BITMOVIN

Short-Form Video: Workflow Considerations for Ads, Video Clips, and User-Generated Content

Introduction

Slow video startup times. Sluggish download speeds. Constant rebuffering. Any one of these can ruin the streaming experience. But when it comes to bite-sized video assets like user-generated content (UGC) and instant replays, the stakes are even higher. Today's viewers demand instant gratification and have little patience for the back-end processing that must take place before a short clip is published.

What's more, most streaming companies distribute a mix of short- and long-form video. Viewers expect seamless experiences regardless of what they're watching, even though different video types present unique technical requirements. In this guide to short-form video content, we dive into the workflow considerations, use-case-specific implementations, and recommended tools for solving the short-form puzzle.

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Understanding short-form content

In the context of streaming, short-form content refers to any video asset that's less than five minutes in length. Connected TV ads, news clips, game highlights, and more fall into this category.

These streams are more easily consumed and shared than full-length broadcasts. And in today's content-flooded landscape, they are vital in driving engagement and revenue.

But preparing short-form video assets for distribution requires a different approach. Most streaming workflows are architected so that servers aren't spun up until a file is ready to be transcoded and processed. This leads to a delay as new jobs queue, which directly impacts video startup time. And if the viewer experiences an extended lag or video ads aren't served in time due to this bottleneck, the result is lost revenue.

The importance of minimizing video startup time

Slow video startup times are the enemy of engagement, and by extension, revenue. The longer viewers wait for a stream to buffer, the less likely they'll be to stick around and watch your ads or subscribe to your service.
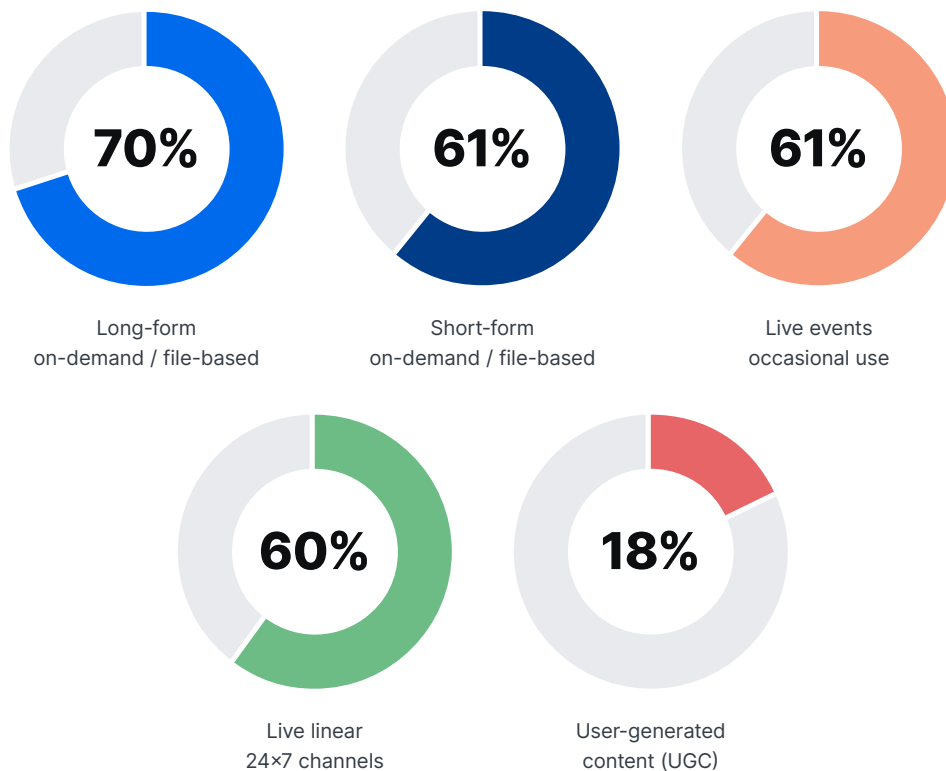
And even though video processing times are a fraction of what they were in the early days of streaming, our attention spans continue to shrink. Back in 2012, Akamai found that:

> "Viewers start to abandon a video if it takes more than 2 seconds to start up, with each incremental delay of 1 second resulting in a 5.8% increase in the abandonment rate."

Demands for immediate playback will only grow. While viewers may be willing to tolerate a few seconds of buffering before a feature-length movie, the same cannot be said for an in-stream ad or instant replay.

Challenges in today's content-rich landscape

Video companies are configuring much more complex workflows than ever before — often distributing a mix of short- and long-form content, 24/7 linear channels, and potentially some live-to-VOD or UGC action thrown into the mix. Our 2024 Video Developer Report confirmed this trend.

70%
Long-form
on-demand / file-based

61%
Short-form
on-demand / file-based

61%
Live events
occasional use

60%
Live linear
24×7 channels

18%
User-generated
content (UGC)

Variety is the spice of life, so this diversification makes sense. But the more nuance there is to your use case, content, and audience expectations, the more thought needs to be given to your encoding strategy.

After all, video startup time can have major implications on monetization. Without optimal video processing times, publishers risk damaging multiple revenue streams.

