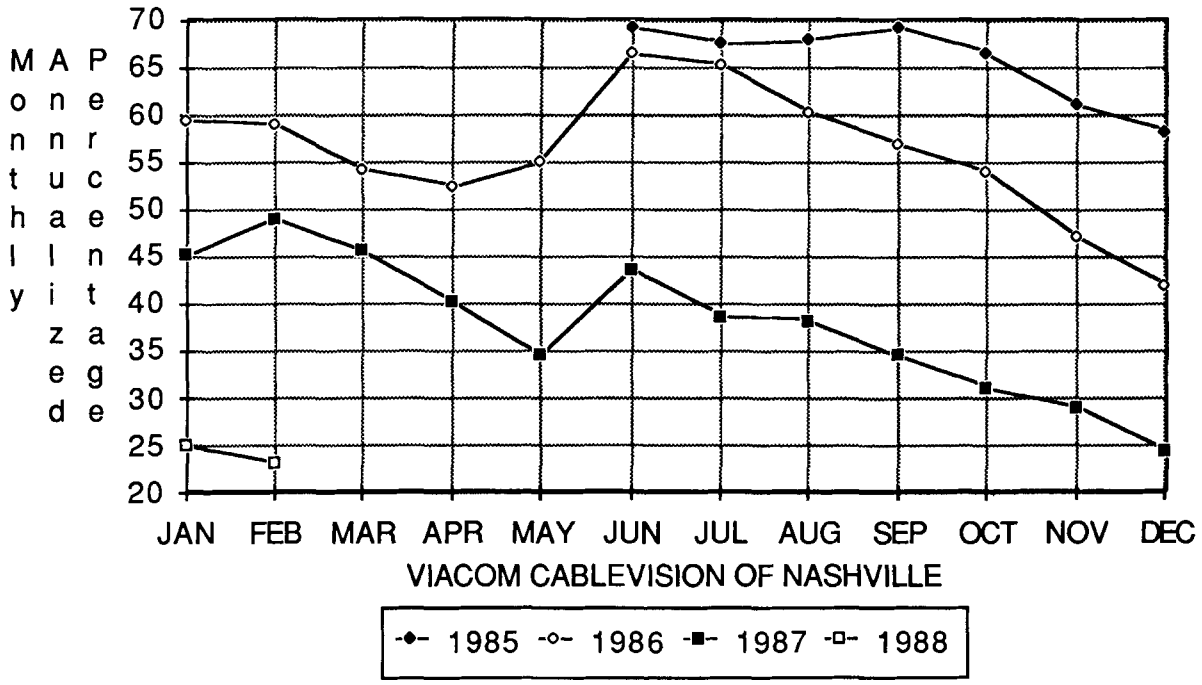
Most billing computers have many useful programs that can help us reduce service calls. They usually can identify: why customers call, what we did when we got to the home, which employees were involved, and which areas of plant have a higher percentage of service calls than other areas. Some billing computers will itemize and compare types of problems found between different parts of the system.

The Data Base

The first step in using the billing computer information to reduce service calls, is to understand how your system was originally set

ANNUALIZED SERVICE CALLS

JUNE 1985 - FEBRUARY 1988



up. If you have been on-line several years, the system was probably divided into segments to accommodate the salesman. One of the most frequent divisions was the "management area". Sales routes were created to track the salesman. Systems were also divided to accommodate franchises, tax codes, zip codes, mail routs, or cities; the list is endless. Often several divisions were used. The smallest division is the most helpful for tracking service calls. We would like to associate these small divisions with either trunk runs or headend hubs.

In Viacom's Nashville system, we use CableData as our billing computer. The system was not originally setup with service calls in mind. It is still not, but we put to use the divisions in the customer base, originally set up for salesmen, to identify areas of plant which record higher than normal service calls. Our system, with 2,000 miles of plant, is divided into about 100 management areas. Seven head ends are represented within these management areas.

