

The background of the entire image is a close-up, low-angle shot of autumn foliage. The leaves are in various shades of orange, yellow, and brown, with some appearing dark and others catching the light. Interspersed among the leaves are numerous small, warm, glowing lights, likely from string lights, which create a bokeh effect and add a cozy, intimate atmosphere. The overall color palette is monochromatic, dominated by warm tones.

VUALTO

VUREPLAY

LIVE2VOD: THERE'S NO LONGER TIME TO WAIT

## LIVE2VOD: THERE'S NO LONGER TIME TO WAIT

**'Live2VOD' is very much the buzzword of the moment. Both the traditional broadcasters and those large scale public sector and corporate organisations who are increasingly adopting broadcast standards, are demanding value for money from their video streaming infrastructure and investment.**

It's no longer acceptable to have 6 or 12 hour waits before on-demand versions of a programme are available; consumers want it now! We predict this will be a major focus over the next 12 months, as OTT providers become even more competitive.



### SO...WHAT EXACTLY IS LIVE2VOD?

Live2VOD is the process of creating Video on Demand (VOD) from live streams, enabling broadcasters to deliver their catch up content, across multiple target devices.

*“Your content can be made available immediately for on-demand viewing on multiple target devices”.*

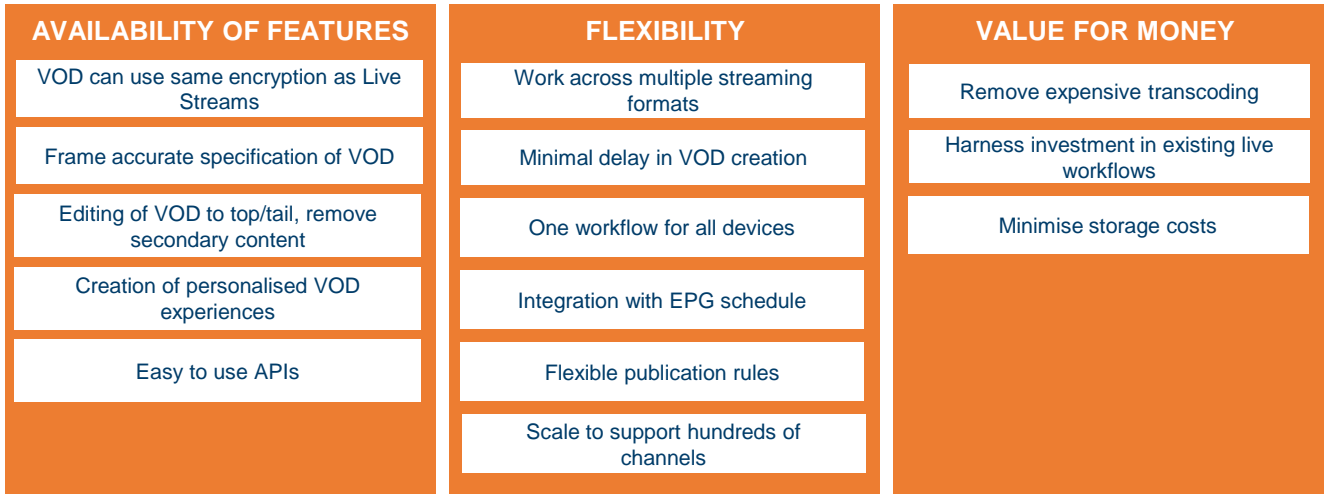
In the past, the provision of a VOD catch up service meant a separate encoding and delivery workflow that was often disconnected to the live architecture, meaning additional hardware, software components, DRM processing and monitoring. Today, these organisations are demanding a long lasting, flexible and scalable solution to the Live2VOD challenge but unfortunately some solutions we have seen are restrictive and lack features.