- **Lost advertising opportunities:** Every second a video takes to start reduces the amount of ad inventory you can sell, directly impacting your bottom line.

- **Subscriber churn and missed conversions:** If users are consistently frustrated by buffering videos, they're more likely to cancel their subscriptions and take their business elsewhere.

- **Negative impact on brand perception:** A sluggish viewing experience can damage your brand reputation, associating your platform with frustration and low quality.

Introduction to short-form content use cases

Let's drill down into a few scenarios where quickly processing short-form content is an absolute must.

Consider OTT platforms like Netflix that now offer ad-supported tiers. Time is money when selling programmatic ad space, and decisions are made mere seconds before the content must air. The faster that publishers can prepare these ads for distribution, the longer they can leave the bidding open to drive up ad prices.

Likewise, **live news and sports broadcasters** often rely on highlight clips and instant replays to drive viewer engagement. Whether the goal is to break the news or make the most out of premium real-time content, time is of the essence when preparing these clips.

And let's not forget about **user-generated content (UGC)**. Ensuring a high-quality experience is crucial for UGC platforms — directly impacting user adoption and retention. Even if you've built the next TikTok, long video (up)load times and buffering will send users elsewhere.

Across all these scenarios, the challenge is the same: short-form video workflows require fast turnaround times, which can be costly and time-intensive to configure.

Balancing encoding costs and speed

The goal when designing video infrastructure is to be as cost-effective as possible. As such, video developers often opt to only spin up servers when an encoding job is ready rather than wasting money on idle servers.
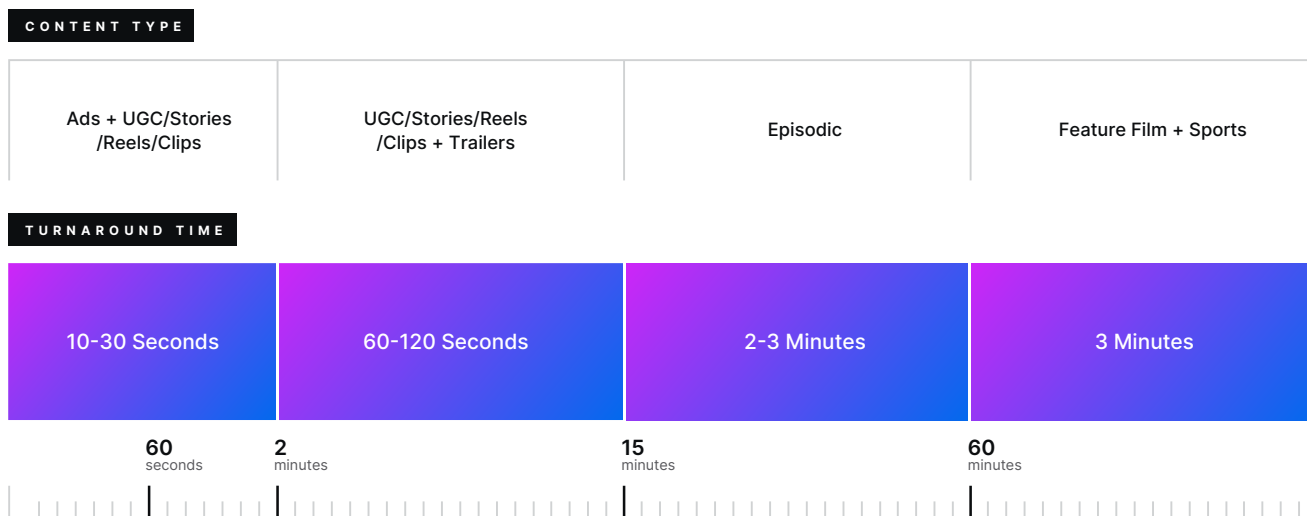
This works great with long-form content, but when preparing ads, clips, and UGC content for distribution, it creates a bottleneck.

And encoding is only one piece of the puzzle. To truly ensure a smooth and speedy experience (without breaking the bank), you'll want to optimize several steps across the streaming workflow.

"If you take this approach to encode short-form video, the time it takes to just spin up resources to process the content is already more time than the content itself. That's why we've optimized how Bitmovin handles this type of content and implemented different processor types to accelerate the pipeline."

Markus Hafellner
Director of Product Management,
VOD Encoding and Infrastructure

CONTENT TYPE

Ads + UGC/Stories /Reels/Clips	UGC/Stories/Reels /Clips + Trailers	Episodic	Feature Film + Sports

TURNAROUND TIME

10-30 Seconds	60-120 Seconds	2-3 Minutes	3 Minutes

60 seconds   **2** minutes   **15** minutes   **60** minutes

Considerations across the streaming workflow

Here's a breakdown of key areas to explore when architecting your infrastructure for short-form video.

Encoding/transcoding

While often used interchangeably, encoding and transcoding are distinct processes. Encoding refers to the initial conversion of raw video into a compressed digital format, typically happening right after capture. Transcoding, on the other hand, deals with digital-to-digital conversion, preparing the video content specifically for distribution to viewers across various devices.

