COMMERCIAL INSERTION TECHNOLOGY:
WHAT TO DO WHEN YOUR AD SALES STAFF BECOMES <u>REALLY</u> SUCCESSFUL

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ABSTRACT

This paper evaluates 5 commercial insertion technologies: manually edited tapes manually inserted, manually edited tapes used in sequential automation, single-spot-per-cassette playback automation, random access automation, and automatic compilation systems with sequential insertion automation. It evaluates those technologies from the perspective of a large and sophisticated ad sales operation, and identifies a critical criterion that random access systems cannot meet. It demonstrates that automatic compilation is the only approach that meets that criterion.

EVOLUTION OF LOCAL AD SALES

Like most, if not all, cable companies that sell local advertising, Oceanic Cablevision started simply. At first, a few commercials were inserted into only one network. Since then, a combination of market forces have allowed Oceanic's ad sales to grow to the point that commercials run throughout the day on 10 channels.

This growth was accompanied by a change in the way advertising time was sold. That change, from run-of-schedule (ROS) selling to selling by time of day or program, along with the volume of spots being scheduled, proved to be more than the two main commercial insertion automation technologies available could handle. After thoroughly testing both linear (or sequential) and random access insertion systems, Oceanic adopted a less common alternative: automated commercial compilation.

ROS

Most, if not all, cable systems begin their ad sales efforts by offering ROS: clients buy a minimum number of exposures but aren't guaranteed specific time slots or programs. ROS offers a limited number of clients an efficient buy because they make up what they lose in specificity with volume. By keeping the spot traffic simple, ROS eliminates the need to produce custom logs each day and keeps the on-air operation very simple.

Sell By Time Or Program

Some cable systems decide to offer more specificity to their clients by selling particular programs or times of day. Oceanic found it necessary to sell by program and/or time in order to compete with the 10 TV and more than 20 radio stations in Honolulu. Agencies and national rep firms shopping for advertising time wanted the same flexibility from Oceanic that they were accustomed to from the other media. In addition, Oceanic became interested in using its own inventory of advertising time for tune-in promotion of its programming. To effectively support pay-per-view and other specific programming meant insuring that promos would not run after the program in question was over.

As the number of clients and promos increased, the volume of traffic changes increased. New clients started and new spots were added to existing contracts throughout the week. Coupled with daily programming changes, these factors required a unique commercial log for each channel, every day.

DIFFERENT INSERTION SYSTEMS

The importance of automation to the cable advertising sales industry cannot be overstated. Automation equipment makes running commercials on multiple channels a whole lot easier. It keeps costs down and delivers clean, reliable insertion of the clients' ads. But the automation system must be chosen to match the cable operator's needs; the wrong approach can be too inflexible or more flexible, and expensive, than necessary.

There are five basic approaches to running commercials:

1. Manually editing sequential reels and manually inserting the commercials.

2. Manually editing sequential reels and automating the commercial insertions.

3. Systems with multiple playback decks per channel that play one commercial cassette per deck.

4. Random access systems that have multiple spots per reel and multiple playback decks per channel. They search and cue to the spots needed for each break.

5. Automatic editing systems that create daily break reels that run in sequential insertion automation systems.

MANUAL SEQUENTIAL INSERTION/ MANUAL ASSEMBLY

Description

Like many cable companies, Oceanic started its ad sales business by manually editing weekly commercial reels and manually inserting them on one channel.

Advantages

This is the fastest and simplest way to get started: all it takes is an editing system, a playback VCR and a switcher.

Disadvantages

The drawbacks are the cost of dedicating a person to inserting the ads and the inaccuracy of relying on human reflexes to start the ads. Frequent changes in the commercial reels become expensive, too.

AUTOMATIC SEQUENTIAL INSERTION/ MANUAL ASSEMBLY

Description

We bought our first sequential insertion system (rather than pay an additional on-air operator) when we began selling ads on additional networks. Sequential systems play clusters of commercials in the sequence they appear on a commercial reel. An entire day's commercials are on a single 3/4-inch tape for each network, and each tape is manually assembled. Each break airs upon receipt of network cue-tones. After the break airs, the tape parks at the next cluster of commercials on the tape. At the end of the day, the reel rewinds and the same breaks run in the next day's programming, or a new tape is loaded.

