

## HEADING FOR CONVERTER OVERPOPULATION

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### ABSTRACT

Converters have done a lot for the cable television industry in the last 20 years. By enabling subscribers television sets to receive more than twelve channels, they have opened up tremendous revenue opportunities as new services have become available. By incorporating programmable descramblers into converters, it became possible to secure the increasing revenues from theft of service. By adding addressability to the converter descramblers, we can now offer additional revenue-generating services, such as pay-per-view. Over the last twelve years, cable systems have purchased more than 60 million converters from equipment manufacturers, and are expected to buy another 6.4 million units per year through 1991, for a total of 85.6 million converters. With industry projections for a 1991 subscriber base of 50 million, an inventory surplus is mounting.

How did we get here? With so many more converters than subscribers, why are new converters still being purchased? And, perhaps most importantly, what can the cable operator do to reduce surplus inventory, yet keep pace with the state of the art?

### Technological Advances (The Genealogy of the Converter)

One reason for the current overpopulation is the rate at which technology progresses. Remember the block converter? It was widely used in the mid 70's, and can still be found in subscribers' homes today. The block converter took a "block" of channels carried on the cable system outside of the TV set's range (generally in the mid-band) and converted the entire set of 7-21 channels to another range of frequencies that the set could receive--often in the UHF band, where poor quality of the set's UHF tuner would wreak havoc on the signal. But the boxes sold for \$15-\$22, and significantly increased the number of channels a cable operator could

offer subscribers. "Soft security" protected the system's revenue stream; if the subscriber didn't have a block converter, the signals weren't received by the set.

By the late 70's (only 5 years later) varactor-tuned converters had already rendered block converters obsolete. With enhanced frequency stability and adaptability to scrambling techniques for signal security, a new standard emerged. Now the TV set constantly looked at only one frequency - the converter's output channel - and a wide range of functions and processes could be imposed on the signal before it was passed on to the set for viewing.

Early versions of these converters simply converted from 2 to 26 channels to the same output frequency (2, 3, or 4), and functionally increased the bandwidth of the television set. Mechanical push-buttons, slide switches, and rotary dials were all used for channel selection on the converter.

Later versions came on the market with bandwidth capability to 42 channels, and some incorporated programmable decoders. These units were highly popular in the early 80's and are still widely used, although addressability is steadily replacing them. With a decoder built into the converter, specific channels to be decoded are programmed into the unit (encoders are matched with the corresponding channels' modulators at the head end).

So when a subscriber selects a pay (scrambled) channel that the unit has been programmed for, the channel will be automatically decoded and a viewable picture presented to the TV set. If an unauthorized channel is selected, the decoder simply passes the scrambled signal through, and presents an unviewable picture to the television.

The programmable decoder can be re-programmed to descramble and (or all)

scrambled channels, so a black market quickly developed for these converters. Cable operators had bought them from manufacturers at \$60-75 each, and consumers were now buying the same product for \$100-200 on the pirate market and receiving "free" cable service. Loss of hardware and loss of revenues (often from subscribers who dropped service, but kept their converter/decoders) prompted many system operators to move into addressability in the early to mid 80's.

With addressable systems, digital technology facilitated deactivation of the entire converter when a subscriber disconnected. Addressability brought remote control of the subscriber's device to the cable operator, so service level changes could be implemented from a customer service rep's keyboard (rather than relying on retrieval of the box from the home and replacement with a reprogrammed unit). And in the late 1980's, a new revenue stream has emerged, that only addressable technology can deliver: Pay-per-view. Now subscribers can buy more programming from their cable systems than they have before. In addition to regular subscription service, they can also buy individual movies or events, and be remotely authorized to view single segments of programming. Addressability has thus become cable's answer to the videotape rental industry.

Technological advances have moved so quickly and the industry's needs changed so dramatically over the last decade, that cable systems have often been faced with a converter's depreciated life (7-8 years) far exceeding its life as a state of the art device (2-3 years). New units are often purchased to replace converters that are still quite serviceable, but not adequate for maximizing the revenue potential of subscribers in that particular system. And the older converters are relegated to excess inventory status, often necessitating substantial write offs.

