Operator strategies for delivering high-quality live OTT TV services

Gorkem Yigit
About this report

This report explores how linear events and live TV channel broadcasts will form an increasingly significant share of over-the-top (OTT) TV and video services spend worldwide. The report analyses the main technical challenges and limitations for pay-TV providers in delivering live content over-the-top and across various networks.

We assess the ability of current and emerging live video delivery optimisation and automation technologies across the video delivery chain to overcome or alleviate two critical service challenges, namely scalability and latency, for delivering live OTT video services with a high quality of experience (QoE) and high quality of service (QoS).

The report also provides recommendations for pay-TV providers that want to defend their pay-TV propositions against OTT competitors and also makes recommendations for vendors active in the video management, delivery and optimisation space.

It is based on several sources, including:

- Analysys Mason’s internal research including pay-TV/OTT forecast data
- Interviews with operators and vendor stakeholders in the content delivery network (CDN) and video optimisation markets.

1 For more information, please see Analysys Mason’s Pay-TV services worldwide: trends and forecasts 2017–2022 and OTT video worldwide: trends and forecasts 2017–2022.

KEY QUESTIONS ANSWERED IN THIS REPORT

- What are the main strategies available to pay-TV operators for turning the live OTT threat into an opportunity?
- How can pay-TV providers replicate the traditional TV QoE in live OTT? Which of the main challenges need to be addressed urgently?
- What are the most-important CDN/optimisation strategies and technologies that pay-TV providers can adopt to improve QoE/QoS?
- How can mobile operators manage the negative impact of live OTT in mobile networks?
- Which are the key CDN, video optimisation and video processing vendors that are providing solutions for high-quality linear OTT TV?

WHO SHOULD READ THIS REPORT

- Vendors that want to gain insight into the drivers and inhibitors of operator investment in linear OTT TV services, build their solutions around various service strategies and understand other vendors’ solutions and positioning.
- Operators’ chief technical officers (CTOs) and TV/video infrastructure and operations teams that want to understand trends and technologies in live content delivery and prepare/optimise their video delivery architectures for linear TV services.
- Operator strategy teams, product managers and pricing teams that are interested in exploring strategies and models for delivering linear OTT TV services.
Executive summary

Linear OTT is a high-growth area of video services spend, but OTT delivery of linear TV content presents unique QoS/QoE issues. Operators and vendors must collaborate on solutions that support optimisation and automation across all delivery networks in order to successfully deliver linear OTT services.

This report examines how pay-TV providers can deliver high-quality live OTT TV streaming services to defend and grow their live TV propositions. The shift to live OTT services has business implications for the following stakeholders:

- pay-TV providers, including operators and free-to-air (FTA) broadcasters facing the threat of substitution, direct-to-consumer (D2C) content owners and OTT players;
- video solution providers such as CDN, headend and OTT service platform vendors.

KEY RECOMMENDATIONS

1. Pay-TV providers should work with vendors to replicate traditional pay-TV QoE in linear OTT TV with end-to-end, coherent optimisation and automation.
2. Operators should use CDN/optimisation capabilities to position themselves as enablers of live OTT services.
3. Vendors should identify opportunities for collaboration across and beyond the video delivery chain to address scalability and latency issues with complete solutions.

Figure 1: Key issues that pay-TV providers need to consider to address linear OTT TV competition

1 For more information, please see Analysys Mason’s OTT video worldwide: trends and forecasts 2017–2022.
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Pay-TV providers need to respond to linear OTT competition; replicating the traditional TV QoE in OTT is a major challenge

Providers that want to protect and grow their pay-TV business with linear OTT propositions need to address the main QoE challenges associated with OTT delivery of linear content.

Linear OTT TV services are growing at a rapid pace, led by OTT providers’ offers of live TV content (Amazon), as well as content aggregators’ (Molotov TV) and content owners’ (F1) use of direct-to-consumer (D2C) models. Pay-TV providers that are aiming to counter this threat with new propositions face delivery-side challenges such as scalability, reliability and latency.¹

OTT delivery of linear content is more complex in every way than the delivery of on-demand content. Consumers have lower tolerance to QoE/QoS degradations and expect their providers to deliver live OTT content with a comparable QoE to the traditional TV services (such as IPTV, cable, broadcast) that they use. To achieve this, operators must address several technical challenges:

▪ less control over QoE/QoS (including reliability, bandwidth, latency, jitter) when delivering video through unmanaged networks (Internet);

▪ capacity/scalability issues caused by high-peak, popular live content (for example, the World Cup) and increasing traffic/bandwidth;

▪ managing any negative impact on – and addressing the specific optimisation requirements of – mobile networks.

