Creating new opportunities for sports clips

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Traditional television coverage of sports has depended upon fast turnaround editing to create short packages of highlights. Producing these packages is labour intensive and depends upon having multiple sophisticated craft editing set-ups available, usually on location.

With the move from simple broadcast to multi-platform delivery, the need for highlights clips has escalated. Rights-holding broadcasters and sports federations see huge benefits in providing short clips on social media, for example, and fans love the additional insights.

The challenge, then, is to create ever more highlights packages while controlling costs, optimising resources and minimising the amount of equipment which must be delivered and set up on site.

Sports rights

The intellectual property rights to broadcast major sports have always been much in demand, leading to upward pressure on prices. Today, new media services like Amazon, Facebook and Twitter are entering into the live market: given the funding they can currently command, this is likely to push rights costs up even further.

According to Gareth Capon, CEO of Grabyo, technology partner of Facebook Live, "The global shift towards fans consuming content on their mobile devices is driven by social platforms, with video driving greatest engagement for fans around the world. Consumers have smartphones within arms' reach 24 hours a day: no other platform offers this opportunity for reach and viewing across all demographic groups."

In 2016, Disney acquired a one-third stake in MLB Advanced Media, the video streaming division of North America's Major League Baseball, jointly owned by the league's 30 franchises. The deal valued MLB AM at $3.5 billion. Similarly, Formula 1 motor sport has now been acquired by Liberty Media.

Whatever the nature of the rights holder, it will certainly have paid a significant sum of money to gain those rights, and will be facing continuing rises in costs. That leads to a compelling commercial need to identify and monetise every opportunity.

In turn, that leads to twin requirements. First, the traditional broadcast service has to be ever more engaging. That means more highlights, more replays – more insight in general.

Second, it means providing clips and packages tailored for the requirements of other platforms. At the same time the individual user will also expect to be able to tailor the content to personal preferences to achieve maximum engagement. Google's Consumer Barometer research suggests that three-quarters of the population in an advanced society (the study was in the United Kingdom) use a connected device – typically a smartphone – at the same time as watching television, rising to 93% in the under 25 age group. That research was carried out in 2017: the numbers will almost certainly have risen.

While much of this paper refers to sport, the same demand for content applies to some other genres. A particularly strong example is the "appointment to view" live popular entertainment programmes like The X Factor or Strictly Come Dancing/Dancing with the Stars. They, too, demand fast turnaround clip editing and strong social media presence, and could benefit equally from this boost in productivity.

The result is a greatly increasing demand for content. The final complicating factor is that this is sport: consumers expect to see everything as it happens, or as soon as possible afterwards. This additional content must be created as quickly as possible.

Add to this the need to control costs and minimise or even eliminate the need for additional staff, and it is clear you need to develop new, more complex workflows supported by technology.

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Logging

Today it is normal practice for all the action in a sporting event to be logged: all the points of interest and action, with their timecodes, are added to the content as descriptive metadata. The logging resource could be provided by the sports organiser, the broadcaster or a third-party specialist service which deals in sports statistics.

Logging remains a manual operation, albeit supported by technology. Typically, this means a touchscreen device loaded with all the events and players likely to be involved: the operator simply selects the event and it is associated with the timecode.

In the future logging may use some form of video analysis. There are vendors proposing this, although at the moment the constraints are in the time taken to train a model, together with the processing requirements for artificial intelligence. Today this

makes it difficult to develop a solution at a lower cost than simply hiring people to do the job. But there are artificial intelligence elements which can be introduced today which will take the pressure off human loggers and increase accuracy.

As well as the logging, there is a great deal of other data around the event, provided by the organisers and from sports statisticians as well as from the broadcaster's own archives. These include yardages in golf; previous results in meetings between football teams; batting averages in cricket and so on.

Today, that mass of information is used by editors and producers to determine where the action is in potentially a mass of raw content, and to put that action into context. As metadata, it must be maintained in a production asset management environment.

Creating clips

Editors will be asked to prepare a wide variety of clips. At one extreme, there may be a summary of the complete game, for broadcast or for the archives, which might run 20 to 30 minutes. At the other there will be a 2 minutes encapsulation of the highlights, perhaps to run immediately after the half time whistle is blown.

