THE 9TH ANNUAL BITMOVIN VIDEO DEVELOPER REPORT

2025 / 2026 Edition

BITMOVIN

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Welcome to the 9th edition of Bitmovin's Annual Video Developer Report!

I'm proud to introduce the 9th edition of the Video Developer Report, our most comprehensive to date, with a refreshed survey, significantly more responses, and a return to our original IBC release timing in September.

One key shift stands out. Cost control has overtaken ad insertion as the industry's top challenge. Video teams are increasingly focused on managing bandwidth, storage, and infrastructure costs, even as monetization models diversify. AVOD and SVOD are now in close competition, FAST adoption remains strong, and SSAI continues to lead in ad delivery architectures. We are also excited about the future of SGAI as the new architecture trend that enables richer user experiences. Beyond the survey findings, multi-cloud strategies are beginning to gain relevance across the industry as a way to increase resiliency and flexibility. The narrative has clearly evolved from experimentation to optimization.

Another major takeaway is that AI adoption is no longer experimental, it is strategic and ROI-driven. From accessibility to discovery, personalization to recommendations, AI is being deployed where it delivers measurable impact. Speech-to-text, tagging, and user experience enhancements are leading the way, while generative AI use remains limited. The message is clear. AI is maturing fast, and video workflows are already reaping the benefits.

Despite all this innovation, reaching every screen with a consistent quality of experience remains a constant challenge. Fragmented platforms, device diversity, and observability issues make playback reliability and root-cause analysis as critical as ever, especially with the rising demand for live event streaming at scale.

With nine years of data behind us, this report does not just track trends, it highlights the long-term shifts that define how video is built, delivered, and experienced. I am proud of what our team and community have created, and grateful to the hundreds of professionals who shared their time and insights.

I hope this year's report helps you benchmark your workflows, navigate industry change, and continue building exceptional streaming experiences for your viewers.

STEFAN LEDERER
CEO, Bitmovin

Cost control and monetization pressures

- Controlling cost (bandwidth, storage) is the top challenge at 38%, narrowly overtaking ad insertion (35%).
- Regarding monetization models, AVOD and SVOD are in near parity, FAST adoption remains strong, and SSAI is the leading ad architecture.
- Compared to 2024's spike in ad insertion concerns, this year shows a more cost-conscious balance across monetization workflows.

Experience and reach remain core priorities

- Playback on all devices remains a major operational challenge due to ongoing platform and device fragmentation.
- Observability gaps persist, with root-cause analysis for streaming issues often taking hours instead of minutes.
- Live encoding at scale is rising in importance, driven by the shift of sports and events from broadcast to streaming, but quality and reliability expectations remain high.

Workflow and delivery strategies are diversifying

- Resiliency remains a top priority, with multiple third-party CDNs the most common delivery setup to safeguard performance and availability.
- Commercial solutions are steadily replacing pure in-house builds for encoding, DRM, CDNs, and players, giving teams faster time-to-market and supported feature sets.
- Analytics is the area where in-house remains strong, as teams continue to build custom pipelines and dashboards to retain flexibility and control over their data.
- VOD encoding continues to lean toward software in the public cloud, while live encoding still relies heavily on hardware appliances deployed on-premises.

AI adoption is mainstream and ROI-driven

- The most used AI applications are audio transcription/speech-to-text, tagging/categorization, personalization, and recommendations.
- Only a small minority report "no plans" for AI, with adoption focused on accessibility, discovery, and QoE improvements rather than experimental or generative use cases.

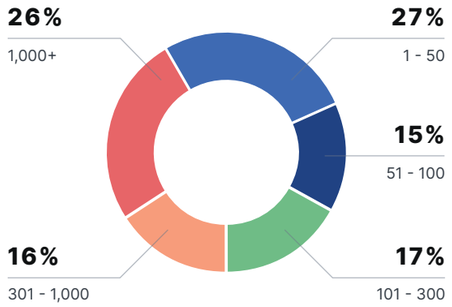
Methodology

This is our 9th year of running our Bitmovin Video Developer Report. The survey was conducted in July 2025. The responses provided strong representation of the global market, coming from a diverse range of video developers and industry experts working at companies located in 49 different countries. Participation by region was led by EMEA with 43% of our participants, followed by North America at 31%, the Asia Pacific region at 19% and Latin America with 7% of total responses.

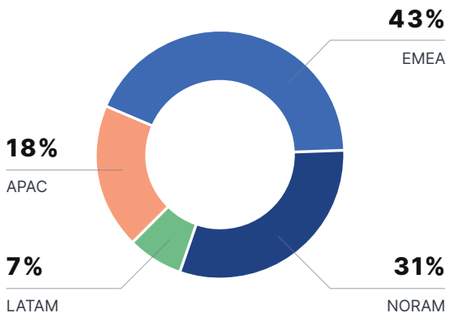
As a number of the questions are multiple choice, you will notice that a number of these multiple-choice/answer questions have an aggregate that will not add up to 100%. In these cases, the number indicates the percentage of respondents that chose each option. Like last year, we have used a ranking option for a number of the questions and have adapted some of the questions to align with the recent advancements in technology development.

Please keep in mind that the survey was open for everyone to participate, but the results may be somewhat skewed toward the Bitmovin customer base.

COMPANY SIZE



REGION



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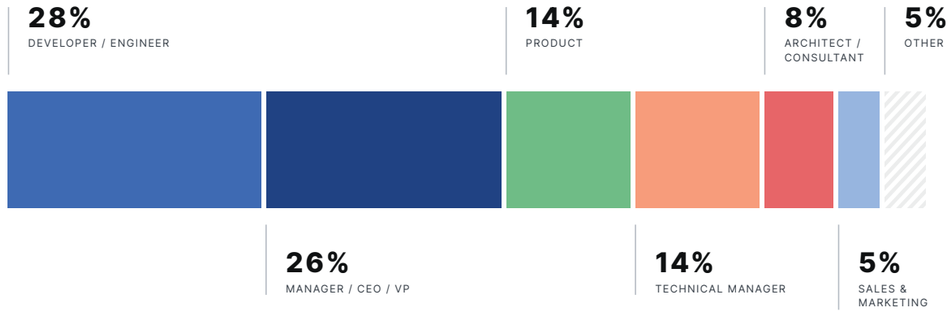
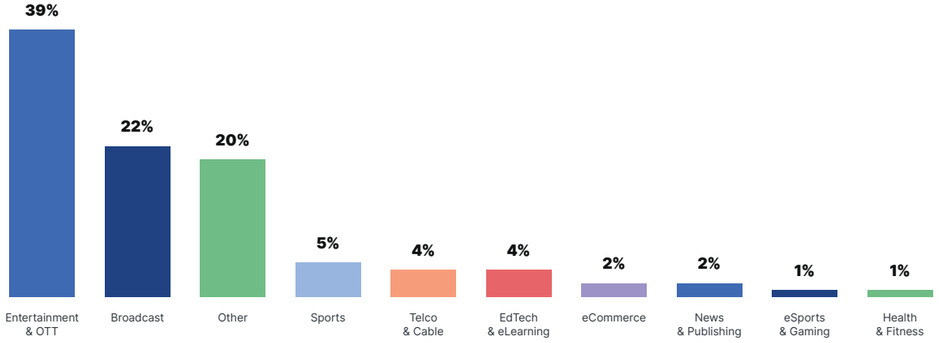


INDUSTRY



The State of the Streaming Industry

The streaming industry is in constant flux, requiring video teams to balance new standards, changing workflow requirements, and evolving viewer expectations. Meanwhile, the economic realities of the past few years have guided business decisions, influencing everything from OTT revenue models to technology adoption.

