

Reinventing media delivery: Cloud-based switching for enhanced programming and efficiency

Abstract

The broadcast landscape continually innovates to deliver original, compelling, and immersive content. Media companies that succeed in driving revenue and keeping up with industry evolution are those that embrace innovations, such as virtual audience engagement and new platforms. For these companies, it's essential to utilize emerging technology that can be provisioned quickly and cost effectively, and that can easily integrate with existing media workflows. From acquisition to playout, reliable video distribution is a critical element of any professional video workflow. LTN Global leads the way in providing network infrastructure for the media industry within a strict Quality of Service (QoS) layer, but with a key differentiator: the managed services we provide on top of the network layer. LTN Live Video Cloud (LVC) is an unparalleled switcher, which enables capabilities and programming previously deemed impossible. Download the white paper to learn more about how LTN is empowering broadcast organizations — with a cloud-based video platform that streamlines limitless incoming and outgoing livestreams into a single coherent management window. The white paper includes a compelling case study about how LVC's cloud-based workflow was deployed for the 2020 NFL Draft Show, helping to transform the viewing experience within a tight timeframe.

When media companies need to deliver: Taking the cloud network layer to the next level

In their objective to outperform competitors, media companies must create compelling content, and also provision services quickly and cost effectively. This is easier said than done. The modern media workflow is complex: it needs to aggregate multiple sources in different formats, transcode for different platforms, remap audio layers, and deliver to a multitude of destinations — all while ensuring security, low latency, and reliability. In the broadcast world, a single dropped frame can be a catastrophic failure.

Key challenges facing media providers and broadcasters in a nonlinear landscape

Broadcasters and content creators, such as sports leagues, rights holders, esports publishers, and news platforms, are investing heavily to livestream content on their own OTT platforms. Their ambition is to drive additional revenues from subscriptions and advertising on the platforms. Correspondingly, livestreaming is expected to grow by 73% CAGR between 2017 and 2022, [according to Cisco](#).

In an effort to scale their platforms quickly, some organizations take a short-term approach when adding digital feeds. The consequence is that new streams are added in a chaotic, proprietary way that becomes difficult to manage, change, and scale in the longer term.

To cope with additional contribution and distribution workflows, other companies choose to upgrade legacy infrastructure with new hardware — a costly process that comes with the risk of technological obsolescence.

Instead, many media producers and distributors are turning to the cloud to power their livestreaming. Approximately 47% of broadcasters now use the cloud, indicating the extent to which the industry has mainstreamed cloud services.

According to IABM's Media Tech Trends Report: Cloud, published in February 2020, 47% of respondents to their latest Buying Trends survey said they have already deployed some sort of cloud technology, representing a significant increase from the 37% reported at NAB Show 2019.

Against this background of growth in livestreaming and cloud adoption, LTN Live Video Cloud is uniquely positioned to meet the ever-evolving demands of broadcasters and content owners alike.

The cloud brings financial efficiency, technical agility, and service assurance

The adoption of cloud services is no accident. The cloud's benefits are both technical and financial, providing universal appeal throughout an organization, from the CEO and CFO to the engineering and support teams.

Eliminating the commitment to long-term legacy hardware and the need for large upfront capital investments, cloud services offer subscription payment models, so organizations only pay for what they use, making project budgeting more efficient.

Moreover, technical architects don't need to factor in peak demand as a worst-case scenario, because cloud solutions can provision more resources as and when required.

Cloud solutions have intuitive user interfaces (UIs) that make them easier to manage from anywhere, allowing companies to adopt remote production workflows. This is a major advantage in sectors such as sports production, where a reduction in the number of staff that needs to travel to events means significant cost savings.

The COVID-19 pandemic also forced media companies to rethink how they make and deliver programming, with many adopting cloud-based workflows for their productions.

By design, cloud providers offer comprehensive reporting tools, service assurance, and resilience, ensuring high reliability and support. LTN Live Video Cloud employs a system integration approach with an open architecture that integrates with other cloud services.

Who is LTN Global?

LTN Global specializes in the distribution of IP streams and developed Live Video Cloud as an enterprise-ready, cloud-based live video router and switcher. A managed SaaS platform, LVC allows companies to acquire, route, and distribute an almost infinite number of broadcast-quality livestreams. As such, LTV Live Video Cloud makes managing a high volume of feeds simple and controllable from anywhere.

What does LTN Live Video Cloud enable?

Broadcasters and production companies face challenges attempting to manage an inordinate number of livestreams efficiently and cost-effectively, while enhancing their viewer experience.