Displaying Service Calls in Real Time

Nashville's annualized service call rate is currently 24% with a customer base of 88,0000. We schedule service calls six days per week and complete about 69 calls per day. For the most part, we do next day service calls, but we will vigorously investigate and fix any system problem the same day. To help us do this, CableData provides an on-line visual display of pending service calls sorted by management area.

If a customer's problem cannot be solved over the phone, we schedule a service call. This trouble call order is displayed, on a service representative's CRT, with other trouble call orders taken that day and from from any previous date. Space limitations are inherent in a visual display, so numeric problem codes are used to represent a description of the problem. We chose to have the numbers 1-9, represent customer complaints that have a high potential of being possible system problems, ie., Snowy Picture, Lines, Problem Converter, Ghosting, etc. Problem codes 10 and above, have a low correlation with system problems, ie., Dog Chewed Cable or Bad Remote. The display is sorted by management area, with a second sort by these problem codes.

Because fewer service calls are scheduled each day (69) than there are management areas (100), no more than one call should be scheduled per area. If there are two or more calls in one area, I am interested; very interested if they have problem codes lower than 10. When this occurs, I become pro-active, placing outbound calls to other customers on the same street. I want to see if they have a similar problem. If they do, the search for additional homes experiencing the problem is expanded to amplifiers closer to the headend. When a location is found where the problem no longer exists, a technician is dispatched. We make sure no service calls are scheduled in the effected management areas until we are sure the problem is fixed. Figure 1.

The same procedure works in reverse. When a technician reports he has fixed a trunk or distribution problem, possibly effecting other customers, we use the on-line display to search this management area, looking for customers with similar problem codes. We call any previously scheduled customers to confirm that their problem has been corrected and will cancel those service calls. We reduced our "No Problem on Arrival" calls 80% doing this.

The Service Call Log

We log the number of service call orders taken each hour, to track each group of management areas representing our headends. The log allows us to see orders taken on an hourly, as well as a daily basis. On occasion, calls during one particular hour rise higher than the norm. This prompts us to do a visual check of the number of calls within each of the management areas. Again we are looking for more than one call scheduled with low numbered problem codes. The log is responsible for brining possible system problems to our attention. We have a chance to fix them before

a great many customers call and get scheduled for a service call.

ANNUALIZING SERVICE CALLS

After a service call is completed, a record of that call is maintained within the billing computer. At the end of the month, service calls are totaled, then sorted by headend area and type of call. The number of customers in each area is provided, so its annualized service call rate can be computed. The annualized rate for any fix code such as converters, customer education, system problems, etc., can be done and a comparison between the areas is possible. Figure 2

This comparison, has led us to find ways to reduce service calls previously attributed to bad converters. When areas with a high number of converter swaps were compared to areas with low swaps, we asked why? We did not specifically target bad converters for one area, therefore, we must be exchanging converters due to some other reason. Excessive swaps were traced to other problems such as system alignment, VHF ingress, or the lack of customer education. Fixing these problems lowered the annualized converter service call rate. It would have been difficult to have found and corrected these problems without doing a comparison of problems between management areas.