For the purposes of this guide, though, we're using encoding as an umbrella term encompassing the processing of content for different devices and playback scenarios. Here, prioritizing the following factors becomes crucial:

- **Speed:** Short-form content demands fast turnaround times. Look for encoding solutions optimized for speed, minimizing the time it takes to process each video.

- **Efficiency:** Encoding consumes resources. Finding a solution that balances speed with resource utilization helps keep costs in check.

- **Scalability:** Your needs may change over time. A solution that can scale up or down as your content volume fluctuates will give you the flexibility required.

Multi-format ingest and egress

Streaming is all about getting content from point A to point B. Content distribution is key, but so is the ability to repackage various video formats. You'll want to find an encoding solution that offers broad format support during ingest to ensure compatibility with different workflows and evolving production pipelines.

But that's not all. On the delivery side (egress), different platforms and affiliates often have specific requirements for how video content is packaged. This is where video encoding becomes crucial, ensuring your content arrives at its destination in the exact format needed for

smooth playback. By choosing an encoder with extensive format support for both ingest and egress, you can guarantee hassle-free content distribution across a variety of sources and platforms.

Bitmovin's extensive support for input and output formats makes it easy to repackage and deliver content in the exact specifications of every destination, with the ability to pre-configure workflows for automation.

Pre-warmed encoder pools

As detailed above, encoding short-form content can be a balancing act between prioritizing speed and controlling costs. While it's certainly possible to leave all of your server instances running for any encoding job that may pop up, this is wasteful unless you're processing videos around the clock.

But what if there was a way to keep idle encoding resources available for automatic provisioning? Enter pre-warmed encoder pools.

Imagine a pool of encoding resources ready to go, eliminating any hold-up. At Bitmovin, we now offer pre-warmed encoding pools as another tool to reduce the turnaround time of short-form content.

The benefits include:

- **Near-instantaneous encoding:** With pre-warmed resources readily available, encoding jobs can start practically the moment you trigger them. This translates to queue times dropping from minutes to seconds.

- **Consistent throughput with dynamic pooling:** Unlike traditional on-demand encoding, pre-warmed pools guarantee a dedicated pool of resources to provide consistent throughput, regardless of your workflow's peaks and valleys.

- **Scheduling for bursts:** If your encoding needs are somewhat predictable, we offer the ability to schedule the start and stop of a pool ahead of time to further manage costs.

GPU acceleration

Traditionally, CPU-based encoding has been the go-to for video processing. Plenty of research and development has been done to optimize compression using this approach, which is why CPU encoding has always offered exceptional quality. That said, CPU encoding speed left something to be desired.

Meanwhile, GPUs have long delivered significantly faster encoding speeds thanks to their specialization in parallel processing, but stellar quality wasn't guaranteed.

This is now changing with innovations like NVIDIA's T4 chip, which uses custom handling for codecs like H.264, H.265, and AV1. The industry's focus on fine-tuning the balance between speed

and quality has made GPU-accelerated encoding an increasingly attractive option, particularly for short-form content like ads and news clips where fast turnaround times are crucial.

Take Bitmovin's GPU-accelerated encoding for example. By leveraging this technology, we've been able to achieve a **75% reduction in video processing times**. This translates to real-world benefits: faster turnaround times for your short-form content, all without sacrificing the quality your viewers expect.

And even better, Bitmovin customers can integrate GPU acceleration into their existing CPU workflows for VOD encoding, ensuring speed and flexibility.

Live-to-VOD Encoding

Live-to-VOD encoding is also a great feature when publishers want to create highlights from a live stream as the action is still unfolding. Sporting events, news broadcasts, live concerts, and more all fit this requirement.

The benefits of live-to-VOD encoding include:

- **Enhanced viewer engagement:** Keep viewers' eyes glued to the screen by replaying game highlights.

- **Content reuse opportunities:** Repurpose live content for social media marketing and SEO-boosting efforts across your digital properties.

- **Expand your audience:** Extend the revenue potential of live events by creating content for additional viewers at another time.

Playback

Moving onto the video player, as far as end users are concerned, <u>video players</u> are the only piece of the streaming tech stack that matters. That's because these act as the face of streaming platforms, giving viewers control over what they watch, which devices they watch it on, and when the content plays. Whether you're building a mobile app or an OTT platform, your video player is essential to ensuring seamless playback quality across any device. Let's take a look at the requirements to prioritize at this stage of the workflow.

