

# 2011

Paulo Bolivar

## [DIGITIZING YOUR VIDEOTAPE LIBRARY]

Over the last decades companies have amassed vast collections of videotape produced for various communications purposes. Now these tapes are deteriorating and playback equipment is disappearing. This paper will describe how to protect and manage these tapes, and how to make them accessible in an efficient way.

## Why Digitizing Your Analog Video Archive?

PROTECT YOUR VIDEO ASSETS WHILE EXTRACTING KNOWLEDGE AND GAINING EFFICIENCIES

For over 50 years, companies and organizations have amassed vast collections of videotapes produced by their communications and marketing departments. Now that the world of communications is moving fast to become all digital, and instant access is key, companies need to manage this legacy analog material along with the new material currently being produced in the digital format. The solution to this challenge is a digital migration plan integrated into a Media Asset Management system (MAM).



Various Videotape Formats

A MAM will not only stop the deterioration of the tapes and preserve the quality of the video in the archive, but it will make the content instantly accessible and searchable, facilitate distribution, and create efficiencies in the production process that will be enjoyed throughout any organization.

## Legacy Videotape Archives

VIDEO ASSETS TELL THE COMPANY'S HISTORY

Video archives are an organizations' visual history; they contains old ads, historical footage, internal programs, video news releases, media results and interviews with current and past executives. Sometimes, they are also considered electronic records subjected to records retention policies.

Typically, these video assets are created as tools of communication. They help inform the public about new products, help unify a company's message, or respond to a PR crisis. They are also used as training video, and to introduce new employees to the company.

Although significant resources were spent in creating these videos, they are at risk of becoming inaccessible very soon for two reasons: tape deterioration and equipment obsolescence.

## Videotape Deterioration

LOSING THE INFORMATION

At the instant a video signal is recorded on a magnetic tape, it starts to lose its strength. The process is very slow and stays imperceptible for almost 2 decades. But once the image starts to show signs of deterioration, there is an acceleration of the process which, combined with the physical deterioration of the magnetic tape, can cause a total loss of the visible image sooner than anyone had anticipated.

Videotape manufacturing companies claim that if the tapes are stored at optimum conditions (humidity of around 25%RH and

temperature below 70F—see Appendix), in plastic cases vertically placed on metal shelves, and handled with care by trained technicians, they have a life expectancy of about 70 years. But, what experts in the field of digital migration are finding is that, even after following the manufacturer's guidelines for storage and handling, many videotape collections are starting to show signs of deterioration such as "Sticky-Syndrome" and "Shedding" (when the binder used to glue the magnetic coating to the base material is affected by humidity and the tape sheds a sticky goo onto the working parts of the tape recorder), presenting a great risk to the original tape and to the playback equipment.



Ampex 2™ Quad- 1956

## Equipment Obsolescence

REMEMBER BETAMAX?

Another pressing challenge is the disappearance of analog playback equipment. Since 1956, when the Ampex Corporation introduced the two-inch Quadruplex commercially, over 20 different formats have been introduced and, even though most did not survive, they left a legacy of boxes of tapes occupying space in shelves with no available equipment to play

them. Formats once popular in the industry, such as Betamax and MII, are now mostly extinct. Established industry formats like U-matic, BetacamSP, and even VHS are on the same path. Replacement parts for playback equipment are no longer being manufactured and in a few years it will be impossible to view those tapes.

## Mitigating the Risks

PROTECT AND PRESERVE YOUR VIDEOTAPES

The best way to mitigate the risk of losing these assets is to digitize them into high resolution video files. Once in digital format, duplicate files can be created for back up. These backup files will have the same quality as the original video files avoiding the loss of quality common when videotapes are duplicated to new tapes for protection or preservation.

A digital migration for video should start with the most at risk assets: the older tapes and exotic formats. If the tapes present symptoms of deterioration they should be sent to companies specialized in videotape restoration.

A well planned digital migration will bring all different formats into easy to use high quality video files that, when stored in a centralized location, will be protected from deterioration and changing formats. A media asset management system will allow widespread accessibility and utility for the content.

Once the migration is completed there will be no need to keep and maintain different types of obsolete playback equipment.

## Organize Before Digitizing

### ELIMINATE UNNECESSARY COSTS

In many cases, outside vendors are responsible for the shooting and editing these videos. Hundreds of hours of b-roll and interviews are recorded and dozens of final master programs are created every year. During this process, numerous “work in progress” copies circulate and, after these videos are finished, the vendors usually keep the original masters and only provide a viewing copy to the organization. The result is multiple masters housed in different locations with multiple copies in the hands of different people.

In order to avoid digitizing multiple copies of the same video, an assessment, or cataloguing phase should precede the digital migration. A list of all existing videotapes should be created, an identifier number should be assigned to every tape and a database created. All label information should be entered into the database and every tape should be measured for duration. Timing the videotapes is important because it provides the total amount of minutes of your library. With this information you can determine how long it will take to complete the migration and how much storage will be needed.

This cataloguing phase also will help determine which tape contains the highest video quality. For example, if at the end the cataloguing, 15 VHS and 1 BetacamSP tapes are found with the same title and duration, it becomes obvious that the VHSs are copies from the master on the Beta tape; saving the cost of storing and digitizing the same

video 15 extra times. This new database will also be the base for determining what fields of metadata are important for the organization.

Another great benefit of digitizing a library is having the entire videotape library centralized in one location, giving a company greater security and control over their assets.