System Maintenance

Comparing the annualized fix codes related to system problems gave us direction on where to sweep and do signal leakage. When preventive maintenance was completed in these areas, we could see its immediate effect. We also saw the disruptive effects of some types of system maintenance. Service calls in a management area would rise when the system was allowed to go off too many times when changing pads, equalizers, or cutting in new plant. It became obviously cheaper to do system maintenance in the early a.m. hours, than to do the service calls generated by these actions.

```
                    --- ACTION ---   LINE
                     2=MORE INFO  3=ASSIGN
                                  4=NEW INDEX

in       date        address                 time   pt t  pr loc
-- --- --- -- ----------------------- ----  -- - -- ---
1  22A3 05/03  224 Balsam               (AM-) 1  t  2  220
2  22A3 05/03  7321 River Park Dr. Apt 1 (PM-) 1  t  3  220
3  56F1 05/04  2400 Melody Lane         (AM-) 1  t 41  440
4  56F4 05/03  17900 6th Ave N.         (PM-) 1  t 19  444
5  63G1 05/03  433 West End Ave         (AM-) 1  t 1   610   POOL (START INDEX)
6  63G1 05/04  436 California Ave       (AM-) 1  t 1   610   ----------------
7  63G1 05/09  506 West Mead Ave        (PM-) 1  t 1   610   Q/GROUP   5
8  72A6 05/03  14002 Rose Way           (PM-) 1  t 16  712   LOCATOR
9  73E2 05/03  432 Gigi Ave            (PM-) 1  t 20  716   PRIORITY
10 73L1 05/03  44432 East End Ave       (AM-) 1  t 41  720   ADDRESS

                Date service call is scheduled                 DATE
                Amplifier Number                               TIME
                Problem Code
                Management area
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Pool Calls as seen in CableData

Figure 1

FIX CODE SUB TOTALS ANNUALIZED BY HEADENDS

Run date: Feb. 1, TO Mar. 1

AREA	100	200	300	400	500	600
Converter Total	8.4%	9.8%	7.1%	7.9%	6.3%	7.1%
Drop Total	7.5	5.9	4.0	5.5	7.7	4.4
Customer Ed. Total	2.0	3.2	2.4	2.9	2.4	2.1
Customer Equip. Total	3.5	3.1	2.5	2.5	2.6	2.6
Distribution Total	0.9	0.8	0.7	2.4	1.8	1.7
No Work Done Total	4.0	3.1	2.0	3.6	1.6	2.4
Total Annualized Service Call % by Area	26.3%	25.9%	18.7%	24.8%	22.4%	20.3%

Figure 2

Rebuild Analysis

Tracking service calls by area can help your rebuild analysis. Most of our management areas experience a service call rate of 20-25%. However, one area recorded an annualized rate of 60%. In this area, we found we spent $40,000 in additional truck roll costs above the average. Sorting the several months' of fix codes from the effected area identified the problem. A $25,000 rebuild was the solution; costs were lower by the end of the year and savings in future years will be even greater.

Amplifier Numbers

If you were to go on-line with a billing computer today, I would recommend the divisions within your system equate to customers fed from a trunk amplifier. Using amplifier numbers, rather than loosely fitting sales routes, is an ideal way of identifying system problems. It should be possible to accommodate the needs of marketing and still assign customers to amplifier numbers by planning ahead. I would not recommend associating customers with line extenders. The interpretation of the on-line display is made more difficult when trying to recognize some types of trunk problems. Calls from two different line extender locations can be confusing in this situation.

We are now entering trunk amplifier numbers into CableData. To do this, CableData prints a list of all homes in one management area. An employee spends a half day identifying the address range from streets served off each trunk amplifier. The amplifier number and address ranges are entered into CableData. CableData does what is called a mass correction and fills in the missing addresses for each house assigned to the trunk amplifier. We can do one sixth of the system every four weeks.

CONTROLLABLE CALLS

A key aspect to reducing service calls is monitoring the types of calls scheduled by the service representatives and completed by installers and technicians. We give these employees constructive feedback on the calls they complete.

The Service Representative

CableData provides us with a weekly report that totals the calls scheduled by the service representative and completed by technicians. When completing a service call, the technician will choose from any of 95 fix codes they feel solved the problem. The codes are entered into CableData at the completion of a service call. Twenty of the codes represent problems that could have been solved or "controlled" by the

representative over the phone. Some of the 20 codes tracked are: Fine Tuning, Bad Tv, Not Home, Converter Education, No Problem on Arrival, etc.

The report compares the service representatives to each other with respect to these 20 categories. We easily see who is the "best" or "worst" in any of the categories. Representatives high in a category can be given additional training. No longer does the entire group receive retraining for categories such as "Fine Tuning" when only one or two representatives need a refresher course. Figure 3.