Adaptive bitrate (ABR) playback

One of the key benefits of video players is the ability to dynamically adapt the content based on each viewer's device and internet speed. Called adaptive bitrate streaming or ABR, this is why you'll sometimes notice a stream you're watching switch from fuzzy to sharp in a matter of seconds.
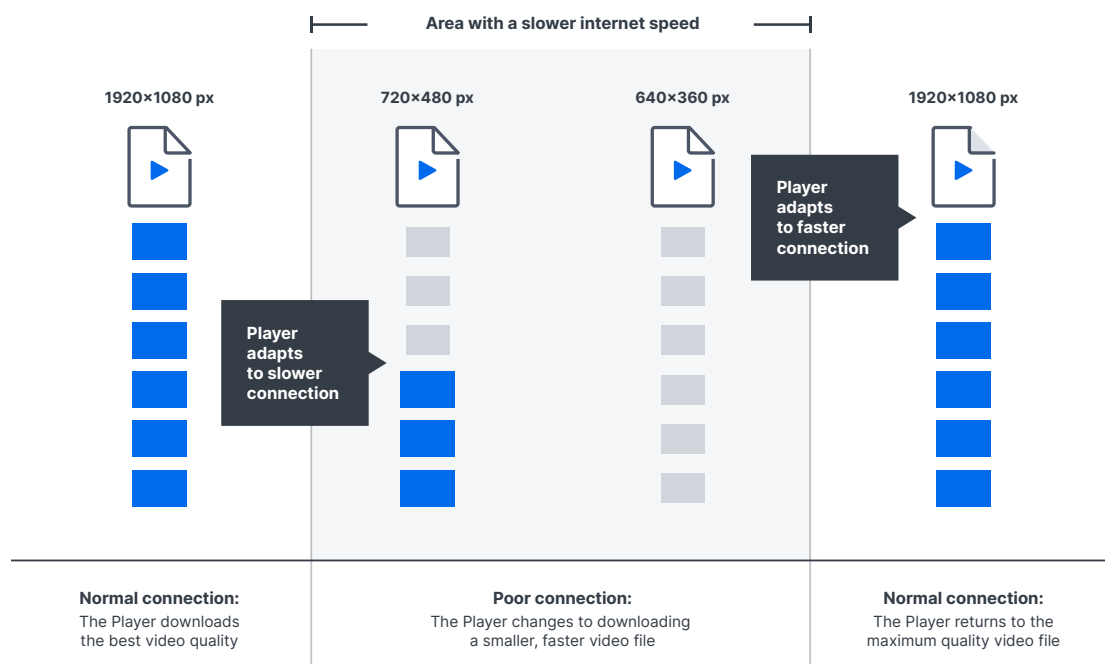
As shown in the diagram above, <u>ABR players switch between different video renditions as connectivity changes</u>. Users with poor connections get an uninterrupted experience despite resource constraints; whereas those with speedier connections enjoy the highest-quality file available.

While basic ABR functionality is beneficial, some scenarios require more control. This is where <u>configurable ABR algorithms</u> come into play. These algorithms allow you to fine-tune the ABR logic based on your specific needs. For instance, you may want to integrate custom logic based on factors like CPU usage, buffering threshold, and more.

Advertising support

If you're monetizing your video content with ads, you'll want to make sure that they render in an efficient and high-quality manner. Support for the ad formats you're using, seamless integration with ad partners, and flexibility for different types of ads (pre-, mid-, and post-roll; overlays; increasingly interactive formats, etc.) are all key capabilities to look for.

Performance

When evaluating streaming players, fast video startup time, seamless source switching, and seeking are all critical to short-form video workflows. Here's a closer look at each:

- **Startup time:** You want to ensure immediate playback without any perceived delay when your viewers click play. Even with all the tactics for accelerating the encoding process, your viewers will still experience a delay without high-performance technology like Bitmovin Player Web X.

- **Seeking:** Not only do today's viewers lack patience, they also demand full control. The time it takes for video content to resume playback after the user jumps to a random position in a timeline should also be a consideration when comparing video players.

- **Source switching:** Finally, it needs to be easy and seamless for users to switch between video clips. This is critical for news and sports apps to keep users engaged with their platform while consuming short-form content.

Analytics

Last but not least, let's talk about analytics. Although simply analyzing startup time is a good first step, you'll want to look at additional metrics in your short-form workflows. Page and player load times, bandwidth conditions, bitrate renditions, segment size, adaptation logic, rebuffer rate, and error percentages should also be monitored.

There will also be additional metrics to monitor depending on your use case. If you're distributing premium content that's DRM-protected, you'll want to monitor the DRM server response times to ensure they aren't adding noticeable delays to your workflow.

For ad-supported workflows, on the other hand, you'll want to keep an eye on things like:

- How long does it take for ads to play?
- How do completion rates compare across different countries of origin?
- Which ads have a higher click-through rate?
- Does my audience respond better to mid-rolls than they do to pre-rolls?

All of this information can inform how you configure workflows and identify potential cost-saving opportunities along the way.

A closer look at short-form use cases

Having covered the challenges and considerations for optimizing your workflow for short-form content, let's see these principles in action across various use cases.

Live news: How Axel Springer gets the news out first

Cameras are everywhere these days. As such, news footage is compiled from countless sources — including bystander iPhone recordings, live-streamed press conferences, and even drones.

But gathering the content is only the first step. From there, the content needs to be quickly prepared for distribution across a wide network. After all, the goal is to be the first to break the story.

As one of Europe's largest media companies, Axel Springer has retained its position as the premier destination for news, entertainment, and culture by embracing digital-first technologies. The company's portfolio of brands — including Politico, WELT, and BILD — stream content across broad distribution networks that span social media, traditional broadcast, and proprietary channels.