## HOW VUALTO DELIVER LIVE2VOD

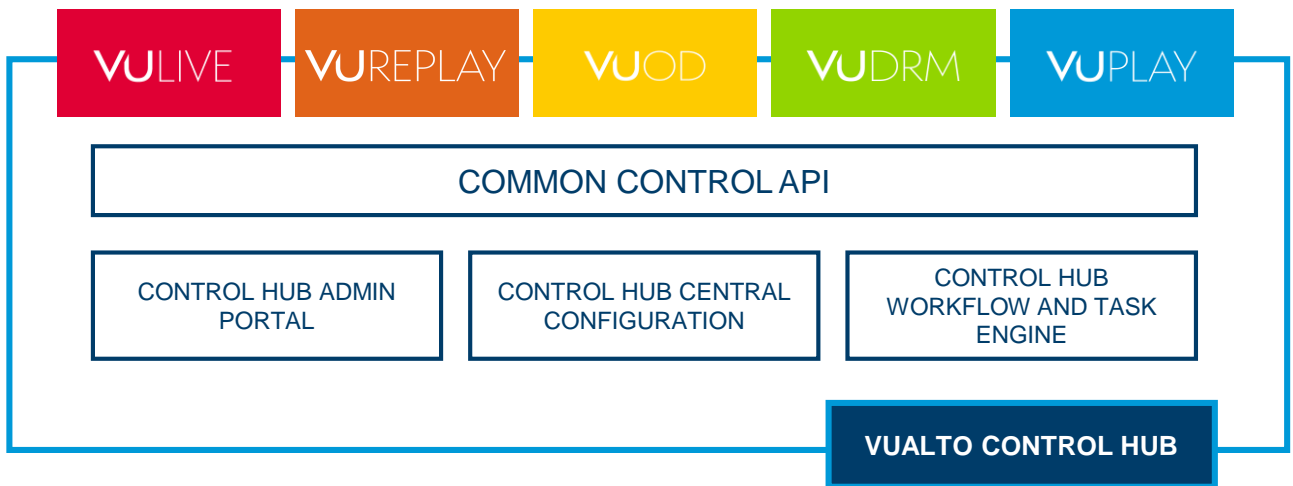
The Live2VOD service from VUALTO (VUREPLAY) provides the ability for broadcasters to deliver immediate and longer term catch up services from live streams, providing a flexible and comprehensive solution that integrates tightly with existing workflows and provides support for streaming across devices, DRM (VUDRM) and download. Your content can be made available immediately for on-demand viewing on multiple target devices or your live broadcast feeds can be optionally re-packaged with dynamic content replacement and insertion, to provide an element of personalisation and targeting.

At VUALTO, our experience suggests that the key factors when choosing a Live2VOD solution can be broken down into the three key areas – functionality, flexibility and value for money.





VUREPLAY from VUALTO makes use of the products from Unified Streaming adding a comprehensive workflow wrapper, control interface and API all provided by VUALTO. It also integrates seamlessly with our other video delivery products for live (VULIVE), on-demand (VUOD), DRM (VUDRM) and player SDKs (VUPLAY). This integration coupled with our expertise and experience providing video delivery systems for major Broadcasters, makes VUALTO'S Live2VOD a cost effective, efficient and quality solution.



## MORE THAN ONE FLAVOUR

We understand that Live2VOD can take several forms, from providing access to an instant archive to the creation of a longer-term VOD library. Providing your viewers with VOD services that are created directly from live and closely coupling the live and VOD workflows together, simplifies the video delivery ecosystem and potentially reduces encoding and processing cost and time.