A second report gives feedback to the representatives by listing all the calls they scheduled, what the problem was thought to be, and what the technician actually found. This report, used in conjunction with the controllable report, allows the representative to see the cause and effect of their scheduling a service call. As an example I might counsel with the representative saying, "Several customers called and you scheduled the service call as Converter Buzzing. The technician found the problem to be Fine Tuning. Next time a customer mentions 'buzzing', try these fine tuning steps; I'll bet your controllable percentage in this category will become just great."

Installation and Technician Call-backs

We track call-backs for installers and technicians. A call-back is registered any time we return to a home in a 30 day period. As with the service representatives above, we track "controllable" call-backs - Customer Ed., Fittings, Drop, Bad Tv, etc. However, we found that when the installers and technicians were held accountable for all call-backs, then that category was reduced by half. We also spent less time managing the exceptions which the employees felt were not within their control.

The greatest benefit and challenge to holding an employee accountable for all call-backs is that they are going to tell you up front what is wrong with your system and what procedures they feel cause call-backs. More than once an installer slammed an addressable converter on my desk and said, "If you're going to hold me accountable for call-backs, you've got to fix this junk!" He was right, but upon investigation I found it wasn't the converter. An incorrect procedure used in check-in could cause the converter to turn off 10 days after installation. That procedure might still be in

SERVICE REPRESENTATIVE PERFORMANCE REPORT

sample codes tracked

Date range = 2/1/88 to 2/29/88

PROBLEM	TOTAL CALLS IN CATEGORY	**GROUP %**	<-------SERVICE REPRESENTATIVE-------> REP A	REP B	REP C	REP D	REP E
FINE TUNE	54	**3.30**	0.00	11.42	3.03	4.16	4.44
TV PROB	121	**7.43**	7.40	8.57	6.06	0.00	8.88
VCR EQUIP	41	**2.47**	3.70	0.00	0.00	4.16	6.66
NO PROBLEM	36	**2.20**	0.00	0.00	6.06	0.00	6.66
NOT HOME	45	**2.75**	7.40	2.85	6.06	0.00	6.66
additional categories tracked as appropriate							
Service calls Completed	1634		122	156	149	108	203
TOTAL "CONTROLLABLE" AVERAGE		**18.75**	18.50	22.84	21.21	8.32	33.33

Figure 3

use today, but for an installer who did not want to be held accountable for a call-back he attributed to a converter.

Converters

We track converters both with CableData and with stickers inside the converter. Each time a converter is placed or removed from a home, a record of that transaction is recorded as part of the converter's history along with the return code reason given by the technician. CableData generates a list of converters that have had multiple trips to the home, the reasons for removal, and the repair code used in Quality Control when the converter was fixed. With the report, we see trends and problems, ie., a converter is making its sixth trip through QC this year - two times for disconnects; four times the technicians said it did not decode properly and each of these times the tuner was replaced. The report suggests: (a) I am not recognizing the problem in QC as described by the technician; (b) The disconnects may have come from disgruntled customers; and (c) I have an opportunity for reducing truck rolls, converter swaps, and possible disconnects if I fix this problem. The stickers give me the same feedback; however, CableData allows for the sorting of information.

The output quality of QC can be monitored by using the installation call-back report and selecting converter fix codes. With this report, you can see how many converters do not stay in a home 30 days after installation.

In our system, converter call-back percentages dropped more as a result of fixing system problems and holding employees accountable for their work, than from changes in QC procedures. Addressable converter truck rolls are often the symptom for problems caused by other sources. System upkeep, alignment, ingress, customer education, and office procedures play an important roll in unnecessary converter swaps. A way to monitor your system for unnecessary converter swaps is to compare the "bad" converter returns against the number of converters you actually test bad in QC. If you are not happy with the results, your problems may lie elsewhere.

CONCLUSION

The impact of using these reports has been to reduce service calls, and the results work! I am not satisfied with rolling a service truck to fix a system problem I could have identified and fixed yesterday. By fixing system problems within hours of their occurrence, you eliminate the reasons customers call your office to complain. If they don't call, they won't receive a service call. If they're not calling, they cannot use that occasion to request a downgrade or disconnect. Large growths in our customer base came as a result of providing the best possible customer service - We eliminated the reasons for the customer to call.