Publishing stories fast is crucial for news outlets, which is why Axel Springer partners with Bitmovin to prepare video assets for distribution. With Bitmovin Encoder, the media conglomerate has optimized the time it takes to generate short news and sports clips so that they can be easily inserted into live streams.

And that's not all. Axel Springer also uses Bitmovin Player to generate one billion impressions each year across its publications, as well as Bitmovin Analytics to monitor stream quality and speed across the globe.

"Speed is especially important to us because news is at the heart of our business model and there's always a story breaking at any time. Bitmovin's VOD encoding is the fastest on the market, which means we can have VOD assets ready to go in seconds.
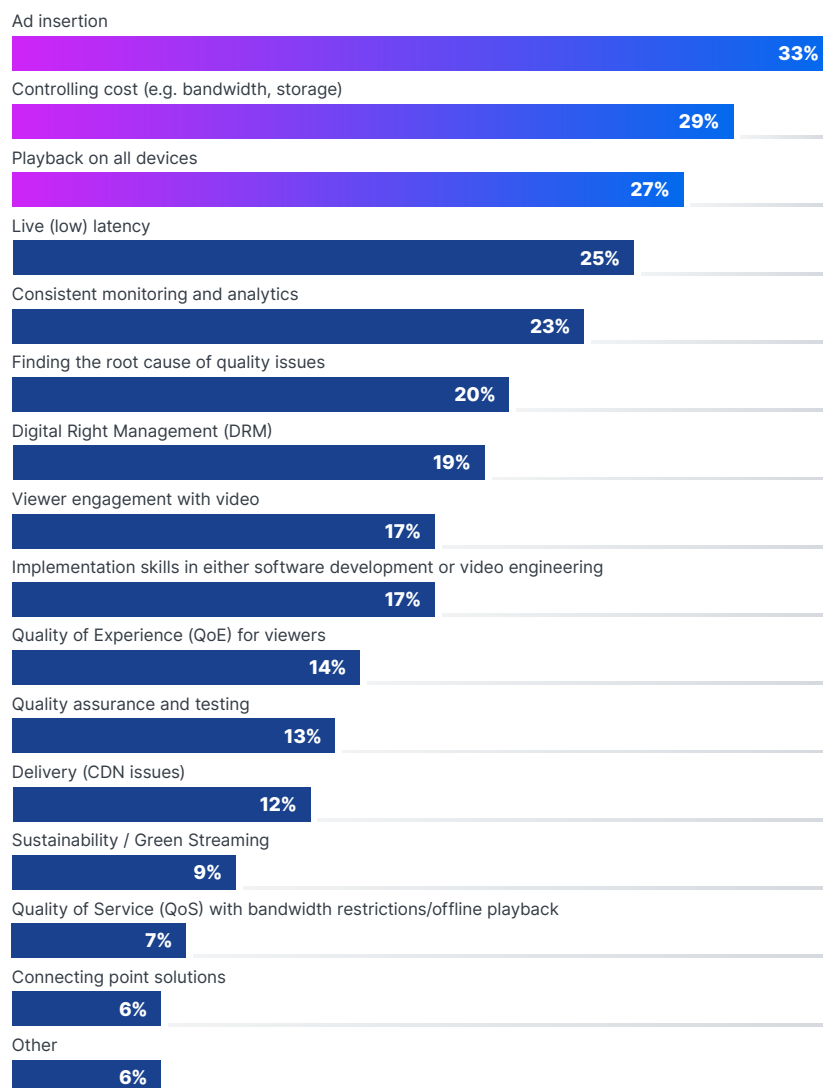
Additionally, the Bitmovin Player ensures our audience can enjoy streams in the highest-quality while Bitmovin Analytics works tirelessly in the background to pinpoint issues before they impact the viewer. Bitmovin is an invaluable technology partner and their solutions have transformed our video streaming workflows."

Stephan Zech
Executive Director @ BILD Video/TV Business

Ad-supported streaming: How a large cable network's global SVOD OTT service drives multiple revenue streams

Ad insertion
33%

Controlling cost (e.g. bandwidth, storage)
29%

Playback on all devices
27%

Live (low) latency
25%

Consistent monitoring and analytics
23%

Finding the root cause of quality issues
20%

Digital Right Management (DRM)
19%

Viewer engagement with video
17%

Implementation skills in either software development or video engineering
17%

Quality of Experience (QoE) for viewers
14%

Quality assurance and testing
13%

Delivery (CDN issues)
12%

Sustainability / Green Streaming
9%

Quality of Service (QoS) with bandwidth restrictions/offline playback
7%

Connecting point solutions
6%

Other
6%

In our 7th Annual Video Developer Report, ad insertion topped the chart as the biggest video technology challenge publishers face today.

And there's a good reason for this. The connected TV (CTV) ecosystem is painfully complex. Most ads are placed programmatically via real-time bidding, which means there's very little lead time between when the inventory is sold and when it must be aired.

Publishers must download these ads from the server, transcode them for adaptive bitrate streaming, and then publish them immediately to monetize the ad space.