## VUUREPLAY

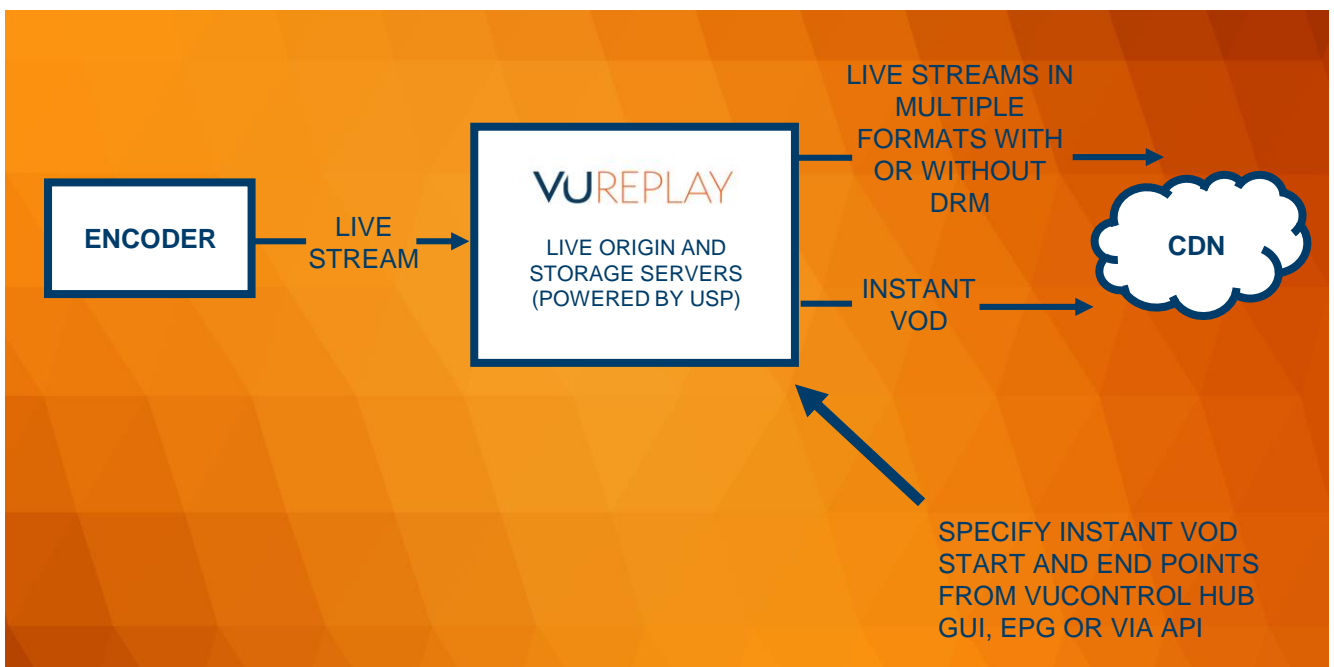
<b>INSTANT VOD</b>	Create your VOD instantly by pointing to the in and out points in the stored 'live' video fragments. Useful for short term catch up.
<b>CAPTURED VOD</b>	Create discreet VOD assets from stored 'live' fragments. Useful for short term catch up and downloading.
<b>REMIXED VOD</b>	Create VOD dynamically from your stored main archive. Personalised VOD streams and integrate with Ad serving platforms.

### VUUREPLAY: INSTANT VOD

- ✓ Available instantly after broadcast
- ✓ Useful for short term catch-up
- ✓ Automatically generated
- ✓ No movement of files or extra processing
- ✓ Rapidly create teasers or highlights from live shows

The video fragments making up your live stream are stored on your origin servers as they are streamed. This store of live video fragments can be used to offer up an 'instant' VOD archive. By pointing to in and out points in the live stream that represent the start and end time of your VOD, users can have access to re-watch the content as soon as that part of the live stream is completed.

This method is often used as a quick and dirty catch up service and can be automated by referencing an EPG or broadcast schedule. The advantage of this method is that the VOD is instantly available with no wait time, but there is the option for Administrators to review and refine in and out points prior to publishing to their viewers. Instant VOD is as accurate as the fragment length (not frame accurate) and is ideal for a 48-72 hour catch up service.