Other packages might include tracking a favourite player, or all the hard tackles and red cards.

Some clips will use the as-broadcast pictures as cut by the director. Others will be re-edited to use alternative views from other camera recordings.

As well as broadcast use, consumers might sign up to online alerts, which show them all the views of a goal being scored, or other match highlights. The broadcaster or sports organiser may also publish highlights videos on social media.

A producer will set out the clips to be created, and editors will use the logging metadata to identify the points in the content at which to work. For example, if a goal is scored then the editor will search all the available camera views around that timecode to see which angles best show the action.

This is a very labour-intensive operation, even with the support of logged timecodes and action points.

SMARTLIVE

Tedial has considered the challenges of sports highlights, and developed an intelligent way to automate production. This solution is called SMARTLIVE.

It provides a number of key benefits, which can be grouped under three headings:

• Metadata enrichment.
• Automated highlights production.
• Delivery.

SMARTLIVE uses artificial intelligence elements which build on the core metadata management for which Tedial is well known. Having amassed unrivalled metadata around an event, intelligent processing can then automate the production of video highlights packages, allowing broadcasters to create more and better content.

Ai POWERED BY ARTIFICIAL INTELLIGENCE

Metadata enrichment

As already noted, manual logging remains at the core of sports production. Tedial can collect data from any source and use this to prepare for each production.

From advance data, SMARTLIVE automatically prepares the complete production environment, including event creation, log sheets and keyword grids.

Tedial adds to this a proven and effective speech-to-text engine. By automatically transcribing the commentary, SMARTLIVE can then apply rules to the text and derive further event logging information. This is an extremely effective means of enriching the metadata, providing many more data points.

Speech-to-text transcription also retains the timecodes of the comments, helping the editing functionality find smooth cut points.

As artificial intelligence grows in reliability and practicality, so it will spread into other areas including video analysis. Ultimately, SMARTLIVE will be able to provide all the logging required fully automatically.

SMARTLIVE is powered by the Tedial EVOLUTION asset management platform, and therefore can perform live archive searches. If, say, a cricketer scores 100, it provides the search capabilities to find related content from the same player to create a historical review.

Automated highlights production

Armed with this very rich metadata log, SMARTLIVE can now automate the production of highlights packages. Tedial already includes the ability to create smooth edits internally, as well as interfacing to external editors. In SMARTLIVE, this leads to a highly productive means of creating highlights clips and packages.

A producer can instruct the system to create a whole series of clips, according to the requirements of the event. These could also be driven by business rules: goals should be delivered to social media within one minute, for instance. SMARTLIVE will then automatically create clips during live events as soon as the specified action occurs, and deliver the package to the required destinations, all automatically.

The requirements could also track across the whole event. It could prepare a package that tracked the impact that a particular player had on the game. Because it is metadata driven, as stories emerge during the game then new highlights package requirements can be added, enhancing the storytelling to help audiences understand what has happened.

Through the use of the SMARTLIVE auto-highlight engine, a producer can package and deliver a new story within seconds. In the past it would have taken 15 to 20 minutes to manually retrieve the information from the log and create the storyline.

It is important to understand that SMARTLIVE's automated production is not simply chopping video and delivering an output. It analyses the video and audio tracks to look for smooth in and

out points to ensure the result is not visually jarring, and will avoid cutting during a peak in audio, which may correspond to crowd reaction and which should be incorporated in the clip.

Creating clips automatically is achieved faster than real time. Not only can more content be created, it is made available very quickly indeed, meeting the expectations of sports fans.

Where a package needs the supervision of a craft editor, SMARTIVE creates the structure of the piece and hands it to a third-party editor, through the established interfaces Tedial has developed.

One of the most powerful advantages of this is that each clip on the timeline is given a name which describes what it is. Clips will be referenced by the name of the scorer, for example, rather than just a camera number. Again, the result is greater productivity for the editor who does not need to dig into the images to understand the edit.

Automated highlights packaging need not be confined to a single event, or only implemented on location. The same platform can be used at the broadcaster's base to create other outputs. This might be all the goals from every game that day, for example.