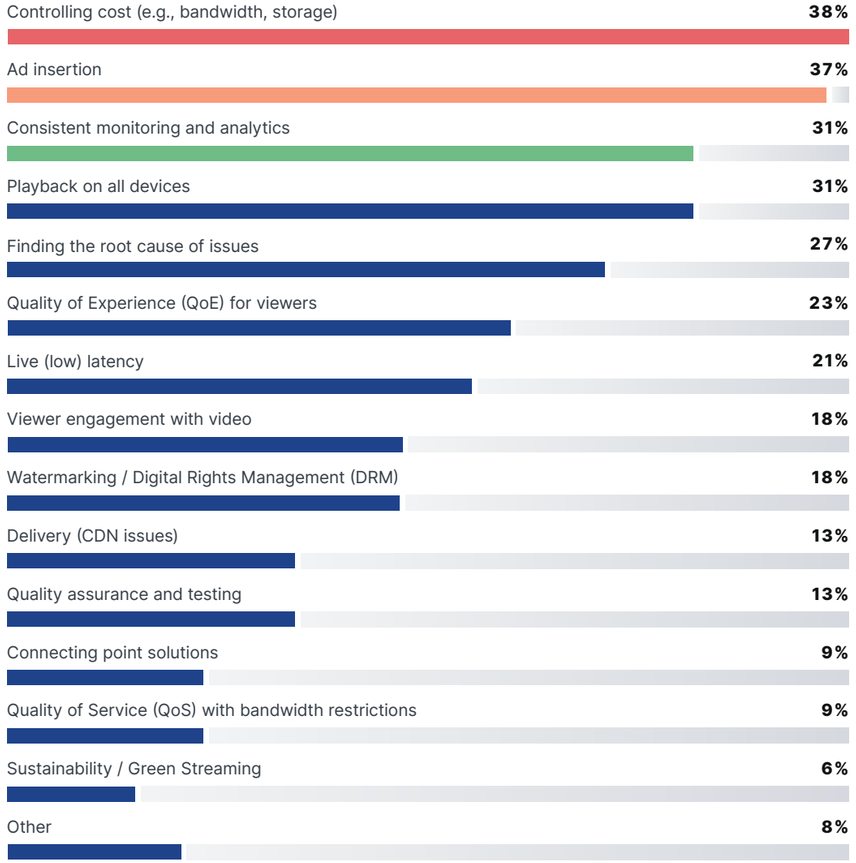
This report offers a snapshot of the industry's current state, highlighting key challenges and trends. Our aim is to keep a pulse on the evolving world of video tech from encoding and player technologies to analytics and monetization strategies.

Don't forget, you can join the conversation on social media using this hashtag #VideoDeveloperReport

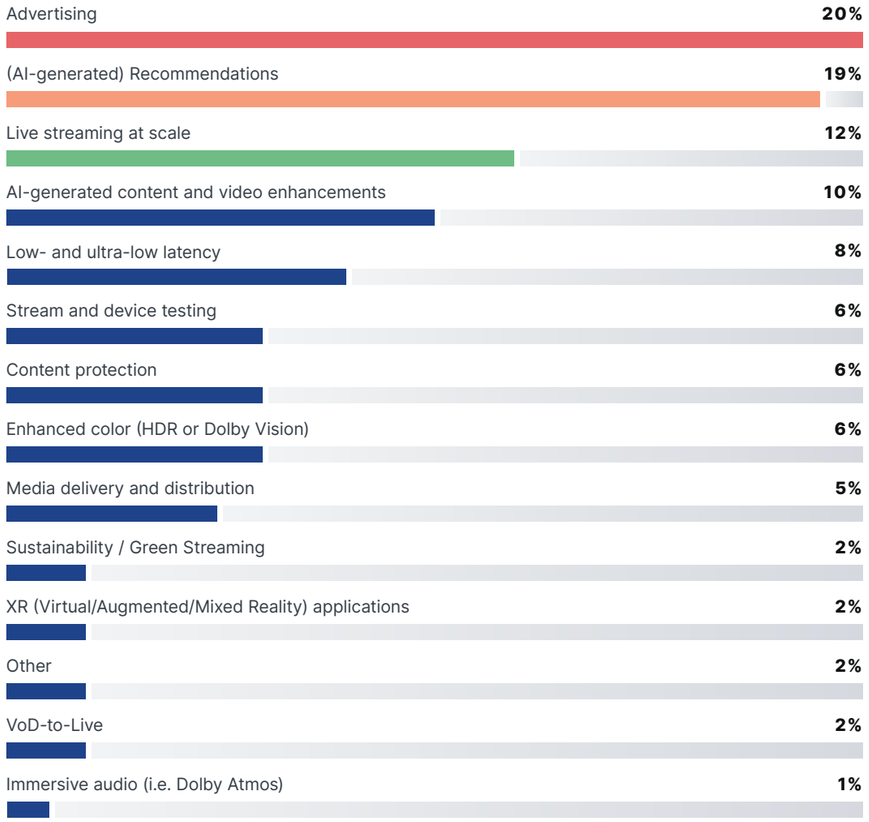
What are the top three biggest challenges you are experiencing with video technology today?

Cost control has emerged as the top challenge for video teams in 2025, with 38% of respondents selecting it, overtaking ad insertion at 37%, which led last year. This shift reflects a sharper focus on managing bandwidth and storage expenses as economic pressures continue to shape strategy. While monetization workflows remain complex, the conversation has broadened to include efficiency gains across the streaming pipeline.

Playback on all devices remains a major issue at 31%, highlighting ongoing difficulties in delivering consistent experiences across a fragmented device ecosystem. Other notable challenges include pinpointing the root cause of quality issues, maintaining consistent monitoring and analytics, and achieving low latency for live content. Together, these results underscore a market balancing growth ambitions with the realities of tighter budgets and the need to optimize existing workflows.



THE BIGGEST CHALLENGES



INNOVATION AND PRIORITIES

Where do you see the most opportunity for innovation in your service?

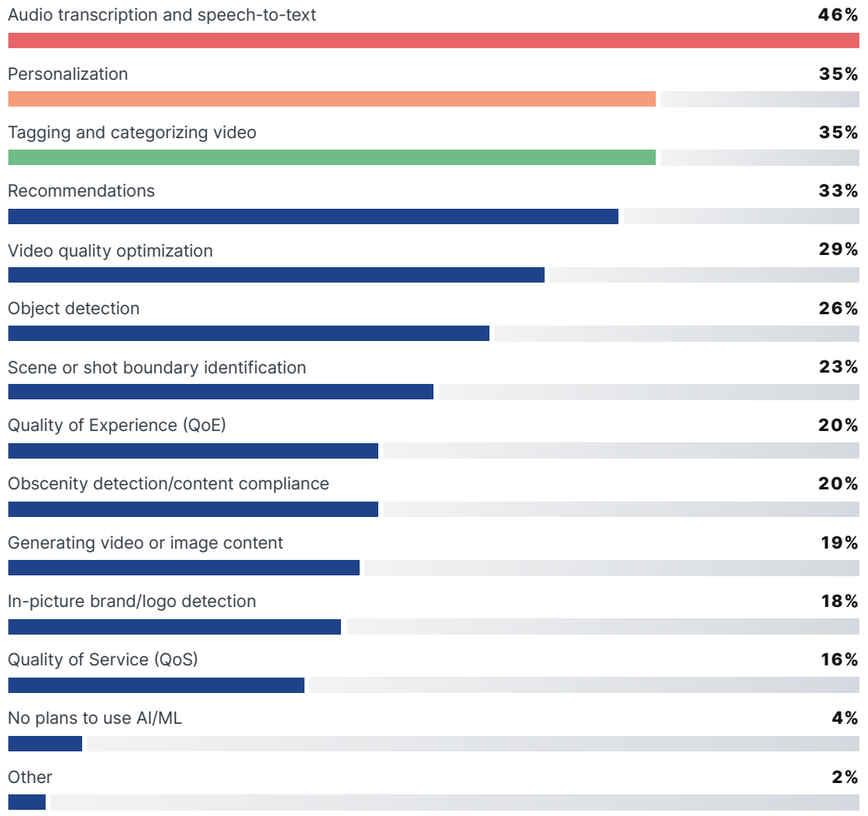
Innovation priorities in 2025 center on monetization, personalization, and live performance. Advertising leads at 20%, reflecting a push to modernize ad tech stacks, improve targeting, and boost yield without compromising viewer experience. AI-driven recommendations at 19% signal a strong appetite for using machine learning to deepen engagement, retention, and discovery. Live streaming at scale (12%) and AI-generated content/enhancements highlight parallel bets on operational robustness for major events and creative efficiency gains through automation.

Other priorities include improving real-time experiences, stream and device testing, and protecting content integrity, alongside quality upgrades like HDR and more efficient delivery. Emerging areas such as sustainability, extended reality, VoD-to-Live workflows, and immersive audio remain niche, each at 3% or less, suggesting investment will first focus on monetization, personalization, and scalable live delivery.

For which of the following video use cases do you expect to use machine learning (ML) or artificial intelligence (AI) to improve the video experience for your viewers?