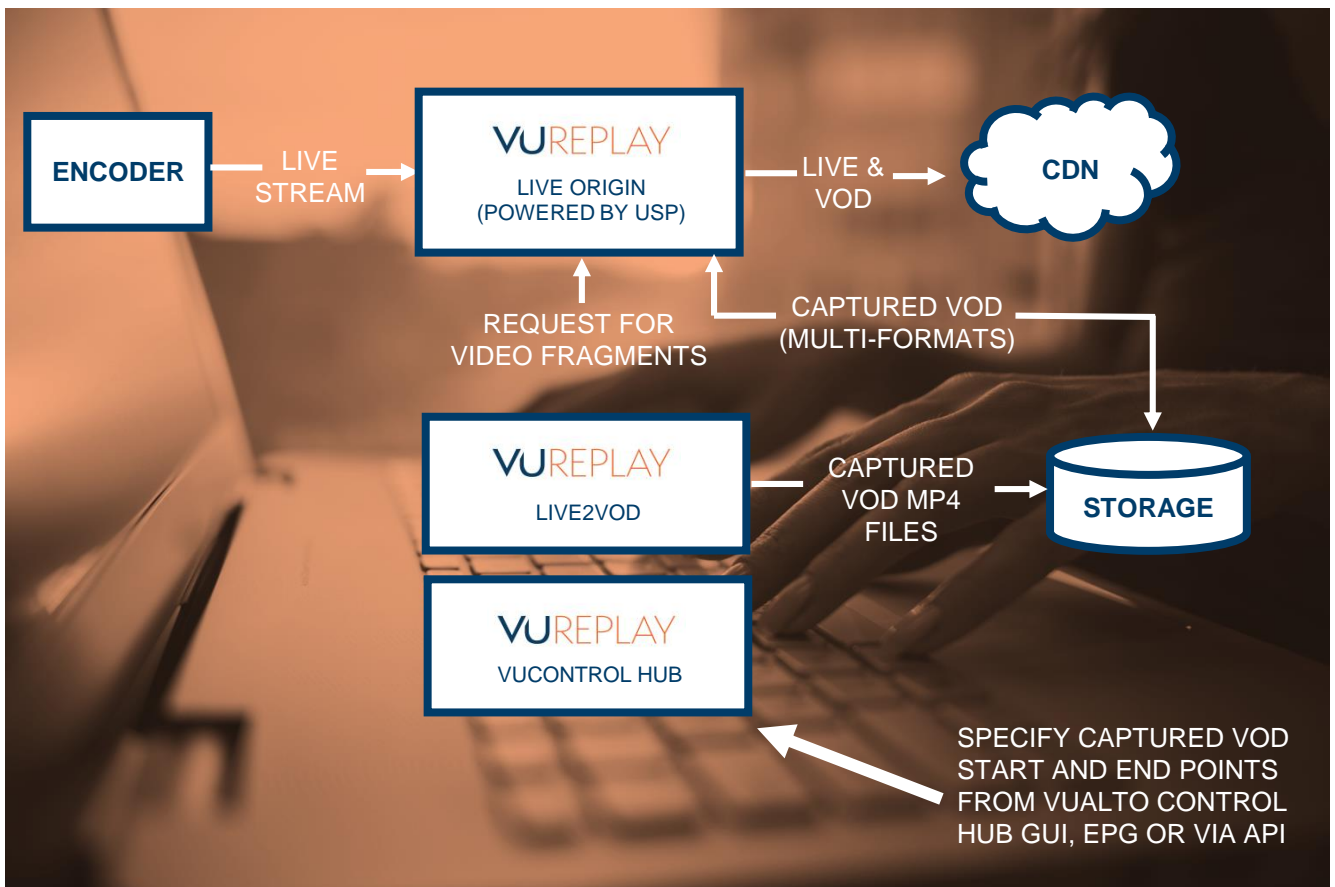


## VUREPLAY: CAPTURED VOD

- ✓ Useful for long term archive
- ✓ Allows frame accurate cutting
- ✓ Can be transmuxed and (re)encrypted on-the-fly
- ✓ Provides a downloadable asset
- ✓ Supports removal of adverts

This type of VOD provides the ability for a more refined VOD service to be offered, providing a frame accurate cut of the live stream and the creation of a separate MP4 asset that can be streamed or optionally downloaded. Captured VOD is specified by using the VUALTO CONTROL HUB software, calling our API or via integration with your EPG. Video fragments are combined to create a single multi-bitrate asset and moved to an appropriate storage server (such as S3). These VOD assets then make up a long-term VOD archive with or without DRM encryption.

Delivery of the Captured VOD is normally via the USP origin server which performs the transmux into the required formats and can optionally re-encrypt the VOD on the way out. Our custom integration services mean that Captured VOD can be automatically created using scheduled data or standard broadcast markers that identify programme breaks and advertising segments.