LTN Global has identified three areas where Live Video Cloud can provide immediate business benefit:

- Audience interaction for sports, e-gaming, rights holders, and national leagues
- Digital audience growth for OTT platforms including sports and e-gaming
- Digital content aggregation for TV news broadcasters as well as sports broadcasters and networks

Audience interaction

Audience interaction in a live broadcast environment makes for a compelling viewing experience. Although COVID-19 restricted spectator access to sports events, LTN Live Video Cloud enabled sports channels and leagues to get fans involved again, adding to the excitement that live games offer.

LVC was selected for a major livestream of the NFL Draft Show, which has long been one of the NFL's most important events in terms of fan engagement. As a player recruitment ceremony, the NFL Draft Show comes with controversy and excitement, but COVID-19 meant that spectators could no longer be physically present. So it was decided to make them a part of the show — remotely and live.

The NFL's challenge was threefold:

- Capture and manage hundreds of live fan feeds
- Make the fans feel immersed in the event
- Establish two-way live communications for the NFL Commissioner to engage with fans

LTN used WebRTC, as it allowed contributors to connect to the production from any browser and engage with the Commissioner.

Routed via LVC, nearly 500 fans successfully streamed their reactions from the safety of their homes. Onscreen, large groups of engaged fans were displayed with their team's logo, allowing the viewers at home to see the fans' reactions during the show. A talkback function allowed the Commissioner to engage directly with fans using LVC's built-in WebRTC technology.

COVID-19 lockdown restrictions accelerated the show's shift to live video switching in the cloud and proved these technologies' ease of adoption, along with the flexibility and reliability that LTN Live Video Cloud offers.

The NFL Draft Show is a good example of how a well-known organization was able to pivot quickly and reinvent its whole production, and still deliver compelling content reliably and more cost-effectively than using legacy data-center hardware.

Digital audience growth

Media rights holders and tournament organizers are experiencing unprecedented demand for their live content.

Audience demand is only growing for niche as well as major events. Production teams need solutions that are scalable, cost-effective, and can be deployed and removed at a moment's notice.

Their challenge is twofold:

- Outgoing feeds to new broadcast destinations are constantly increasing, and new channels need to be onboarded quickly
- Professional broadcast production techniques are often required, but budgets are limited

Furthermore, production expectations are only increasing. For example, esports broadcasts have to switch a large number of incoming livestreams, with LTN Live Video Cloud often routing them to more than 70 destinations. Real-time changes, such as runtime configuration adjustments, need to be made to livestreams without restarting or interrupting the broadcast.

The near to midterm future will bring greater flexibility, giving customers more upfront and live-runtime control over anything a livestream contains. This could include picking and remapping audio-layers or dynamically controlling in-band signaling.

LTN Global was able to onboard a new customer in India with LVC in less than 24 hours. A traditional hardware implementation would have taken weeks or even months, making it impossible to meet quick turnaround demands.

Digital content aggregation

A typical news organization or live sports production channel acquires a high volume of incoming livestreams at any one time. The range of technologies utilized for remote livestreaming presents two issues:

- Managing diverse input video formats into a cohesive workflow
- Supporting and scaling streams without a continuous capex spend

Live feeds arrive from an array of devices including: bonded cellular equipment, such as those from LiveU or Mobile Viewpoint; satellite links; smartphone apps; social media platforms; and ingest IP sources, all with differing formats like Zixi, SRT, NDI, RTMP (H.265, H.265), and RTSP. Dynamically and efficiently routing and switching between sources while maintaining ultra-low latency is a challenge for

any broadcast or production company. They desperately need to unify their media workflows at the receiving destination.

The fractured workflows and limited preview capabilities of fragmented hardware technology solutions make remote livestream creation unmanageable. Expensive hardware for ingesting, viewing, managing, encoding, switching, and transcoding is also at risk of obsolescence.

In-band messages such as SCTE 35 markers, which indicate where downstream systems can insert other content including advertisements or additional programs, also need to be applied. LTN Live Video Cloud, for example, can use MPEG transport stream (TS) or SRT as an internal protocol to support these markers, which can then be distributed to the destinations of choice.

This is just one example of how a cloud-based platform like LVC can aid digital content aggregation and streamline workflows.

What are the business benefits of utilizing LTN Live Video Cloud?