SMARTLIVE does not replace a producer or an editor. It helps them produce more content and be more productive than ever before, allowing them to focus on creativity and not on repetitive and unfulfilling tasks.

Delivery

SMARTLIVE is powered by the proven Tedial technologies EVOLUTION MAM and BPM. This means any delivery workflow can be defined, to distribute the content to multiple platforms. SMARTLIVE is aimed at being at the core of the production ecosystem, supporting both traditional linear television production and simultaneously the distribution to any digital platforms such as web sites, OTT platforms and social media.

As part of this goal, the rules established within SMARTLIVE include all the required resolutions. Outputs from the system will include full resolution outputs at the broadcast production format – including 4k Ultra HD – as well as the various resolutions required for online delivery and social media. Having the ability to work seamlessly across broadcast and online formats, with the support of advanced automation, is an enormous productivity bonus for content producers, and can currently only be achieved through SMARTLIVE.

Once complete, the highlights clips can be manually or automatically pushed to the different platforms. Again, this can be managed by business rules if required. Where needed, branding can be added, again defined by the delivery platform.

The content itself is formatted for each delivery platform. Metadata mapping translates the relevant part of the asset management to the online platform, ensuring it is found in searches as well as triggering alerts in the consumer's device. There is also full integration with social publishing platforms.

Agnostic architecture

Tedial's business is in managing and understanding metadata to deliver productivity for broadcasters and media companies. In all its installations it works with other vendors' products to achieve a complete, workable system.

SMARTLIVE builds on this architecture. SMARTLIVE is fully compatible with legacy production asset management systems currently in widespread use. Production companies using EVS, Grass Valley or Simplylive production systems, for example, can add SMARTLIVE to achieve seamless interaction. The Tedial software will interact with the servers to edit in place, without impacting on other functionality.

Similarly, craft editors such as Adobe Premiere Pro or Avid are fully integrated, with content loaded ready for the editor to work, and publishing direct from the standard software. Where craft edits are required, the only change in working practices for the editor is that the clips on the timeline are already clearly identified.

SMARTLIVE itself is a fully web-based, service-oriented architecture. It is designed as a virtualised solution, which can be implemented on premises, in the cloud or as a hybrid. Its robust data architecture ensures there are no single points of failure.

Naturally all metadata is secured, and transferred to other third party systems as required. Logging data and edit decision lists created remotely or on location are passed on to the production company's master asset management platform, even if it is from another vendor. SMARTLIVE is fully agnostic to external systems.

Its virtualised architecture means it can readily be scaled from modest systems for second tier sports to large, enterprise-level implementations. It allows working on a national (or even international, through the cloud) level while simultaneously providing highly efficient workflows at the event itself. Equally, it can be configured and interfaced as a tailored solution for broadcast, for post-production, or for digital services.

Conclusion

In this always-connected digital era, we no longer consume content the way we did. We expect to be kept informed wherever we are. Sports fans are particularly demanding, and rights holders and production companies are under ever-increasing pressure to produce more content (short form for digital publishing; long form for the archive) while at the same time reducing production costs and finding new ways to increase revenues.

SMARTLIVE delivers an intelligent, productive end-to-end workflow specifically tailored for sports and live events. It builds on Tedial's proven strengths in metadata to automate media management from remote logging through clip creation to multi-platform distribution. That includes tight integration with social media.

It uses optional artificial intelligence layers, in practical ways, to bring real editorial added-value to create clips and highlights which are ready for delivery. These clips can be created completely automatically, or some can be enhanced by a craft editor, thanks to seamless integration with popular software tools.

Built on open standards, SMARTLIVE is agnostic to the equipment around it. It can be added to any production infrastructure. Its virtualised software architecture can be implemented on premises, in the cloud, or as a hybrid. As well as generating its own metadata it connects to existing archive asset management systems, using examples from the past as a way to illustrate today's news.

In short, as sports rights become ever more expensive and fans expect more insight and more analysis, SMARTLIVE is the most comprehensive, most productive way to create additional content, enrich story-telling, satisfy consumers and increase revenue opportunities.