



# **STORYTELLER - MARRYING REAL-TIME METADATA WITH LIVE EVENTS TO AUTOMATE PRODUCTION FOR MULTI-SCREEN**

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## **ABSTRACT**

The sports consumer of today not only has a variety of content choices, they also enjoy the convenience of consumption when they want it, the way they want it. In this multi-choice environment, competition to deliver live, high quality and engaging content across multiple platform-devices combination is fierce. This has in turn created the need for a newer, faster production environment that is collaborative, facilitates real time storytelling and is able to deliver to multiple platforms at one go.

This paper highlights innovation done using Cloud technology enabled systems to automate and ease each step of the story telling process that can aid live sports production. This with the additional flexibility for various teams involved to operate from different physical locations.

The result – an integrated and quick story telling cloud based system that facilitates collaboration between multiple teams and vendors to create content that is contextual, engaging & delivered quickly.

## **INTRODUCTION**

Sports as a content genre can be characterized using certain keywords – live, unscripted drama, conversational, loyal audiences. No wonder that major sporting events like the FIFA World Cup, Olympics and sporting leagues like NFL, NBA, NHL and MLB are watched by millions of people across the globe. But the way we consume sports is evolving. Add immersive experience, the need to view more of contextual content and the need for participation – interaction and sharing: one gets to see the emerging future of sports broadcast.

How long does it take to create an engaging story from a live sports event and publish it to Over-the-top (OTT) or social media? How long will viewers wait for this video? For consumers who are not able to view the live event, getting near real time access to the key moments of a live event is a given. Thus if the clip is not available on one platform, they will probably view it somewhere else. This lag between creating stories and publishing them is a key concern during live sports/event production. And with the number of monetization opportunities associated, content owners do not want to miss even one due to any such “lag”.

The need of the hour was for one solution that effectively manages the interplay between real time metadata, editing and delivery to multiple screens.

## POST PRODUCTION - LIVE SPORTS

Post producing content for live sports events typically goes through the following process:

- **Step 1** – Capture of live feed
- **Step 2** - Edit sequentially in linear way as the feed grows. Scrub through the timeline and search for point of interest clips
- **Step 3** – Transcode the edited sequences
- **Step 4** – Publish to multiple platforms: TV, back to live payout, Over the top (OTT) platforms

### Key Challenges

Traditionally, the key challenges encountered with the above process are:

1. Searching for ‘point of interest’ footage across the entire live feed timeline is manual and cumbersome
2. The approach to editing is linear. This not only is time consuming but also leads to curtailing creative freedom as time is most lost on scrub and search.
3. Communication gap between remote teams - on-field Producers/reporters & Editors. This leads to multiple iterations and hamper creativity
4. Distribution – The complex task of transcoding multiple formats and delivering to multiple platforms (Broadcast, Video on demand (VOD), Over the Top (OTT)) and multiple devices (Web, Mobility, STB) overburdens the operational teams’ tasks