Advantages

This system works very well for an ROS environment that requires little editing. The insertion technology is very reliable because each break is a single event instead of a collection of 2 or 4 events. One playback machine per channel means lower costs and less to go wrong. Sequential automation systems in an ROS environment work well unattended. Adding automation and VCR's for additional networks is relatively cheap.

Disadvantages

Manual editing becomes very expensive if logs change daily. Our manually-assembled, sequential, automation insertion system was so labor-intensive as to significantly reduce the profitability of our advertising sales effort. It cost us between 25 and 30 man-hours per day to assemble new tapes for each of 8 advertising supported channels, for an annual labor cost in the neighborhood of $75,000.

SINGLE SPOT PER REEL CART SYSTEMS

Description

The broadcast industry historically used single-spot cartridge systems to play back commercials. These systems would have either enough transports to run each spot in a break without reloading, or a means of reloading each transport during a break. As the first 2-inch cart machines reached retirement age, new versions have been developed that use component 1/2-inch cassettes and robotics to change tapes. On a simpler level, some stations have used banks of 3/4-inch VCR's to play back single-spot tapes, manually reloading each VCR after each break.

Advantages

Either single-spot approach is extremely flexible because last minute changes can be made right up to air

time.

Disadvantages

That same flexibility can be a
liability. The need to manually load
tapes leaves open the possibility of
error, and if several channels are
involved it can keep an operator very
busy. Robotic systems will handle the
tapes for you, and most current systems
use bar-code identification schemes to
insure the right tape is loaded, but
they're extremely expensive. With or
without robotic tape handling, adding
channels to single spot systems is
hugely expensive: additional controllers
and additional VCR's aren't cheap.

The need to provide many copies of
each spot, one for each channel, is
expensive and complicated. The system
is also vulnerable if the automation
should break down: it's hard to cue and
run individual spots.

RANDOM ACCESS

Description

Random access playback systems use
multiple players loaded with identical
reels, each containing copies of all
active spots. Prior to each break, each
player cues to a different spot. At the
break, each VCR plays a single spot in
turn, then re-cues for the next break.
The normal random access configuration
would have one VCR per each 30 seconds
of the longest local avails on each
network. For example: CNN offers
2-minute avails, requiring 4 VCR's;
Headline News offers 1-minute avails,
requiring 2 VCR's.

Advantages

Random access uses the same spots
over and over again instead of requiring
daily construction of tapes. This makes
it very easy to accomodate log changes
(if they don't involve new spots; more
on those difficulties shortly) because
changes simply mean cueing to different
spots.

In addition, many of the random
access systems on the market capitalize
on their computer sophistication to
offer integrated traffic, verification
and billing features. This simplified,
integrated, purchasing option appeals to
many users.

Disadvantages

The most obvious drawback to random
access insertion systems is the need for
multiple transports on each network.
(This problem can be partially
ameliorated by sharing VCR's between
networks that have local avails that
always run at different times, but not
many networks would qualify for
sharing.) In addition to the capital
costs of having all these VCR's, there is
the on-going maintenance cost, and some
operators would have trouble finding room
for that many VCR's.

Keeping all those VCR's filled with
tapes is another big issue to consider in
evaluating random access systems. If a
network offers 1-minute avails, you will
need 2 copies of every spot; those that
offer 2-minute avails require 4 copies.
The multiple copies allow any combination
of spots to run during any given break.
Starting a new spot running on all
networks will mean dubbing that spot onto
2 reels for some networks, 4 reels for
others. If you are running ads on 8
networks, this can easily mean making 20
or more dubs of each spot.

The Critical Weakness of Random Access

After using random access automation
on 2 networks for several months, Oceanic
concluded that it would never be able to
comfortably handle more commercials,
promos, IDs, and PSAs than would fit on a
single 60-minute tape (roughly 100).
This proved to be a critical problem for
us; our active inventory averages around
250 items.

Having more spots than will fit onto
a single 60-minute tape means having to
continually change tapes or installing
additional VCR's. Rather than changing
tapes all day, we could triple the number
of transports per network to allow all
spots to be loaded at all times. (250
spots, with 100 spots per tape, works out
to 3 sets of tapes for each network, and
3 times the VCR's. See Table 1 for
Oceanic's VCR requirements under either
scenario.) Each VCR would take up space,
consume power, generate heat and cost
$40-$50 per month in maintenance.