## Clear Information is Key

### METADATA IS WHAT MAKES EVERYTHING WORK.

Knowing the content of a videotape library is the safest way to make it useful. Imagine a town library with no reference cards. A good tape library must have a good database. It should include tape number, program title, date, duration and, if possible, a time-code based log of shots and interviews featured in the video. Anyone with this information can easily locate the tape and, if playback equipment exists, find the requested shot or interview. More often than not, a database does not exist, playback equipment is hard to find, and people in charge of keeping this record do so without any clear company guideline: they rely mostly on what they remember. When anyone needs to find a specific program, CEO interview, or provide a vendor with b-roll of the company, hours are spent trying to locate this material, not always successfully. If the person in charge of keeping the library database updated moves within the company or changes jobs, that knowledge is lost. The next person in charge is left with shelves of videotape he or she has never seen and has very little information about them.

One of the most rewarding and time saving applications for a digitized video library is the ability to search for, locate and play assets instantly. The users not only can find the clip they are searching for, but can go directly to the frame they need. If they need to locate a specific shot, sound bite or speech, all they have to do is to type the keywords in the search field and all the keyframes containing those keywords will return, giving the user instant access to the point of the video they are looking for. This can only be accomplished by creating a reliable database with relevant metadata fields about the video.

Digitizing a videotape can only be done in real time: a 13 minute video, for instance, will take 13 minutes to digitize. Timecode notes can be taken during this process. If a MAM exists and the tape is being ingested directly to the system, this metadata can be entered into the MAM during digitization, eliminating the need to populate the fields twice, once during digitizing and again after uploading the files to the MAM.

### Become More Efficient

#### ELIMINATE DUPLICATE EFFORTS

Analog videotape libraries contain valuable footage but they are currently out of reach for the most of the company, because few people know where they are and what they contain. When a new production starts, not knowing what already exists can result in costly extra production days and wasteful duplicate efforts. Every time someone requests a copy of any videotape, a lot of resources are mobilized in locating, checking if the tape is the correct one, ordering a dub and shipping the tape. When

there is a request for that video, again, many hours are spent trying to locate the right tape.



Typical videotape library

After the high resolution video file is uploaded to a storage system with a MAM, a proxy file is created automatically for easy viewing and notation. The clips are now available for distribution without the need for hard copy tape duplication. This proxy file can be instantly accessed by any authorized user on his/her desktop. When someone needs the video, it can be downloaded in high resolution or can be effortlessly delivered in various web friendly formats. This new workflow eliminates the need for “dubs” and shipping charges for delivering the content to a client, production facility or website administrators.

### Conclusion

#### IT MAKES SENSE TO DIGITIZE TO A MAM

Analog videotape libraries are at risk of becoming inaccessible because of tape deterioration and tape format obsolescence. The difficulty of accessing

their content becomes costly when resources are spent in locating the assets or recreating already existing footage.

A digital migration plan should include organization of the tapes, creation of a database describing the content, and storage indexed with a Media Asset Management system to make them instantly accessible.

The most efficient way to migrate is to have MAM already in place and digitize the assets directly to the system, allowing a more detailed metadata entry. This will make them easily searchable and accessible. Once in digital storage with a MAM system, the assets will be protected from deterioration and reformatting will not compromise the quality of the original. Distribution can be done via the Internet and the need for videotape dubs will be eliminated.

With video production spreading to every aspect of corporate communications, companies and organizations need to protect and regain control over their videotapes.

## References:

1. *Videotape Preservation Fact Sheets* AMIA - The Association of Moving Image Archivists
2. *The Current State of American Television and Video Preservation* – Peter C. Brothers
3. *The Challenge of Preserving Audiovisual Records* – Steve Green for the National Archives (NARA)



Video library managed by a MAM system

## The Do's and Don'ts of Magnetic Tape Care:

### MINIMUM REQUIREMENTS FOR PROPER HANDLING (AMIA's fact sheet 16)

The following guidelines are the minimum handling requirements that summarize best practices based on experience and testing. In many cases, the guidelines follow common sense logic. Failure to adhere to these guidelines should be considered misuse of the medium and may cause premature loss of information or deterioration of magnetic tapes.

### DO

- Learn and use correct procedures for operating equipment.
- Handle tapes gently.
- Keep tapes in protective cases when not in use.
- Keep tapes vertical when not in use.
- Make sure machine alignment is correct before use.
- Clean tapes before playback if they show any evidence of dirt or contamination.
- Ensure that the tape is properly seated in the machine before use.
- Wind tape at low speed (library wind) entirely onto one reel after use.
- Leave analog audio tapes on the take-up reel after use (tails out).
- Secure tape ends on open reel tapes.
- Package tapes adequately for protection before shipment or transport.
- Use only new tape when recording a tape for long-term storage.
- Activate the Record Protection feature of all master cassettes immediately after they have been recorded.
- Inspect tapes for damage or contamination before use.
- Seek experienced help as soon as possible in the case of a disaster.
- Protect both tapes and machinery from dust and debris.
- Keep tapes in a stable environment
- Acclimatize tapes before use if they are hot or cold.
- Store tapes in a cool and dry place; see ISO 18923.

### DO NOT

- Touch tape surfaces with bare hands.
- Put pressure on reel flanges.
- Stack or place objects on top of unprotected tapes.
- Force tapes into cases or machines.
- Drop or throw tapes.
- Splice any portion of a video tape.
- Place tapes on or near sources of magnetic fields.
- Play or spool tapes that are dirty, contaminated or wet .
- Play or spool tapes on a dirty, misaligned or malfunctioning machine.
- Store tapes in an area subject to dampness or possible pipe leaks (e.g., basements).
- Expose tapes to food or beverages.
- Expose tapes to temperature extremes.