AI adoption in 2025 is set to be a main focus for many services, with the strongest focus on metadata, accessibility, and personalization. Audio transcription and speech-to-text leads at 46%, reflecting a push to improve captions, searchability, and compliance at scale. Personalization and tagging/categorization follow closely, each at 35%, with recommendations also high on the list.

Quality-focused applications are next, with video quality optimization and QoE among the top five uses, indicating teams are leveraging AI to refine encoding ladders, predict issues, and target fixes before viewers churn. Computer vision workflows such as object detection, scene/shot boundary identification, and in-picture logo detection are maturing, supporting chaptering, highlights, and brand safety. Generative AI is emerging, and we expect it to be one of the main factors in future reports, but it still trails these foundational applications. Finally, only 4% report no plans to use AI, underscoring its shift from experimentation to core pipeline investment.



AI AND MACHINE LEARNING

Video Encoding

Encoding is what makes streaming possible, transforming raw video content into a digital format suitable for online delivery. This section explores trends surrounding infrastructure deployment, video codec usage, and streaming protocol trends. We also examine the factors driving encoding decisions, such as cost-efficiency, scalability, and the need to support diverse devices and platforms.

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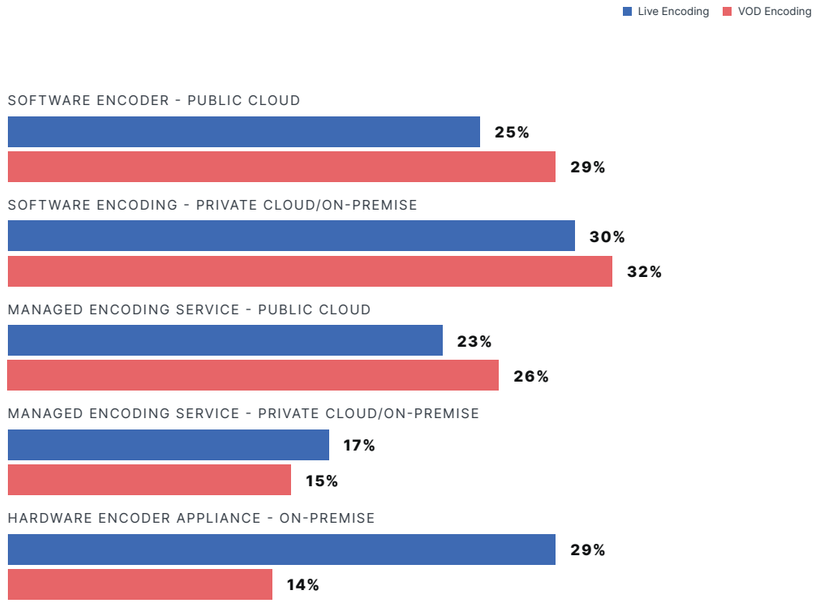
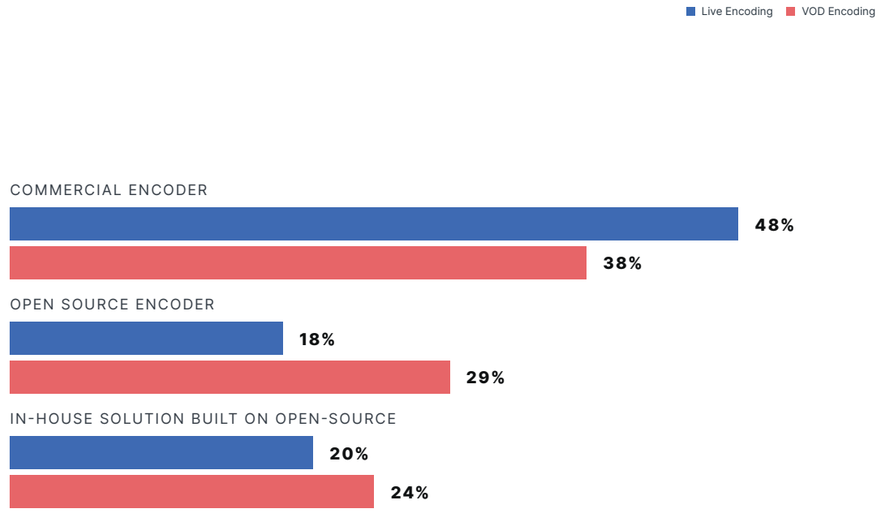


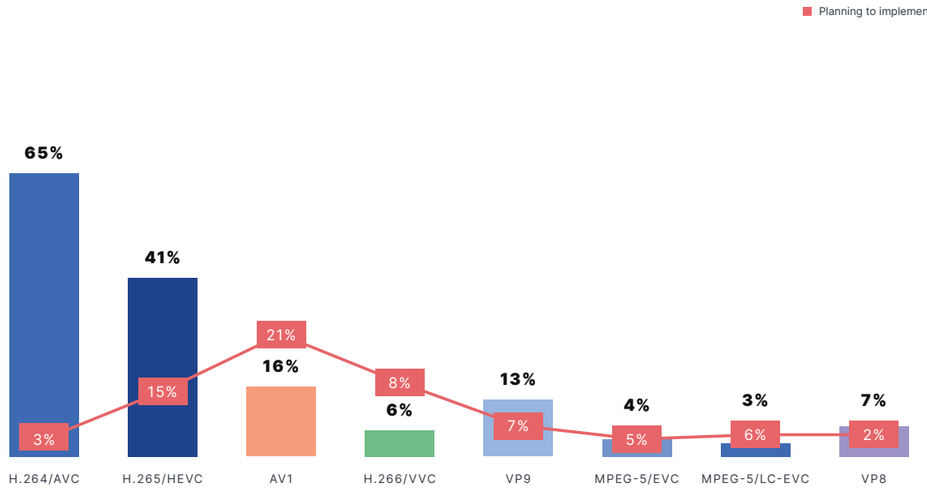
Where do you encode video?

Encoding strategies are hybrid, balancing control, cost, and performance. Private cloud or on-prem software leads for both Live (30%) and VOD (32%), with hardware appliances close behind for Live (29%) but far less for VOD. Public cloud software is widely used to handle peaks and expansion, while managed services, especially in public cloud, trade control for speed and simplicity. Live pipelines focus on reliability and low latency, while VOD emphasizes scale, automation, and efficiency.



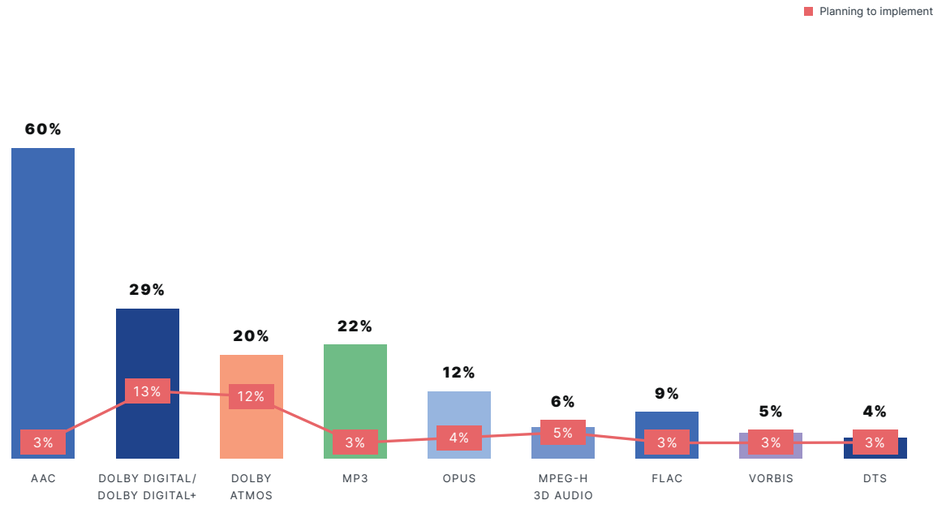
What type of encoder do you use?

Encoder choices follow a hybrid strategy split by workload. Commercial encoders lead for Live (48%) over VOD (38%), reflecting the premium on reliability, vendor support, and real-time performance. VOD workflows lean toward flexibility and cost control, with open-source at 29% and in-house builds at 24%. Live pipelines prioritize stability under SLA, while VOD increasingly blends open-source and custom layers to adopt emerging codecs, optimize cost, and fine-tune quality, often within the same organization's broader encoding strategy.



Which video codecs are you using in production, and which are you planning to implement within the next 12 months?