With either approach (constantly
changing tapes or installing extra
VCR's), every new spot would need to be
dubbed once for every playback VCR on every
channel. With more than 200 active spots,
we would have to keep 63 tapes current,
organized and readily available. We

RANDOM ACCESS VCR REQUIREMENTS

	RE-LOADING TAPES	WITHOUT RE-LOADING
MTV	3	9
VH-1	2	6
ESPN	2	6
USA	2	6
FNN	4	12
Nickelodeon	2	6
CNN	4	12
Headline News	2	6
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	21	63

Table 1

receive from 5 to 10 new commercials and promos per work day to add to the active inventory. With that many sets of tapes, it would take 2-3 hours to make all the dubs necessary to add a new commercial to all channels.

Assuming we used the fewest possible on-air playback VCR's to conserve space and reduce costs, the operators would be overwhelmed by the need to correctly re-load the 21 VCR's once or twice an hour, and commercials would likely be missed. If the operators have to constantly change tapes, we might just as well use the single spot per tape approach. At least it wouldn't need such a complex automation system.

Additionally, the need to play back tapes from multiple VCR's for each channel makes it almost impossible to manually run commercials if the automation should fail. The operator would be unable to cue and roll all spots without the help of the automation.

With multiple transports per channel and sophisticated controllers, random access systems have high incremental costs for adding additional networks.

Finally, while many operators may be interested in integrated traffic, insertion and billing systems, others may prefer the flexibility of picking out these systems a la cart.

SEQUENTIAL/AUTOMATIC COMPILATION

Fortunately, Oceanic found a more practical solution. Rather than automating the playback of several tapes per channel, we chose a system that edits daily tapes automatically. Automatic compilation combines features of random access with sequential insertion systems.

Description

. An automatic compilation system uses library reels, similar to the spot reels in a random access system, to create daily tapes for each channel. The logs are loaded into the system, becoming edit lists. The end result of an automatic compilation system is a daily tape for each channel, which is loaded into its respective sequential insertion system for on-air playback.

Minimum Requirements

An effective compilation system must meet certain criteria:

1. It must use SMPTE time code for frame-accurate editing (see next item).

2. It must compile the breaks on the daily tape out of sequence, checker-boarding the tapes until all positions in all breaks are filled in. This allows the system to transfer all the needed spots from each library reel before requiring a library reel change.

3. It must allow for the use of multiple players and/or recorders. Multiple players reduce the number of library reel changes, and allow one machine to cue while another is editing. Multiple recorders allow spots to be transferred to different daily reels simultaneously.

4. It must allow direct down-loading of commercial logs from the traffic system, avoiding the need to type in logs manually.

5. It must automatically re-try edits that abort due to mis-matched time code. (With SMPTE time code, edits will occassionally abort when the controller is unable to get the machines to sync up properly. This is a random occurrence; the edit is almost always successful on second or third attempts.)

Advantages

Unlike random access systems, each spot need only be transferred to a library reel once.

By retaining the sequential insertion system, the number of VCR's is kept to 1 per network, reducing capital costs, maintenance costs, space, power and cooling needs.

Sequential insertion technology has proven reliable and simple to operate. (Oceanic is still using the first Channelmatic inserter ever sold.)

Reliability is higher than manual editing, thanks to time code. Frame-accurate editing insures that frames aren't cut off of commercials or frames from old commercials don't show at the edit points. The computer is also less prone to careless editing errors than people are.

Labor costs of an automatic compilation system are limited to adding new spots to the library reels (once for each new spot, unlike random access) and the usual housekeeping involved in maintaining quality control of the video tape stock. Compilation itself doesn't require operator supervision. The time of the library tape changes can be accurately estimated in advance, and the system can be left unattended until the tape needs changing.

Perhaps the most significant advantage of an automatic compilation system is that it is very forgiving of problems or failures. Small glitches don't affect the airing of commercials because the system is operating off-line, preparing daily tapes a day or so in advance. Problems can usually be resolved in time to complete the required editing and air all spots as scheduled. The on-air operation, being a collection of stand-alone sequential inserters, is immune to catastrophic failures that might disable all networks.