### Areas to solve for

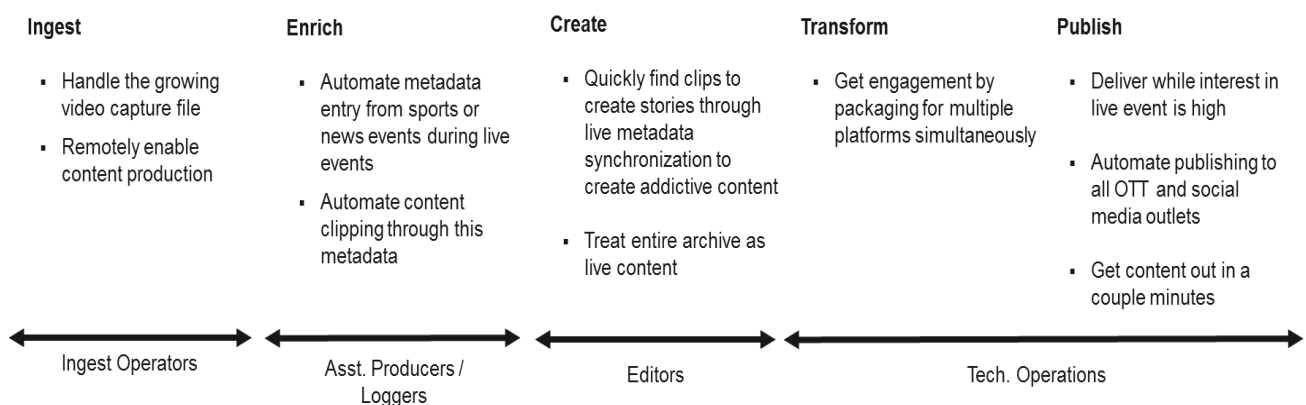


Figure 1 – Areas to solve for while post-producing live events



## THE SOLUTION

Labelled as the “StoryTeller”, this cloud based solution would aim to address each of the ‘areas to solve for’ highlighted above by *marrying data and video*. Be it live sport, production of shows from archive material or support for Studio productions, the thought was to build a platform for Sports that would manage content operations through various stages by providing tools and solutions like multi-sports live logger, native integration to Non Linear Editing (NLE) and integrated publish robots.

### Sport & Associated Data Model

The true capability of the solution would come to the forefront if it could handle a lot of data – each data point associated with a unique event during the live sports event. Owing to this Cricket and Football were chosen as the two sports to begin with. For example, in a cricket match, every ball bowled is an event. Typically on an average, one match has around 600 *on field* events. Each event can be described using a number of parameters.

The data models for these sports were defined in conjunction with the end user. These data models not only included the *on field* events but *off field* ones too. On and Off field events could be used to create topical stories drive additional viewership.

### Capturing Of Live Feed

At the start of every sporting event, the cloud based system would create a proxy from the high resolution growing file - this high resolution is the same file that would be used for all the downstream activities like editing, broadcast playout and archival. The reason for creating a proxy same as the high resolution broadcast file was to keep the synchronisation of metadata tags - the ones applied on proxy would match even for the high resolution files for any downstream processing. The proxy created would be available in on cloud and have a unique ID apart from other asset level metadata like teams, players, match, venue and more.

### Tagging

A dedicated team of loggers would view and tag each event during a live sports match. As the event progressed, new tags would be made available by the team on a real time basis. The tagging done in a different geographic location would tag based on real timecode and over an API, publish to the cloud system database in real-time. After one time synchronisation between the proxy video and tagging, cloud system would merge the tagged metadata with segments.

### Marrying Data & Video

The player displays the video with markers of ‘watch segment’ on the video, we call “Timeline”. With Timeline, the video became rich with segments and metadata that enabled the user to a data-driven search to reach point of interest. The data model enabled a granular search of specific point in a whole match.

E.g. Messi dribbling past Ronaldo or all the winning tackle against Rooney or Sachin Tendulkar hitting a cover drive against Shane Warne. Apart from this, simple search filters like goals, shot on goals, fouls, etc., were achieved with simple hot filter selections.

Since the Player could smartly display all the tags, we labelled it as a “Smart Player”.



Figure 2 – Smart Player – Marriage of Data & Video

## Creating Engaging Stories

Content Production involves creating stories from the live feed, just viewing in a smart manner was not enough. The creative users needed tools to construct storylines. A Cloud editor was thus built with the ability to identify, filter and group the segments. The editor provided the capability to view the live feed with segments and add desired segments to build sequence or story line. The tagged segments could also be filtered to any granular level based on the data model and grouped together and added to a sequence.

E.g. Group of all the goals or shots on goal by a football player. The creative user now had the flexibility to weave his story from any location without having to be tied to an edit room.