Codec strategies are in a transitional, multi-codec phase. H.264/AVC leads at 65% in production, valued for its unmatched device reach and simplicity, with only modest change expected in the next year. HEVC follows at 41%, fueled by strong 4K/HDR use cases on iOS, Apple devices, and CTVs despite licensing costs. AV1 shows the fastest growth, with 21% planning adoption as hardware support expands across Android and CTV. VVC remains niche but is gaining early interest for future bandwidth-efficient, high-quality workflows.

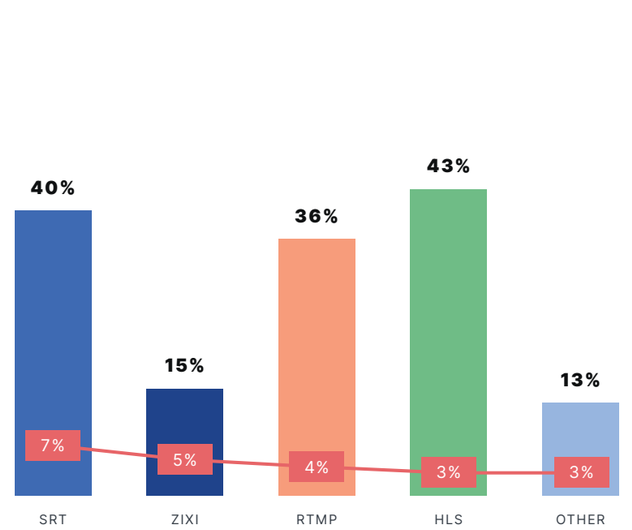


Which audio codecs are you using in production, and which are you planning to implement within the next 12 months?

Audio codec adoption remains pragmatic and device-driven, with AAC dominant at 60% in production due to universal support across browsers, mobile, and CTV. Premium surround and immersive formats are on the rise, with Dolby Digital/Dolby Digital Plus at 29% and Dolby Atmos both seeing steady growth as platforms invest in spatial audio for premium tiers, CTV apps, and live sports. MP3 persists for compatibility and archives, while Opus gains traction for low-latency and speech-heavy streams. FLAC and MPEG-H serve niche hi-fi and immersive use cases, with DTS adoption remaining small but steady.

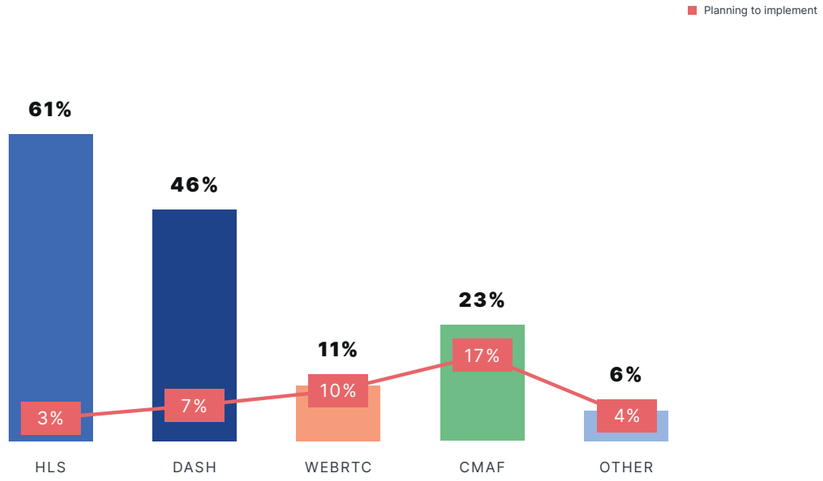
“AI is no longer a side experiment in video workflows. The survey shows it is being applied in practical ways that improve accessibility, personalization, and quality of experience, and that momentum will only accelerate in the coming year.”

Reinhard Grandl
Chief Product Officer @ Bitmovin



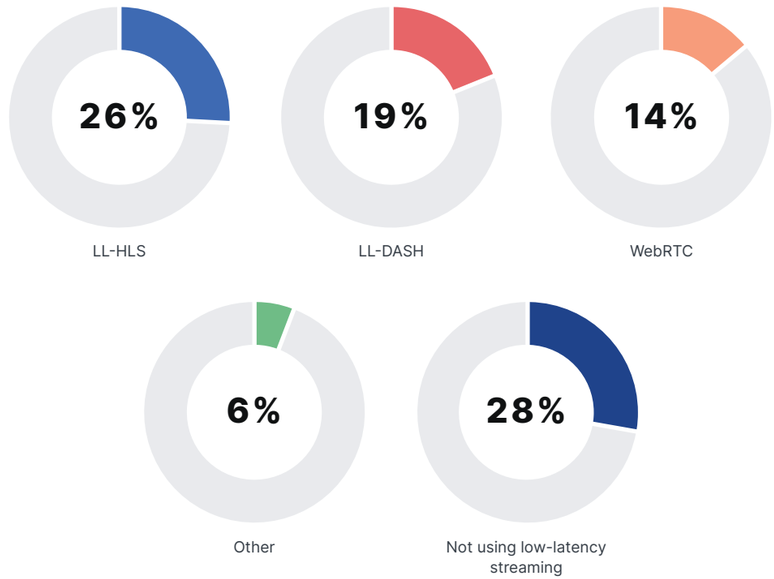
Which stream formats do you use for Live contribution feeds, and which are you planning to use within the next 12 months?

Live contribution is firmly multi-protocol, with HLS (43%) and SRT (40%) leading current use, and RTMP is still notable at 36% for compatibility. Growth is modest, with SRT and Zixi showing the most planned uptake, reflecting continued interest in secure, resilient IP contribution. RTMP’s low planned adoption suggests a gradual phase-out, while HLS remains steady due to its dual role in contribution and distribution. Emerging options like RIST and WebRTC appear mainly in targeted trials for specialized low-latency workflows.



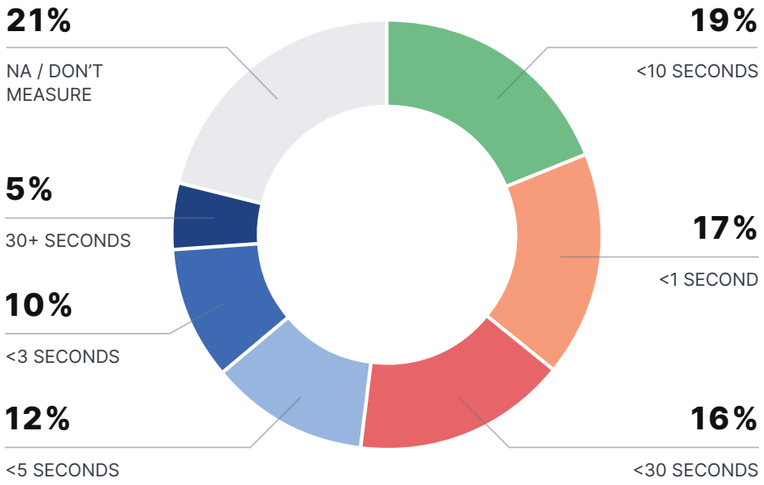
Which streaming formats are you using in production for distribution, and which ones are you planning to introduce within the next 12 months?

Distribution remains anchored by HLS (61%) in production, driven by device reach, CTV support, and mature SSAI/DRM workflows. DASH is the second pillar at 46%, seeing steady cross-platform growth, particularly on Android and browsers. CMAF shows the strongest momentum at 23% with notable planned adoption, enabling converged packaging, CDN efficiency, and low-latency HLS/DASH variants. WebRTC (11%) is growing for real-time use cases like auctions, watch-together, and betting. Overall, formats are consolidating around HLS, DASH, and CMAF, with WebRTC expanding for sub-second interactivity.