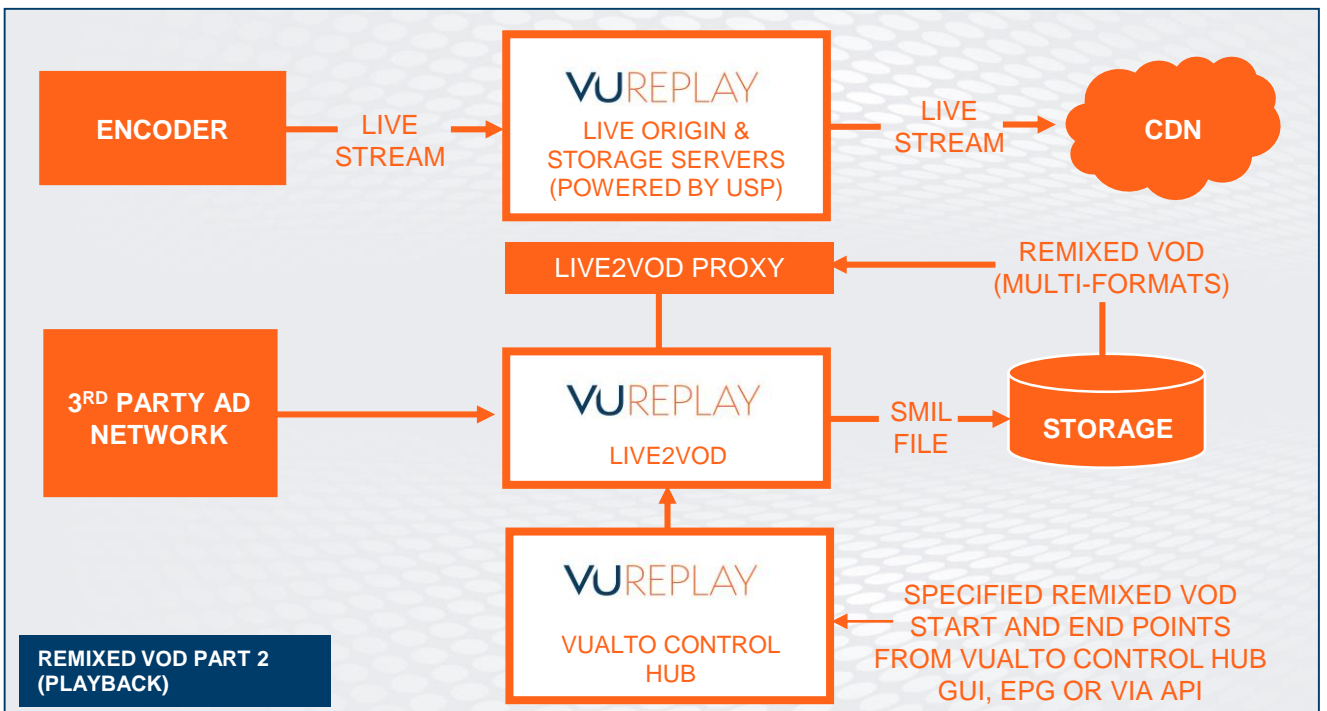
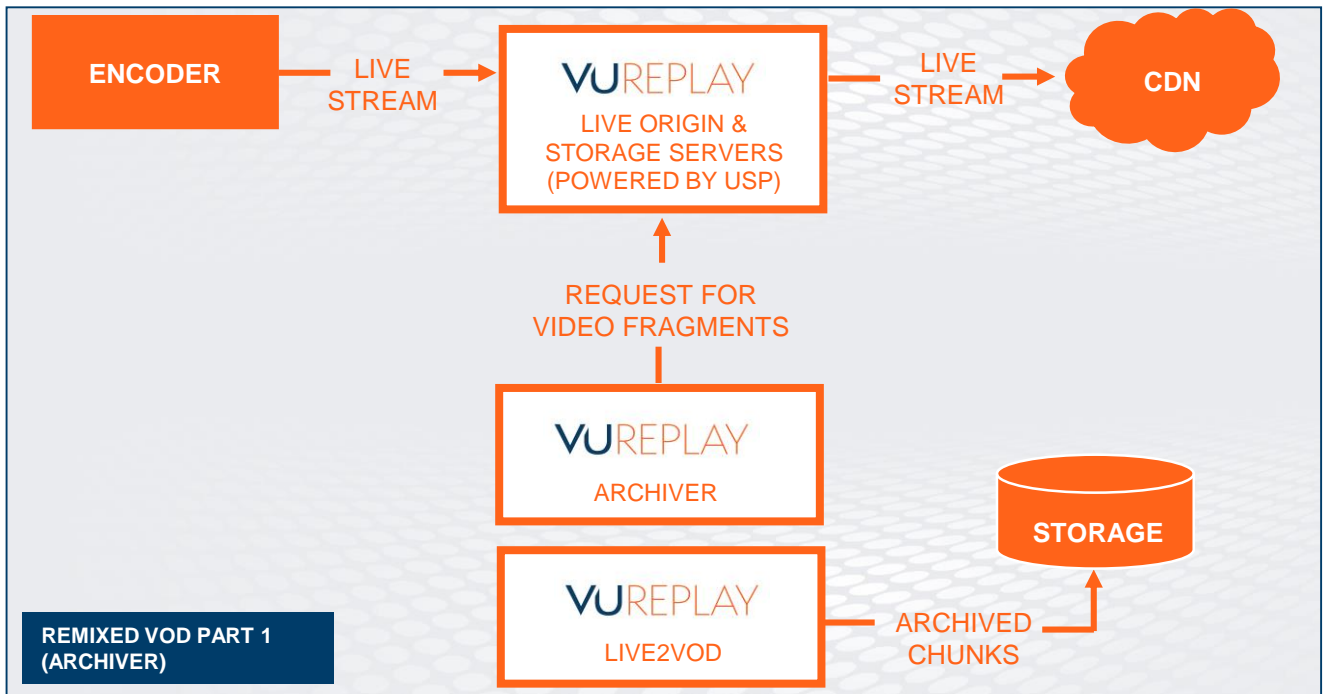