#### Changing Customer Needs

In addition to the new wave of addressability, another trend is developing, which demands that subscriber devices be "consumer electronics-friendly". In other words, if the subscribers' TV sets have wireless remote, we can no longer give them pushbutton electromechanical boxes that make them walk across the room to change channels. If they already have volume control on their television sets, they want volume control on their converters. A subscriber with a VCR now must have a compatible program timer in the address-

able converter.

Recent changes in consumer electronics have contributed as much to the continued demand for new converters, as the addressable evolution has. Even in systems where trapping is used for security, rather than scrambling/addressability, older (electromechanical) converters are being replaced by digital converters that offer consumer-friendly features.

So what happens to the "clunkers" of today that 4 years ago were brand new, state of the art technology?

#### Management of Assets

As cable operators upgrade their systems to satisfy subscribers' demands for additional programming (through increased channel capacity and pay-per-view offerings), older converters are being displaced by new addressable or digital products. These displaced converters are sometimes used in a less sophisticated sister system, or in non-addressable subscribers' homes, or even on additional outlets in addressable homes. Under these circumstances, the older converters continue to generate revenues, to "earn their keep" at least until they are fully depreciated.

But more often, when a wholesale system upgrade is undertaken thousands of converters are taken out of homes to end up in one of two places:

1. Cable system inventory - converters will sit idle, in a warehouse corner, until another system lets it be known that there is a requirement for them.
2. Equipment brokers - brokers often buy "lots" of unused or obsolete converters for resale.

Each scenario merits further examination.

#### Cable System Inventory:

When converters are in a system's warehouse, not only do they not earn revenues, they incur significant costs in space, material management, and in some cases, interest charges on the original purchase. Often, the excess inventory is not properly accounted for, so that when a requirement for the product does surface in a sister system, no one knows that the units are available. Additional products are purchased, and the excess converters remain idle.

### Equipment Brokers:

Sale of the excess converters to equipment brokers is preferable to the costs of maintaining unused inventory for extended periods of time, but another set of issues must then be considered.

1. The broker's credibility and reputation is a primary concern, especially if the converters include descramblers. The pirate market has been fed by less than reputable brokers and many pirate boxes have resurfaced in systems owned by the same companies originally selling the product.
2. The market value the broker can offer is often well below the product's book value, and may not be easily collected.
3. Brokers operate in a "spot market" with pricing that fluctuates widely with supply and demand cycles. It is generally necessary to shop several brokers for the best price, which will undoubtedly be quoted by the one who has a buyer already lined up. Shopping to sell off inventory is simply a distraction from the main business of a cable system's operation.

### A Solution For Enhanced Utilization of Assets

The Anixter Converter Exchange (ACE) program was developed to offer cable operators a safe, convenient and valuable outlet for unused converters as they upgrade to new technology. Aimed at eliminating the system's costs of carrying inventory in excess or unused converters, the program facilitates immediate removal from the cable system as converters are taken out of service, with a guaranteed price for the product that is held firm for the duration of the upgrade.

When a system buys new converters a trade-in value is given for the old ones in "as-is" condition, and credit is issued against new converter purchases. Where the product's depreciated value exceeds fair market price, the ACE program can offer full book value for a large portion of the product traded. The credit issued substantially reduces the system's net capital outlay for state of the art technology, and remains constant for the entire upgrade period.

Anixter then remanufactures the old converters and places them in inventory at distribution centers throughout the country to make them readily available to systems that have use for working, like-new product. The remanufactured converters are discounted substantially below the price of new products, and are covered by a 12 month limited warranty.

Anixter's distribution network, with sophisticated inventory and materials management systems, is highly efficient at finding legitimate outlets for what had been unused converters. Systems need not hold or account for non-revenue producing inventory, nor be concerned with feeding a pirate marketplace that undermines the industry's revenues, since purchasers of the remanufactured product are qualified as cable operations before shipment is made.

The ACE program may not single-handedly absorb all of the industry's obsolete and excess converters, but it can certainly have a tremendous impact on individual systems where excess inventory of older product is impeding growth into digital and addressable technology. By converting idle surplus to revenue-producing assets, the ACE program serves as a catalyst for lower-cost system upgrades, while accelerating reallocation of product throughout the industry. Surplus inventory from one system can enhance cash flow in another, with the proper vehicle in place.