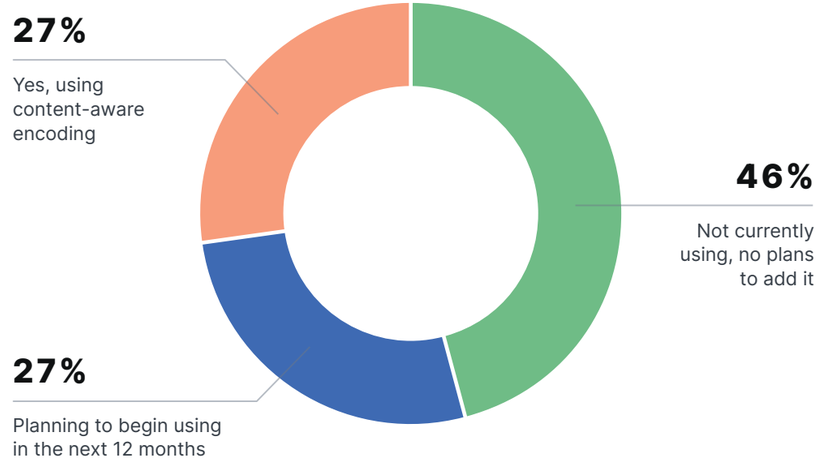
Which technology do you use for low-latency streaming?

Low-latency adoption is meaningful but not yet universal, with 72% using at least one approach and 28% reporting none, often prioritizing cost, reach, and stability over sub-5s latency. LL-HLS leads at 26%, supported by strong iOS/tvOS and CTV ecosystems, CMAF chunked transfer, and growing SSAI/DRM compatibility. LL-DASH follows at 19%, anchoring Android, web, and multi-vendor workflows. WebRTC remains the tool of choice for true sub-second interactivity like auctions and sports betting, while other formats cover bespoke CMAF workflows or vendor-specific protocols.



What is your current end-to-end latency?

Latency profiles are split between real-time and broadcast-like delivery. 39% report sub-5s end-to-end latency (<1s 17%, <3s 10%, <5s 12%), making them suitable for interactive and premium live use cases like sports betting and co-watching. Another 40% fall into the 10–30s range (19% <10s, 16% <30s, 5% 30+), where stability and cost take precedence over ultra-low latency. Notably, 21% do not measure latency, highlighting observability gaps and the need for standardized viewer-perceived metrics.



Are you using or planning to use content-aware encoding technology (e.g., Per-Title)?

Content-aware encoding is gaining traction but is not yet mainstream. 46% report no plans to adopt, while 27% are already using it, and another 27% plan to start within 12 months. Adoption is rising as tools mature and teams seek measurable gains in bitrate reduction, CDN/storage savings, and consistent QoE across varied content. Early deployments often pair per-title or per-scene optimization with newer codecs like HEVC or AV1 to maximize efficiency, especially in VOD workflows where savings can be clearly tracked.

Video Player

The player is where streaming experiences succeed or fail. For viewers, it represents the entire tech stack, regardless of the complexity behind it. This section provides a snapshot of how teams are approaching player development, highlighting device support, ongoing maintenance requirements, and the content types most commonly consumed.

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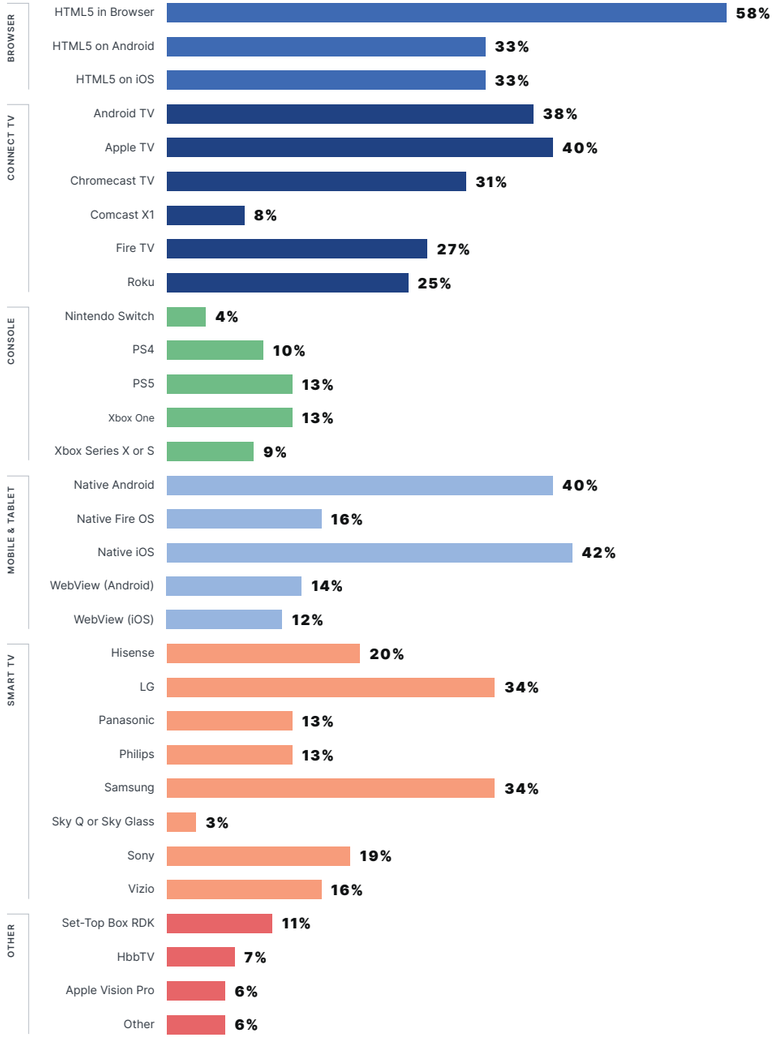
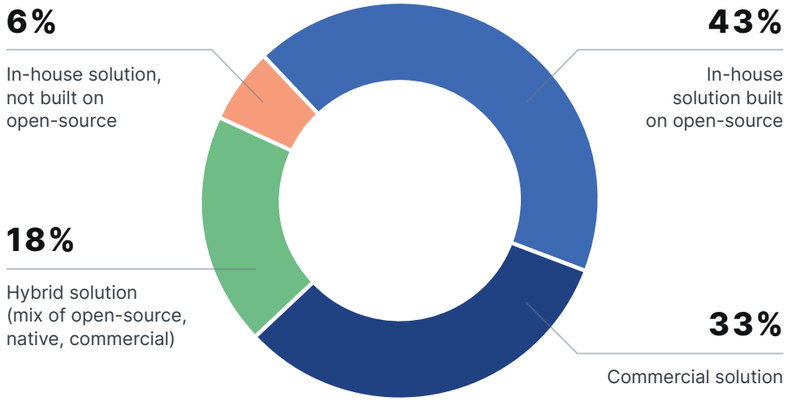
Which of the following platforms and devices do you support for streaming video or audio content?

Platform support is broad and multi-surface, with web, mobile, and CTV forming the core. HTML5 in browser leads at 58%, showing the continued value of cross-platform reach and zero-install access. On mobile, iOS (42%) and Android (40%) apps remain foundational, while lighter-weight HTML5 apps help extend engagement. Living room distribution is equally deep, with Apple TV (40%) and Android TV (38%) topping the list, supported by strong adoption of major Smart TV OEMs.

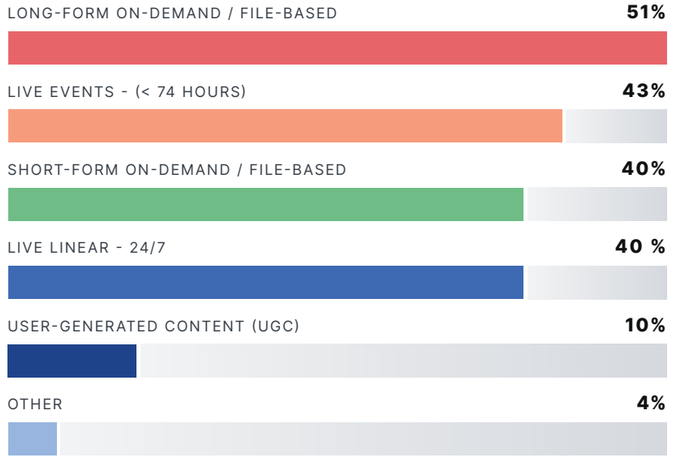
The long tail spans Fire TV, Roku, consoles, and operator platforms, each maintained where regional audiences or commercial partnerships justify the effort. Emerging bets like Apple Vision Pro and Nintendo Switch are still small but visible. Teams are prioritizing reach across every major platform, but this comes with higher testing and maintenance needs.





Which type of player codebase are you using?

Commercial players were a common choice among respondents at 33%, particularly for teams prioritizing faster deployment, cross-platform consistency, and turnkey features such as SSAI, DRM, and accessibility. Hybrid stacks at 18% combine commercial, open-source, and native players, usually to accommodate legacy integrations or selective customization. Fully custom builds are rare at 6% due to the high maintenance burden. In-house builds on open-source remain highly relevant, highlighting their continued presence alongside the growing adoption of commercial solutions.