Disadvantages

As may be apparent, one disadvantage of automatic compilation systems is the difficulty of making last minute changes to the logs. These systems build the tapes in advance, so any late changes mean interrupting work in progress to re-edit daily reels that had been finished earlier, or manually editing the changes. (This is also true of manually edited sequential insertion systems. While random access systems do have an advantage in being able to quickly substitute one current spot for another, getting new spots on the air requires hours of dubbing.)

The start-up cost for acquiring an adequate compilation system is likely to be high due to the sophistication required; at its core, the system should be a multiple-VCR editing controller with time code capability.

The cost will depend on the editing workload. It's indirectly related to the number of networks served: when there are more breaks than can be assembled in one day, then

additional VCR's must be added to speed up the compilation process. (Oceanic's current system compiles the daily tapes for 18 hours' worth of avails on 8 networks, using 2 players and 3 recorders, in about 12 hours.)

A final drawback to automatic compilation is the extra generation lost in dubbing spots first onto library reels then onto daily reels. It should be noted, however, that this same generation loss can occur when mass-producing identical library tapes for a random access system (each version of the library tapes would be dubbed to provide copies for all networks' VCR's.) This degradation of the video quality can be elminated by using SP recording technology, or minimized by using the dub video connections between VCR's.

SUMMARY AND CONCLUSIONS

Oceanic Cablevision's Experience

Oceanic has shown that converting 8 channels to an automatic compilation system, even with the expense of modifying 5 VCR's for time code capability, was cost-competitive with converting to random access equipment and acquiring additional playback VCR's.

In our case, we calculated that random access would have eliminated 4 or 5 part-time editors, but 3 or 4 would have been needed to handle the dubbing of newly arrived commercials and promos. Furthermore, reliability would be reduced by the need to constantly change tapes in the control room.

Converting to an automatic compilation system has eliminated 8 part-time positions. The editing of the daily reels is unattended. (Whomever is in the vicinity takes care of changing the source tapes about every 45 minutes.) The amount of editing needed to add new spots is low enough that the former editing supervisor (who no longer has a staff to supervise) can handle all compilation and library tape housekeeping chores. With the cooperation of our ad sales and traffic personnel, last-minute changes have been kept to a minimum. Based on labor savings, system pay-back will come in about 18 months.

Reliability has not been a problem. We have taken advantage of the off-line nature of automatic compilation: we've chosen a system configuration that allows us to complete daily compilation, add new spots and perform general housekeeping in around 18 hours, leaving up to 6 hours a

day as a cushion if problems crop up.

Changing tapes only once a day has kept our control room operation simple and avoided a lot of tape inventory management problems. We've added additional commercial insertion channels cheaply by purchasing a single VCR and low-cost sequential inserters.

Lessons For Other Operators

Though they are more dependent on automation than broadcasters, cable operators are still looking for the right technology for multi-channel commercial insertion. Virtually everything has been tried, or at least considered, but the industry has yet to embrace the one technology that can simplify complex operations.

To sum up our conclusions, based on our experiences at Oceanic:

1. Manual insertion using manually assembled tapes only works for the simplest ad sales efforts; for multiple networks and/or in case of frequent traffic changes, the labor costs become prohibitive.

2. Sequential insertion using manually assembled tapes are cheap, simple and reliable, but only suitable for ROS sales practices. Again, the labor costs of frequent traffic changes are prohibitive.

3. Single spot per tape cart systems work well for broadcasters, who only have one network to deal with (and who can afford to invest heavily in their only source of revenue), but become expensive and unwieldy when applied to multiple channels.

4. Random access systems work well in medium-sized sales environments, but use too many VCR's and too many tapes, and don't reduce labor costs enough for larger ad sales environments.

5. Automatic compilation systems keep tapes and VCR's to a minimum, use cheap and proven insertion technology, and keep labor costs lower than any other system. For large ad sales efforts, with more than 100 active spots, automatic compilation is the only way to go.

Recommendations

Cable operators need to adapt technology to their ad insertion needs, rather than vice versa. Those with the most sophisticated ad sales efforts will find that automatic compilation technology can make them more competitive by increasing their operating efficiency. If more operators ask for compilation automation, automation manufacturers will respond with a wider variety of products, improving the breed.