Figure 3 – StoryTeller – Creating engaging stories on the fly

### Deliver To Multiple Platforms

The last part of the loop together i.e. delivery to multiple platforms was tied in. User created story/sequences could be exported to an Over the Top (OTT) as video on demand (VOD) or to broadcast playout or as a rough cut EDL xml for post-production to further trim and edit. The cloud based system's business process management tool would automate and manage the content processing with any of these user delivery decisions. For OTT Publish of a sequence from Story Teller, a partial copy extracting from the Live high resolution broadcast file would be created, transcoded, rendered into multiple bitrate streams and delivered to the content management system (CMS) of the OTT. Similarly several different workflows could be defined to automate the delivery of the creative stories/ productions created from the live stream. All this would out any operational interventions meant that delivering lightning fast produced content from live feed was quick, easy and efficient.

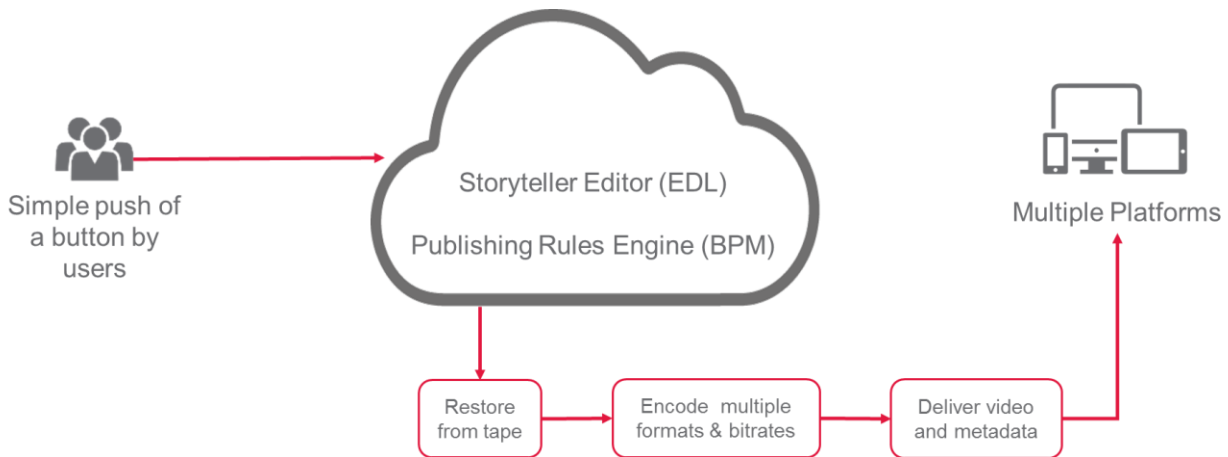


Figure 4 – Automated Publish & Delivery

## BENEFITS OF DATA/VIDEO MARRIAGE

<p><b>Produce Better Content</b></p> <ul style="list-style-type: none"> <li>▪ Find relative content even from deep archive</li> <li>▪ Produce stories that significant &amp; contemporary</li> <li>▪ Build trivia, games, statistics, and commentary content that viewers desire</li> </ul>	<p><b>Publish Faster</b></p> <ul style="list-style-type: none"> <li>▪ Quickly find content by metadata (even remotely)</li> <li>▪ Automated production of highlights based on data</li> <li>▪ Catch window of opportunity when significant events happen live</li> </ul>
<p><b>Customer Engagement</b></p> <ul style="list-style-type: none"> <li>▪ Maintain lean-forward experience by overlaying data on top of video</li> <li>▪ Jump to action and events by metadata tags</li> <li>▪ Engage through featurettes, games, stats, and additional content</li> </ul>	<p><b>Monetization</b></p> <ul style="list-style-type: none"> <li>▪ More screens, more devices</li> <li>▪ Generate interest in the event during window of opportunity:</li> </ul>

Figure 5 – Benefits to end user

## CONCLUSION

As the balance of viewing of live sports events shifts increasingly from linear TV to multi-screen consumption, the way forward lies in embracing such cloud based solutions that offer integration between various entities in a live sport production environment. Monetization and agility in a highly competitive environment can be achieved through a



marriage of data and video, delivery to multiple platforms all on the CLOUD. All this with individual teams sitting in different geographical locations.

This not only enabled producers to focus only on the creative without worrying about any operational parameters but also reduced the time to consumer by more than a half.