Which types of content are streamed using your player?

Content streamed through players is diverse but skews professional. Long-form on-demand leads at 51%, while live streaming is nearly as strong with time-bounded events at 43% and 24/7 linear at 40%. Short-form VOD matches that footprint at 40%, balancing catalog depth with quick-hit engagement. User-generated content is niche at 10%, highlighting the emphasis on premium, rights-controlled media. The takeaway is providers must optimize VOD for efficiency and quality, while reinforcing live pipelines for reliability, latency, and scalable delivery.

Video Analytics

Analytics is the backbone of decision-making in video workflows, shaping how services troubleshoot, optimize, and grow. This section explores how developers and operators are using analytics to understand playback behavior at a granular, per-session level, identify quality issues in real time, and guide monetization strategies. With visibility into every viewer's experience, teams can balance quality with cost efficiency and unlock new opportunities for optimization across the stack.

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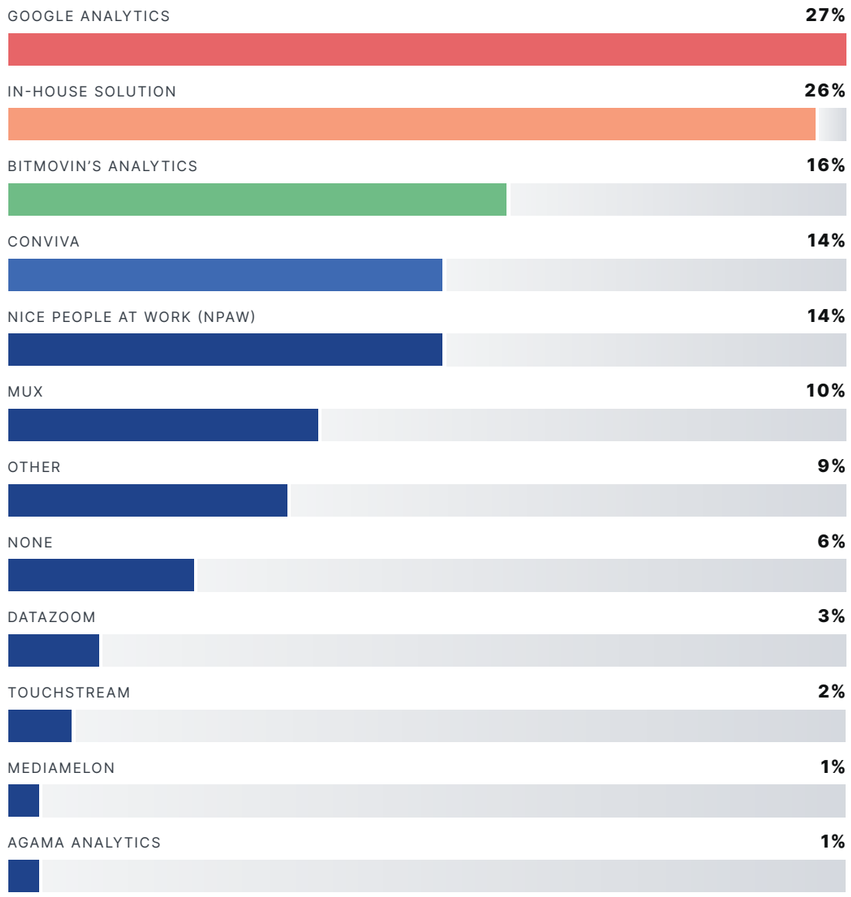
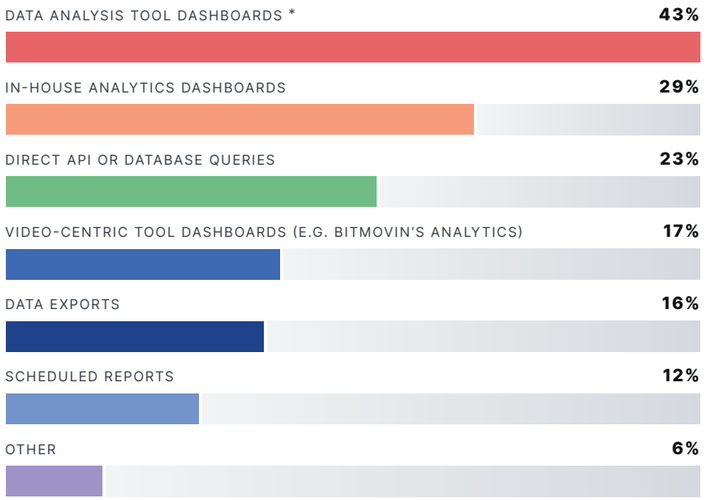
Which video analytics provider/ solution do you use today?

Analytics adoption is diverse, with Google Analytics at 27% and in-house solutions at 26%, showing a balance between ease of use and full control over data. Specialist providers are gaining ground, with Bitmovin at 16% and Conviva at 14%, both offering granular, every-session playback visibility such as startup time, rebuffering, and device variance that generic tools cannot deliver. NPAW also holds meaningful adoption, reflecting the growing demand for QoE metrics that tie performance directly to retention and monetization.

The trend points to hybrid stacks, where teams combine broad audience measurement with deeper playback analytics. This approach provides a complete view of engagement and churn risk, while enabling teams to react quickly when quality issues appear and to link viewer experience more directly to revenue outcomes.

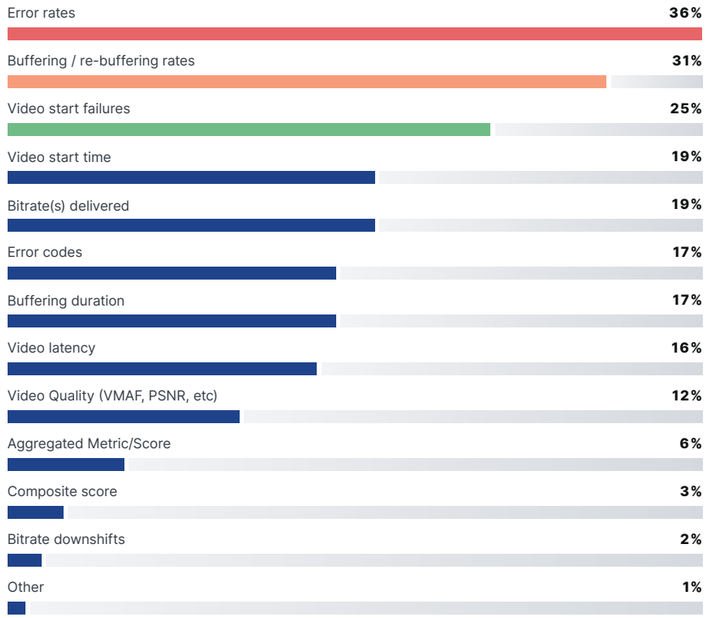




* Grafana, Looker Studio, Tableau, Segment, Amplitude, etc.

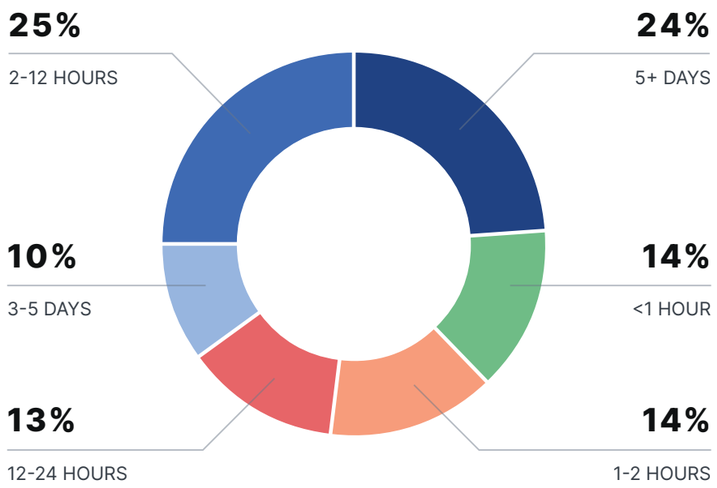
How do you access your video analytics data?