An unfilled ad pod is a lost opportunity. Quick video processing also enables publishers to leave bidding open longer, which often equates to more revenue.

"Ad-supported streaming is the name of the game today. And I don't care if you're a viewer, advertiser, or publisher: A blank screen stating 'We'll be right back' during a commercial break is never welcomed.

There are a few reasons that ad pods go unsold, including fragmentation across the CTV ecosystem and technical kinks. For the OTT platforms, this isn't just a loss in revenue, it also leads to a poor UX that might send viewers elsewhere."

Joel Cox
Co-Founder and EVP of Innovation @ Strategus

When a major cable TV network with a global SVOD service decided to introduce new ad-supported tiers, it brought new complexity to the streaming giant's video pipeline. Around 200,000 new pieces of content needed to be transcoded in a very short period of time, requiring a new approach to their encoding workflow.

Bitmovin's cloud-native VOD Encoder was up to the task, scaling as needed to run over 2,000 concurrent encoding jobs. The fast turnaround meant that these ads were ready to serve as quickly as possible, maximizing their revenue potential.

Sports replays and highlights:
Scaling content production for the NRL

When a publisher holds exclusive rights to premium sports content, it's often for a limited amount of time. This gives them a brief window of time to drive monetization by distributing replays and game highlights.

And even when media rights don't come into play, reaching viewers across digital touchpoints with top moments is crucial for fan engagement. Younger viewers now prefer watching highlights to complete games, making this type of content repurposing a crucial component of modern sports broadcasting.

As the premier rugby league competition of Australia and New Zealand, The National Rugby League (NRL) sought to supercharge
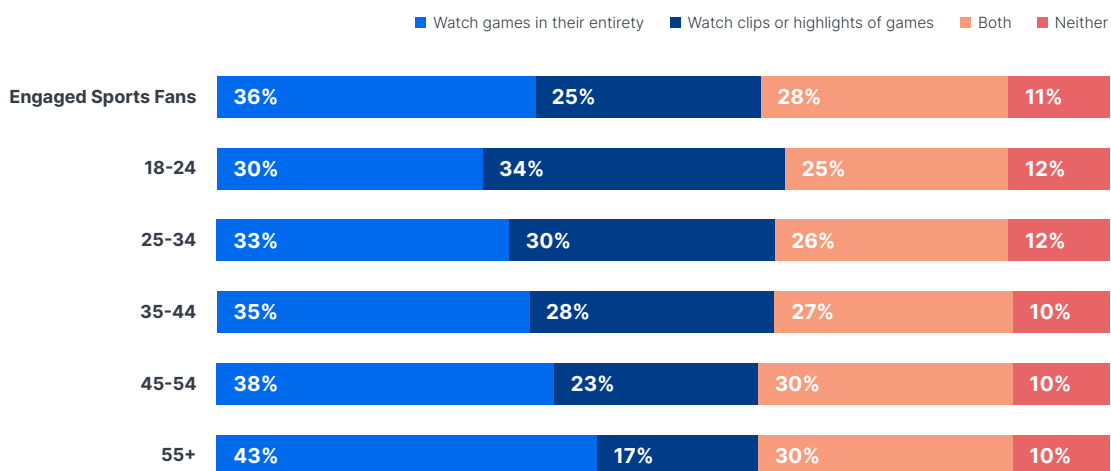
fan engagement and attract a global audience. To do this, the NRL teamed up with Dalet Flex and Bitmovin to accelerate their online delivery workflow.

The end goal? To distribute more rich content faster across 30+ websites, apps, and streaming platforms. This meant speeding up speed up content processing, encoding, and publishing — especially for near-live highlights.

The league is now able to easily expand into new markets, engage fans across VOD, apps, and subscriptions, and augment revenue opportunities based on insight across their production and distribution operations.

1 in 4 global sports fans prefer to watch short clips and highlights over full-length live games

Preferred length and format of sports content among Engaged Sports Fans by age - Global

Legend: ■ Watch games in their entirety ■ Watch clips or highlights of games ■ Both ■ Neither

	Watch games in their entirety	Watch clips or highlights of games	Both	Neither
Engaged Sports Fans	36%	25%	28%	11%
18-24	30%	34%	25%	12%
25-34	33%	30%	26%	12%
35-44	35%	28%	27%	10%
45-54	38%	23%	30%	10%
55+	43%	17%	30%	10%

