Innovations in video workflow management

Workflow Opinion

By John Pallett, senior product manager, Telestream

The word 'workflow' has been used and abused a great deal over the last decade or so. However, to a large degree 'video workflow' is used to describe the processes surrounding video production, repurposing, and delivery. Technology that allows the design, management and automation of video workflows has become extremely valuable.

It is no wonder that the word has become so common: there has been a huge amount of innovation in IT-based video workflow, and many companies are seeing huge cost savings as a result. Despite this, many companies still view video workflows in terms of traditional asset management and business process systems.

Here at Telestream we have thousands of customers automating video workflows using FlipFactory — a system designed for neither asset management nor business process management. Some processes are not predominantly controlled by business rules, nor are they driven by the indexing and searchability of assets. Rather, these video workflows are designed around content availability, with a focus upon content-centric operations.

In many cases these video workflows simply need to process video. When new content arrives it might be checked for quality, and multiple versions transcoded to match multiple distribution channels.

In other cases, integration with external asset or business process management systems may be part of — but not the primary driver for — the video workflow. For example, the arrival of a commercial may trigger a transcode, audio normalisation, a match with a copy required list for renaming, and automated delivery for on-air playout.

There are literally thousands of valuable workflows that are not driven by business process management, nor asset management, yet these workflows run every day, ultimately touching the majority of the world's video content.

Recently we have seen three innovations that have transformed the way that these workflows can be constructed and managed.

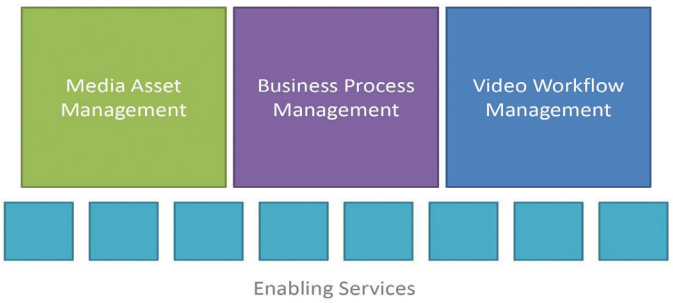
The first is the ability to model processes that are nonlinear, and which make decisions at runtime. Such workflows can automate some of the time-consuming but routine encoding and quality control workflows that today are done by hand.

To take a simple example, in 2009 if you had a file-based

John Pallett: 'Today's nonlinear workflows can make decisions at runtime'

automated quality control system, it might fail a piece of content and generate a report. In a linear workflow, the only possible next step would be for an operator to check it, either correct it or over-ride the QC, and start the next process.

Today's nonlinear workflows can make decisions at runtime, allowing sophisticated workflows



to automate complex tasks. In the example above, a workflow might detect the error and then, through runtime decision-making, interpret the reason for failure and try to correct it. If the encoded file is blocky, is the original blocky? If so, can we find a different copy of the master that might be cleaner, or do we need to email the client? If the master is good, what parameters can we tweak to get a better encode? Does the new encode solve the problem? And so on. Highly complicated detect-and-correct workflows are now easy to design and automate.

The big bonus of runtime decision-making is not just that it reduces the need for human intervention, but that it can react immediately. If the workflow needs human intervention and it fails at 2.00 in the morning, six hours could be lost before the correction is implemented. In contrast, an automated system would carry on working, correcting problems immediately.

The second innovation is asset tracking. As single media files are repurposed for multiple languages and distribution channels, the number of assets involved in a single workflow is increasing. For example, a particular job may be triggered not by the arrival of media but by a subtitle file. When it arrives, can we find the associated video? Does the subtitle timing match the video file? What if we need a new language track for one of our output files, but not others? What about custom branding elements?

We can now visually model the requirement for, and co-ordinate the availability of, assets within a workflow. No longer does a workflow only execute when 'everything is available' or when 'someone tells it to.' Rather, workflows can be modelled that may execute one task list based upon asset availability, with other task lists waiting and synchronising based upon their own needs.

The third and in many ways the most powerful innovation is the ability to abstract the metadata away from the essence, modelling it the way the process needs it, rather than in the way the file format needs it. Previously, a common workflow design question was 'what file format should I use?' In many cases, such questions were driven by metadata requirements, either to preserve media metadata through the workflow or to pass process metadata from step to step.

The introduction of metadata modelling tools allow us not only to extract or insert metadata into virtually any video file format, but to design workflows that assemble and use that metadata, independent of the actual video files.

Such metadata modelling can be powerful, unifying external data sources such as XML and web services, incorporating the results of in-workflow steps such as QC or file analysis, and reading and writing the actual media metadata, all within a single workflow. Further, when combined with nonlinear workflow tools and asset co-ordination, data can be passed between files, or the properties of one file can be used to make decisions about a completely separate file.

Armed with these three innovations, video workflow management software — such as Vantage from Telestream — can be used to construct complex processes using simple drag and drop tools. This allows video workflows to be created and implemented very quickly. And while these video workflows are not driven by business process management systems, the end result is a great business benefit.

Instead of spending weeks wondering 'what is the right format,' operations managers can design automated workflows that previously required entire teams to execute. Instead of spending time correcting errors and routing media, they can automate the routine and focus instead upon demonstrating new capabilities to their clients, or helping to streamline the company's other video needs.