Access is dominated by BI tools, with 43% relying on dashboards like Grafana, Looker Studio, or Tableau to embed video data into wider business workflows. In-house dashboards are also strong at 29%, reflecting the need for customized visibility and governance. Meanwhile, 23% pull data directly through APIs or database queries, showing the value of flexibility and engineering-driven control. Together, this mix underscores that most teams use multiple access paths, balancing self-serve dashboards, programmatic queries, and vendor consoles for QoE troubleshooting.



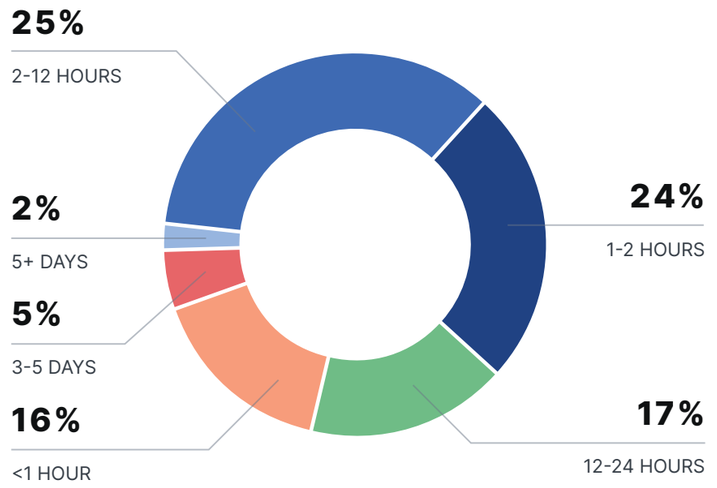
Which video performance metrics are most important to you?

Reliability leads the way, with error rates (36%) and buffering/rebuffering (31%) topping the list as the strongest signals of viewer frustration. Video start failures (25%) and startup time (19%) follow, showing that teams prioritize eliminating stalls and slow starts before optimizing other aspects. Metrics like bitrate delivered and latency remain important but secondary, while perceptual quality scores trail. The overall takeaway is clear: services focus first on "play without breaking," then on "start fast," with quality refinements coming afterward.



How much time per month does your development team spend on maintaining your Player and Analytics solution?

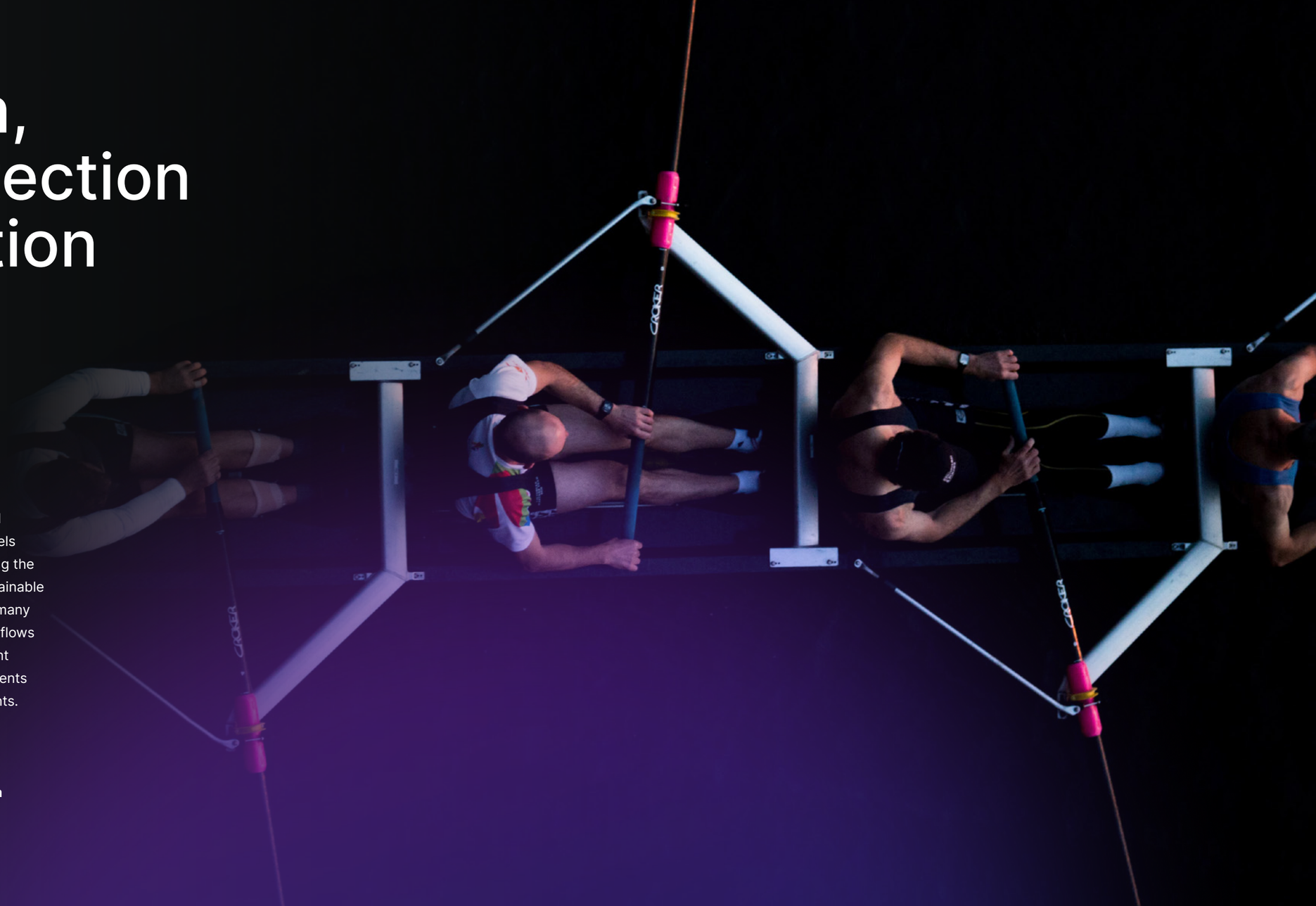
Maintenance demand splits sharply. About one in five organizations spend 3 or more days each month (24% at 5+ days, 10% at 3–5 days), pointing to complex stacks, fragmentation, or custom integrations. A mid-band cohort (25% at 2–12 hours) reflects predictable, recurring upkeep like SDK updates and dashboard adjustments. At the other end, 28% report very light effort, suggesting standardized workflows or strong automation. The takeaway is clear: some teams are burdened by complexity while others achieve efficiency through consolidation and tooling.



On average, how long does your team take to identify the root cause of streaming-related issues?

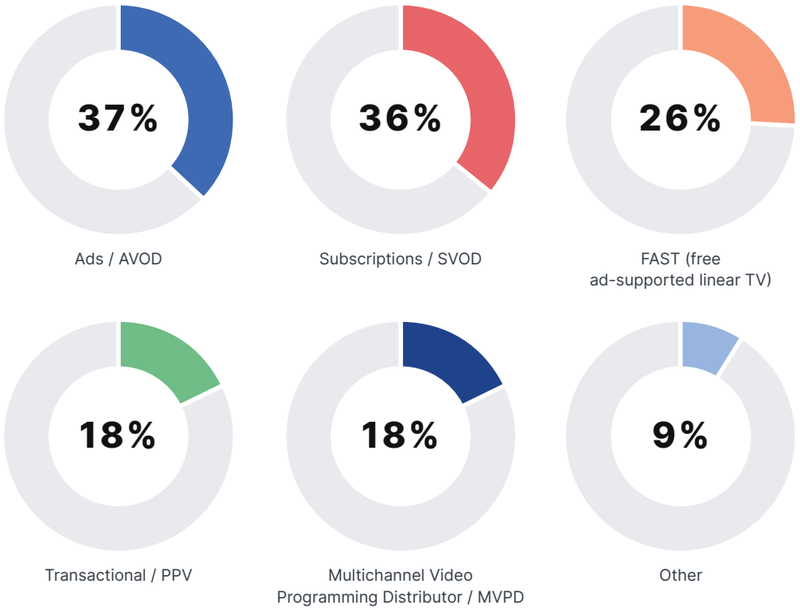
Most teams resolve root causes within a day, but rarely in minutes. The largest group sits in the 2–12 hour window (25%), followed by 1–2 hours (24%). Only 16% can isolate issues in under an hour, highlighting the challenge of fragmented telemetry and cross-vendor dependencies. A smaller cohort at 12–24 hours (17%) rounds out the picture. Overall, triage is timely, yet deep correlation across player, CDN, ISP, and device layers still slows true root-cause isolation.