Source: YouGov Sports Whitepaper 2023: The Global Sports Media Landscape

"When working with video content from varying sources that needs to be published online (live, near-live or on-demand content), every workflow, metadata layer and media processing step adds time and complexity getting content to the audience.
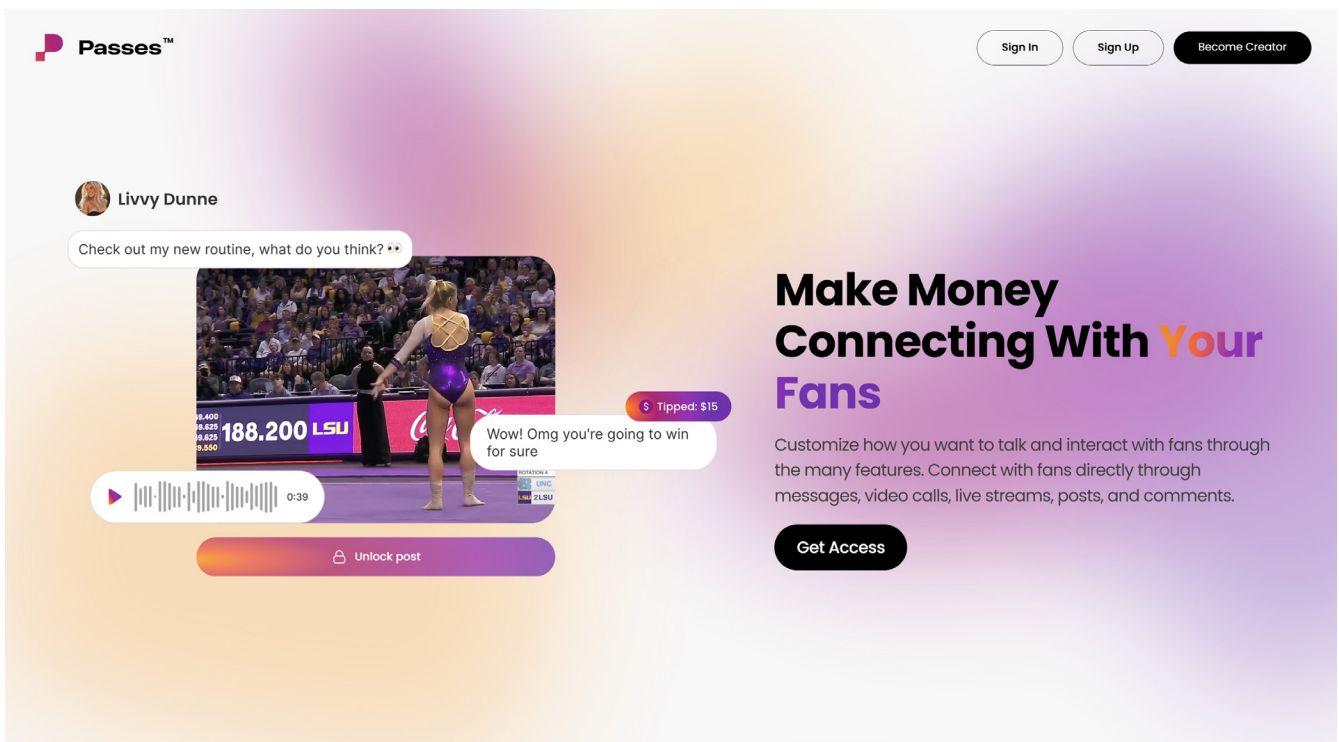
By combining Dalet Flex and the Bitmovin solutions we have been able to reduce complexity and issues, optimizing inefficient steps while successfully accelerating our online delivery workflows."

Quanah McBride
Head of Digital Media Operations @ The National Rugby League

User-generated content (UGC)

User-generated content (UGC) involves users streaming live or on-demand videos on social media platforms like LinkedIn or subscription-based platforms like Passes. Ensuring a protected, high-quality experience for users is crucial for these applications — especially in cases where the users can monetize their content through exclusive membership-based access.

Passes, a creator monetization platform, integrated the Bitmovin Player and Analytics into their streaming workflow, enabling users to stream video and monetize their content across a range of devices while keeping their viewers engaged. Using Bitmovin's Analytics, the Passes platform can easily track the performance of users' streams in real time, gaining the insight needed to develop a secure, high-performance platform with optimal playback and viewer experience.

"Our ultimate goal is to help creators foster more direct connections with their fans while also developing more exclusive, monetizable content. It's crucial that our platform offers the highest level of security to protect our creators' content, and when we evaluated the players on the market, we quickly concluded that the Bitmovin Player was the best match for our technical requirements.

Bitmovin Analytics provides us with deep user metrics that ensure we have real-time insights into how streams are performing and that our creators can keep their fans engaged with the best streaming experience."

Aaron Friedlander
Head of Engineering @ Passes

How to select the right video infrastructure

Building video applications takes time. Luckily though, many of the technology components can be outsourced. When considering third-party encoding, player, and analytics tools, you'll want to find a developer-centric provider like Bitmovin that provides APIs and SDKs, extensive documentation, and community forums to speed up buildout.

"The user experience for short-form content can be tricky. It's quite new for a lot of businesses outside of social media. Getting it right takes a lot of time and focus," explains James Varndell, Bitmovin's senior director of product management. "So if you have a pre-integrated encoder, analytics, and player, you can instead spend your time on getting the right viewer experience for your app, content, and users."

Short-form encoding made easy with Bitmovin

Time is of the essence when it comes to short-form content. Viewers expect instant playback at every commercial break, click, or swipe. In many cases, content distributors are also on a tight deadline to fill ad pods, break the news, share game highlights, and make streams available to users on their platforms.