## VUREPLAY: REMIXED VOD

- ✓ Supports dynamic server side playlists
- ✓ Provides ability to personalise VOD experience
- ✓ Enables the whole live stream to be archived
- ✓ Ultimate flexible creation of VOD

Our Remixed VOD solution provides the ultimate flexibility when creating catch-up services, allowing server side playlists of VOD content to be dynamically created. This allows for potential personalisation of the catch-up service for different user groups and dynamic server side ad insertion.

Using Unified Remix 'under the hood', the Remixed VOD solution captures small sections of the live stream at regular intervals and moves each section to a main archive for storage.



## KEEPING YOUR CONTENT SECURE

Encrypted live streams can bring additional complications but VUALTO are able to provide several ways to ensure that your Live2VOD is secure.

These include:

- Maintaining the DRM from the Live stream to the Live2VOD.
- Removing the DRM from the Live stream to deliver Live2VOD 'in-the-clear'.
- Changing the DRM from live to Live2VOD using a Transdrm process to make use of new Content Keys.

VUDRM from VUALTO is a hosted DRM platform providing Google Widevine, PlayReady and FairPlay Streaming. Usually, an encrypted token containing the DRM policy information is sent to the player. The player then uses this token to request a licence to allow playback from the licence servers. To make it easy, VUALTO use one token format regardless of DRM type.

This DRM policy describes the business rules governing the playback of the content; for example, a VOD rental for 30 days, VOD buy to own, live streaming for 30 days, etc.

VUALTO can also provide a "no token" solution where broadcasters are forced to encrypt their streams but are not worried about monetisation or who is watching the content. This is particularly true of free-to-air content that may contain some studio content at certain times of the day.

The VUDRM ecosystem consists of several APIs and micro services deployed as separate Docker containers in AWS across multiple regions. This means that each part of the system can be scaled independently. Through VUALTO'S use of open source tools such as Rancher and Spotinst, they support both scheduled scaling to cope with predicted high audiences and automatic scaling based on latency metrics.

## SUMMARY

**Broadcasters and content owners want the ability to have complete control of their valuable live archives and the ability to deliver what the consumer craves. Live2VOD will have to up its' game once again, to continue to satisfy the high expectations of OTT consumers. VUALTO are already leading in this movement and we look forward to further innovating as we work with existing and new clients to develop their offering. 2017 has already proven to be an exciting year for Live2VOD, for VUALTO and the industry as a whole; a trend we predict to continue well into 2018.**