Monetization, Content Protection and Distribution



Streaming success today is measured not only by reach and quality, but also by revenue and security. Monetization models have shifted quickly, with ad-supported services now leading the way as platforms move from pure subscriber growth to sustainable profitability. Because this transition is still relatively recent, many video platforms face growing pains as they adapt their workflows to integrate advertising effectively. At the same time, content protection has become a central priority, with most respondents implementing DRM to secure premium libraries and live events.

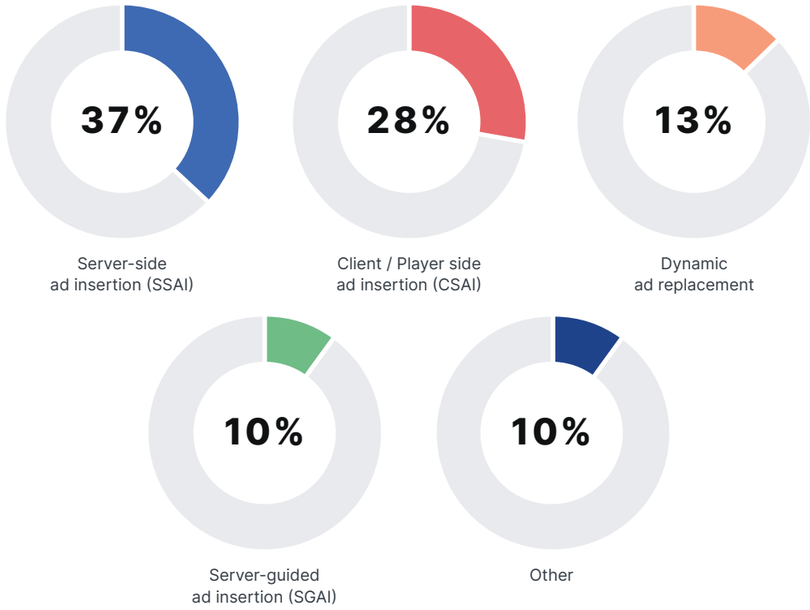
Don’t forget, you can join the conversation on social media using this hashtag #VideoDeveloperReport



Which monetization model(s) do you follow?

Monetization models are diversified, with ads/AVOD at 37% and subscriptions/SVOD close behind at 36%, showing that most publishers avoid single-revenue dependence.

FAST channels, now at 26%, continue to gain traction as cost-efficient reach and retention tools that complement SVOD. Transactional models such as PPV at 18% remain relevant for premium events but are less central. The clear takeaway is a hybrid approach, blending ads, subs, and FAST to balance scale, stability, and incremental revenue growth.



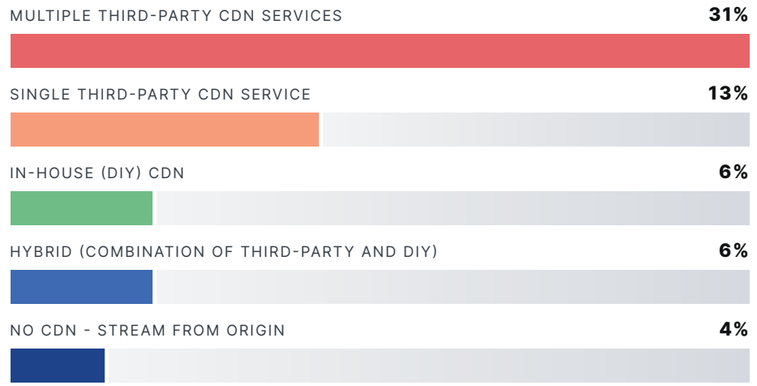
Which ad architecture are you using today?

Server-side ad insertion (SSAI) leads at 37%, driven by its advantages in CTV and OTT where smooth playback, ad-block resistance, and consistent measurement matter most.

Client-side insertion (CSAI) follows at 28%, still favored for interactivity and fast iteration across web and mobile. Dynamic ad replacement (13%) supports linear-to-digital transitions, while server-guided ad insertion (10%) is gaining traction as a flexible hybrid. The mix highlights trade-offs between control and user experience, with many teams running blended architectures across devices and formats.

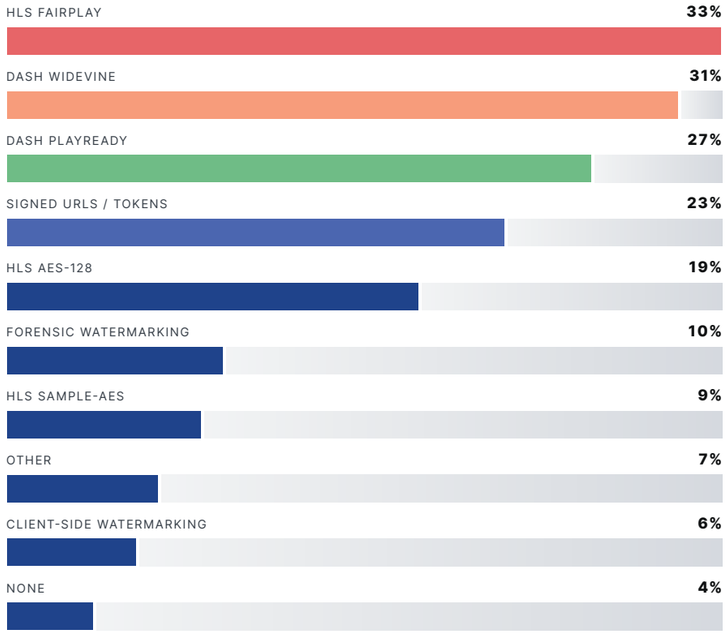
“The survey makes it clear that multi-CDN strategies have become the new standard. Developers are looking for ways to balance cost efficiency with performance while enabling more flexible monetization models that can adapt to changing viewer demand. Looking ahead, multi-cloud approaches will also become increasingly relevant as organizations seek even greater resiliency, scalability, and freedom of choice across infrastructure providers.”

Igor Oreper
Chief Architect & Chief Strategy Officer @ Bitmovin



Which CDN solution are you using?

Multi-CDN is the dominant approach at 31%, reflecting the need for resilience, regional performance, and cost optimization through traffic steering and failover. A smaller group rely on a single third-party CDN (13%), prioritizing simplicity and consolidated SLAs, while 6% use in-house or hybrid DIY/third-party models to gain more control over routing and cost. Only 4% stream directly from origin, underscoring how essential CDN offload is for scale, latency, and reliability.



Which type of content protection do you use?

The data shows a mature, multi-DRM approach anchored by platform-native schemes. HLS FairPlay leads at 33%, followed closely by DASH Widevine (31%) and DASH PlayReady (27%), ensuring coverage across Apple, Android/Chrome, and Microsoft ecosystems. Signed URLs/ Tokens at 23% highlight the common practice of layering entitlement and access control on top of encryption. The small share reporting no protection (4%) reinforces how widely content security is now considered mandatory, with watermarking and lighter-weight methods applied more selectively.

Thank you

Thank you to everyone who contributed to the 9th Video Developer Report. Your insights make this report possible and ensure it reflects the real challenges, priorities, and innovations shaping streaming today. By sharing your experiences, you help create a resource that supports the broader video developer community and informs the future of viewing experiences worldwide.

Looking ahead, work on the 10th edition will begin next year. We invite you to join us again by contributing your knowledge and helping us continue to build the longest-running benchmark for video development. Together, we can track the trends that matter most and shape the future of streaming.

About Bitmovin

Bitmovin provides SaaS technology for streaming services delivering video at scale, including OTT platforms, broadcasters, sports organizations, media and entertainment providers, and more. Our platform enables teams to optimize operations, accelerate time-to-market, and deliver outstanding viewer experiences for both live and on-demand content. With a broad partner ecosystem, flexible deployment across every major cloud, and a focus on resiliency and reliability, Bitmovin empowers companies to stream with confidence.

Bitmovin's cloud-native suite combines encoding, playback, observability, and AI to help organizations raise quality while controlling costs. Our support for current and emerging codecs ensures reach across the widest range of devices, while analytics deliver session-level visibility into every viewer experience. Teams can adapt workflows to improve monetization and streamline operations, and AI capabilities such as scene-level metadata unlock new opportunities for discovery, personalization, and quality of experience. Together, these innovations power video workflows that meet the highest expectations of viewers and adapt to the evolving demands of the industry.