To seamlessly scale content distribution across a variety of sources and destinations, you'll want:

- An encoding solution optimized for accelerated workflows
- A player optimized for fast video startup time
- Granular analytics that gives you control over the viewer experience.

At Bitmovin, we built our VOD Encoding, Live Encoding, Analytics, Player, and end-to-end Streams solutions to help OTT providers optimize operations and exceed viewer expectations. That's why countless businesses trust us to seamlessly deploy and scale their video streaming workflows and deliver the highest quality of experiences across every device.
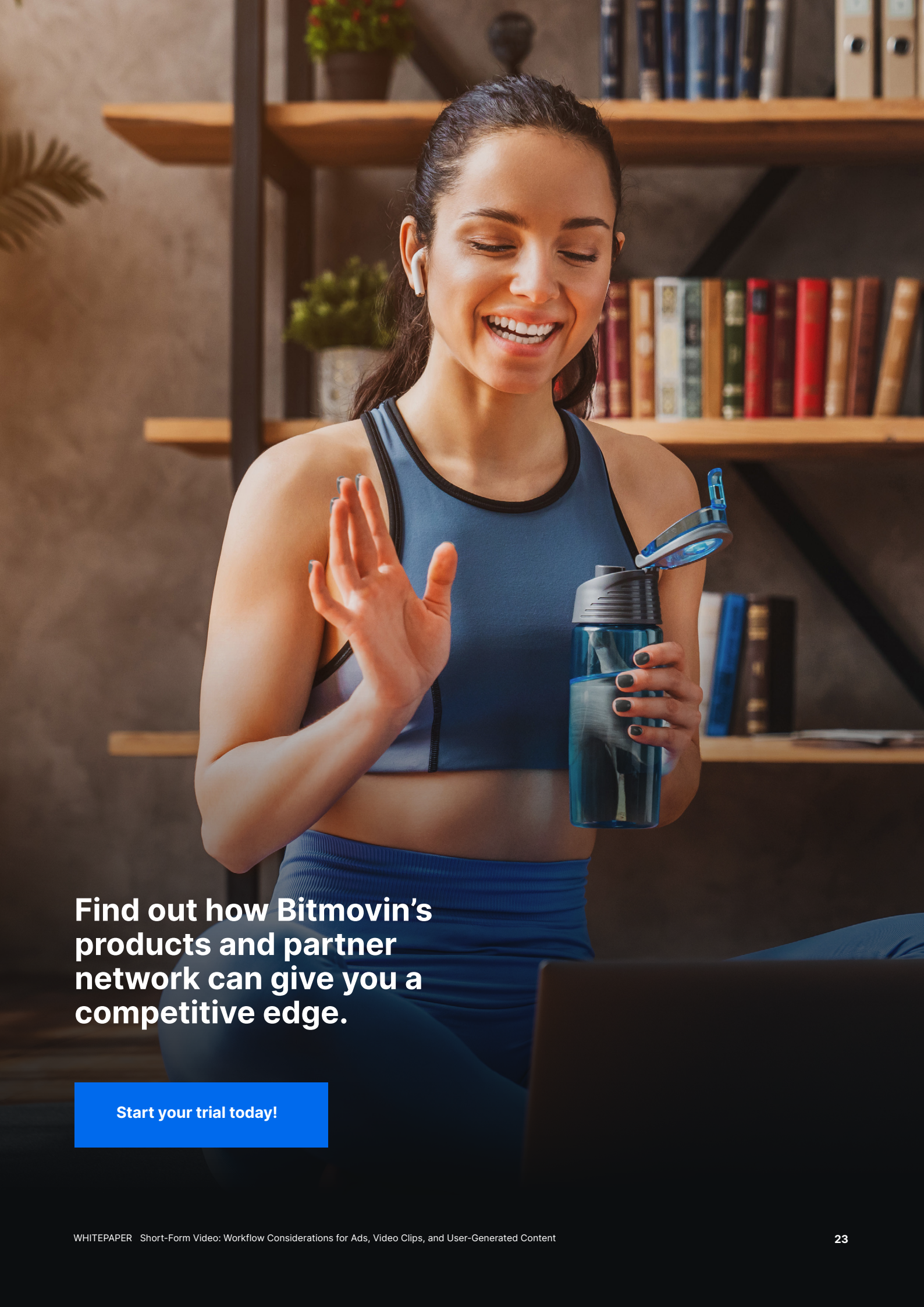
Find out how Bitmovin's products and partner network can give you a competitive edge.

Start your trial today!

Bitmovin is the Emmy award-winning category leader in video streaming infrastructure. The company has been at the forefront of industry innovation and all major developments in the online video streaming industry.

Bitmovin built the world's first commercial adaptive streaming player and deployed the first software-defined encoding service that runs on any cloud platform. Its cloud-native technology offers the most flexible and scalable media encoding, playback, and analytics solutions available, with unparalleled device reach, ease of integration, and world-class customer support. Today, the company's solutions are used by over 400 customers worldwide, including the BBC, ClassPass, Discovery, fuboTV, Hulu and many more.

For more information
www.bitmovin.com

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