

Fingerprinting Your News

JOSHUA COHEN on integrating content identification technology into a file-based workflow

A 2010 Devoncroft study examining broadcasters' planned projects indicates that for many, the growth of their facilities and the evolution of their file-based workflows will be focused around faster, more effective delivery of content.

The installation or upgrade of asset management systems and the implementation of archive-related projects are two of the top four major investments planned by broadcasters. Additionally, the shift to automated operations, the upgrade of newsroom operations, and the move to multi-platform content distribution also fall within the top 10 projects planned.

In all of these areas of broadcast production, and particularly in asset management and archiving applications, automated content identification provides a number of capabilities essential to the operations and effective monetisation of media assets across the organisation.

In fact, integration of content identification technology into the file-based workflow can address some of the most significant constraints on the efficiency of earlier broadcast news production models.

To a large degree, news production models have been limited by their reliance on manual resources for tasks such as creating, examining, and rectifying as-run logs and the identification of rights information for stored content. With a growing amount of licensed content coming from multiple sources, broadcast news producers are finding it increasingly difficult to conform to the rights associated with this content. This is an especially tough challenge when different rights are associated with different distribution platforms, and when the news team has only minutes to check

broadcast rights for specific content before a story goes to air.

Performed manually, these time-consuming yet essential processes within the news production workflow cause both delivery times and costs to rise.

The manual nature of each task also prohibits operational growth as more and more digital content and related metadata are added to broadcasters' archives. Incorporated into the news production workflow, content identification can enable the automation of tedious and increasingly expensive manual tasks.

The Limits of Watermarking

Watermarking is one form of content identification that offers an alternative to manual content tracking. However, the applicability of watermarking in various broadcast use cases is limited.

By definition, watermarking requires alteration of content and creation of a new version. Thus, the technique not only affects the integrity of content, but also requires additional processing time, especially when the watermark is inserted into a high-resolution version during a transcoding or encoding process at much slower-than-real-time speeds.

Watermarking is also limited in its ability to identify multiple versions of content. If different watermarks are applied to the same piece of content in different applications, the system will not identify them as being related versions of the same content. As a result, watermarking cannot facilitate the cleaning of archives or enable the comparison of content. Most important, watermarking cannot be implemented simply in parallel

with existing workflows but, rather, requires a change to the entire workflow.

Easily deployed and seamlessly integrated into any preexisting workflow, video fingerprinting is a content identification technique that allows media to be organised, versioned, traced, and ultimately controlled at any point along the media life cycle.

By storing the unique audio-visual characteristics of video in a file, this approach provides a solid, secure foundation for identifying and maintaining control over growing volumes of digital content as available distribution outlets and platforms increase in number.

Video fingerprinting also gives broadcasters the means of finding different versions of the same video and identifying the best version – whether in terms of quality or specific content – for a particular news story or package. As broadcasters continue to digitise enormous stores of tape-based archives, they can link unique video fingerprints and additional metadata to ensure that the video can be identified in the future, regardless of the format into which the archived file has been transcoded.


This capability is critical in protecting the utility of assets in the long term as media compression schemes, storage systems, and distribution mechanisms evolve.

By integrating video fingerprinting into the archiving of new and legacy content, broadcasters are positioned to improve the management of those archives and to speed key aspects of news production. For example, fingerprinting enables news staff to reverse-engineer program EDLs and traffic playlists. To reconcile archived materials for regulatory compliance of on-air programming, the broadcaster

may compare a fingerprinted recording of the entire original broadcast with the individual fingerprints of the compiled files used in the original broadcast. In this manner, video fingerprinting allows the files, cut points, and overall time code to be reconstructed.

Going into post-production, staff can use fingerprinting to compare aired content with content prepared for a later broadcast and subsequently determine where there are overlaps. In post, editors can search proxy versions of content in the digital archives and use fingerprinting to locate high-resolution source material and any variants quickly and automatically.

When multiple shows are created for different regions or audiences, fingerprinting provides a means of isolating and identifying any editorial changes. By storing the master and only the regional differences, the broadcaster can save significant volumes of online storage. Broadcasters also can use fingerprinting to detect duplicate or down-resolution versions of content. Files with minimal differences or changes can be identified and, if appropriate, eliminated from the archive.

News teams can use video fingerprinting to check original sources and metadata, and ensure that rebroadcasted content is not limited by usage rights or licensing. As news goes to air, the fingerprint comparison of the broadcast stream to the fingerprinted source material can provide media usage statistics to update any royalty calculations and avoid unexpected penalties and fees. 

Joshua Cohen is Chief Executive of iPharro Media.