Figure 2: Main delivery-side challenges for replicating traditional TV services in linear OTT

<table>
<thead>
<tr>
<th>SCALABILITY (CAPACITY/TRAFFIC MANAGEMENT) AND RELIABILITY</th>
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</thead>
<tbody>
<tr>
<td>Live internet video traffic growth from 2016 to 2021²</td>
</tr>
<tr>
<td>Russia 2018 World Cup vs. Brazil 2014 World Cup: live streaming traffic and users comparisons³</td>
</tr>
<tr>
<td>15x</td>
</tr>
<tr>
<td>2–3x CDN peak traffic bandwidth</td>
</tr>
<tr>
<td>~2x Number of peak concurrent streams (all devices)</td>
</tr>
<tr>
<td>~2x Number of streams from mobile devices</td>
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<tr>
<th>MANAGING THE LATENCY AND VIDEO QUALITY TRADE-OFF</th>
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<tbody>
<tr>
<td>Typical OTT live-stream latency 30–45 seconds</td>
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<tr>
<td>Typical IPTV/cable TV 4–5 seconds</td>
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</table>

¹ For example, the Mayweather–McGregor boxing match pay-per-view event in August 2017 had serious outages, which resulted in customer class action lawsuits. Similarly, Liberty Media had major service problems in the live streaming of F1 TV in May 2018, as did Optus Sport during a group stage game of World Cup 2018; both resulted in some reputational damage and customer compensations;² Cisco VNI;³ Based on data from Akamai, Edgeware, EE and Openwave Mobility.
Pay-TV providers need to deploy delivery solutions that can enable them to turn the live OTT threat into an opportunity

Providers should work with vendors to replicate the QoE associated with traditional pay-TV services as much as possible by implementing a variety of video delivery optimisation and automation solutions across the video delivery chain.

Providers have three main strategic paths for linear OTT delivery, including launching a full-featured OTT linear service; supplementing existing pay-TV with parcelled offers and pay-per-view (PPV) linear propositions; and partnering with OTT players. (see section 1 for an overview of these strategies). With each of these options, it is critical that QoE is at least equal to traditional pay-TV service QoE. To achieve this, operators must have an end-to-end optimisation and automation approach, which ensures that improvements are made at each stage of the video delivery chain based on operators’ specific service/network requirements. Key capabilities include:

- gaining greater control over QoS by implementing private/hybrid, orchestrated CDNs; improving scalability and reliability by implementing CDN/network optimisation technologies (multicast ABR, mobile traffic optimisation) and embracing higher software control and automation with SDN/cloud and advanced analytics solutions (see section 2);
- striking a balance between latency and video quality; reducing latency to acceptable levels by using techniques for HTTP ABR (HLS/DASH/CMAF) and UDP-based optimisation (see section 3).

Figure 3: Technical requirements for high QoE for live OTT TV

1 Replicating the complete pay-TV experience in OTT will involve providing a comparable service quality as well as delivering similar service features such as cloud DVR and rethinking monetisation strategies (e.g. advertising). However, operators need to prioritise service quality first before everything else and as such this report focuses on the QoE aspects of OTT delivery.
Recommendations

1. **Pay-TV providers should work with vendors to replicate traditional pay-TV QoE in linear OTT TV with end-to-end, coherent optimisation and automation at each step of the video delivery chain.**

   In order for linear OTT TV services to be successful (whether providers’ own services or partner integrations), providers need to deliver a comparable QoE/QoS to traditional pay-TV services. Despite limited control and visibility with Internet-based content delivery, proper planning, design, automation/orchestration and monitoring of components and processes across the delivery chain can help providers improve scalability, reliability and latency.

2. **Operators should use CDN/optimisation capabilities to position themselves as enablers of live OTT services.**

   Operators must first take advantage of CDN/network optimisation solutions such as multicast ABR and mobile video optimisation (traffic management, LTE-B, 5G edge clouds/CDNs) to ensure a high level of QoE for their own live OTT services. Operators should then consider creating unique propositions for all other live OTT service providers by enabling them to deliver more-scalable and more-reliable live OTT TV services across all types of network. Such an approach would elevate operators’ importance in the value chain and create new opportunities.

3. **Vendors should identify opportunities for collaboration across and beyond the video delivery chain to address scalability and latency issues with complete solutions.**

   Increased scalability and low-latency delivery will require the industry to collaborate on developing more-advanced technologies, standards, protocols and operational capabilities, as well as multi-vendor interworking in the highly fragmented video market. Operators will also need to establish new partnerships with vendors outside the traditional video market to deliver automation capabilities such as NFV/SDN, orchestration and AI/machine-learning.
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About the author and Analysys Mason
About the author

Gorkem Yigit (Senior Analyst) is the lead analyst for the Video and Identity Platforms programme and a contributor to the Digital Infrastructure Strategies and Network Automation and Orchestration programmes, focusing on producing market share, forecast and research collateral. He started his career in the telecoms industry with a graduate role at a leading telecoms operator, before joining Analysys Mason in late 2013. He has published research on NFV/SDN services business cases, identity management in the digital economy, and has been a key part of major consulting projects including Telco Cloud Index and IPTV/OTT procurement. He holds a cum laude MSc degree in Economics and Management of Innovation and Technology from Bocconi University (Milan, Italy).
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