Cost effective and easy to manage, LTN Live Video Cloud presents far-reaching advantages:

- Unlike competitive offerings, an infinitely scalable number of livestreams are available in terms of both inputs and outputs
- Services for new projects or additions can be provisioned within minutes, all completely controlled by the customer
- Zero hardware investment is required
- A pay-as-you-go payment model allows control and management of budgets within a cost framework
- Other payment models are available with flexible usage plans
- The ability to monitor livestreams in high-res with a browser-based multiview

- Continuous playback of up to 48 channels on a single page, plus unlimited pages for viewing all streams
- The option to utilize built-in live multi-bitrate transcoding, recording, and asset transfer capabilities
- Superior reliability with ultra-low latency
- The ability to integrate into other IP cloud-based platforms or live-mixing services
- A full-system integration service by LTN Global
- 24/7/365 support center

Why LTN Live Video Cloud?

Cloud-based switching at an enterprise level, which can switch and route an unlimited number of livestreams from different devices, previously did not exist.

LTN developed Live Video Cloud to achieve enterprise-level distribution and live switching, adding an array of media services on top to meet the production workflow needs of different content providers.

Why did the NFA decide to deploy Live Video Cloud?

- Live Video Cloud worked out of the box — relatively little was required to set up an end-to-end live production workflow
- The NFA and its associates can now react to revenue opportunities more quickly
- The ability to onboard new distribution partners in 24 hours
- Flexibility in payment without commitment to a subscription or capex investment



Use existing sources

Use your existing streaming-capable external devices and online sources



Ingest anywhere

Multi-geographical live source ingest for low latency and reliable content delivery



Curate relevant content

Screen and route up to 48 signals in a single continuous playback multiview

How to deploy

LTN Live Video Cloud is a scalable live video router provided as a managed SaaS platform running on top of the three major infrastructure providers: Amazon Web Services, Google Cloud Platform, and Microsoft Azure.

To onboard a new customer onto Live Video Cloud is simple. The DevOps team managing the platform creates a new LVC team and generates access credentials in the form of a user account.

On a global basis, LTN can provide a full installation service from design to deployment as well as ongoing 24-hour support. Installation can include the complete end-to-end workflow with apps from capture to encoding to playout and the ability to add overlays for a full professional live production.

The future of LTN Live Video Cloud

Technology continues to evolve. So will Live Video Cloud. In the short to mid-term, the plan is to add more real-time graphical overlay options and transcoding layers.

LTN is currently designing a new UI that will merge existing functionality and provide ease-of-use with a single service interface. LTN will provide an operating system for broadcasters to incorporate different APIs and SDKs that allows more seamless integration at the business application layer. The single graphical UI will open up more markets outside of traditional broadcast where LTN is already achieving success.

The mission is to ensure the right access to the right content to the right person at the right time. Live Video Cloud will enable complete management and control of the live media workflow — from the network layer to the application layer, from acquisition to contribution, from ingest to edit, from playout to delivery. It will be the platform of choice for organizations wishing to future-proof their media workflows in the cloud.

Conclusion

The LTN Live Video Cloud solution enables novel live workflows that were previously only feasible for organizations able to make large capital investments and maintain a costly infrastructure. By moving live productions to the cloud, Live Video Cloud allows producers to acquire unlimited concurrent live feeds from professional cameras, encoders, mobile phones, drones, and online sources and distribute them to viewing platforms across devices.

LVC offers an opex pay-as-you-go model, allowing ease of budgeting on a project basis — all while providing superior reliability, minimal time to deployment, and infinite scalability.

Live Video Cloud drives revenue opportunities for sports channels, rights holders, news platforms, and other media networks looking for a platform to enable growth, to deliver compelling content, and to set up new channels in less than 24 hours without capital hardware investment.

Incoming streams are collated into Live Video Cloud's master control room, which provides a live multiview of the inputs. Once the content is available, production teams can use LVC to leverage metadata, enabling them to filter contributors and explore sources by configured inputs. The process can apply several filters such as by professional cameras, mobile contributions, and geolocations.

Cloud services include continuous releases of enhancements, new features, and capabilities as they become available — no more paying annual support costs to ensure you're kept up to date with the latest software fixes. The system is future-proofed to take advantage of new video formats, workflows, and distribution platforms.

The current broadcast world recognizes the financial benefits of building cost-effective workflows and revenue streams by exchanging large capex investments with flexible, on-demand services in the cloud that can easily provision more resources at a moment's notice. Live Video Cloud will open up a variety of workflows, productions, and opportunities that you previously thought impossible.

Interested in what LTN Live Video Cloud can do for you?

Please request a demo [here](#).



LTN® Global is a worldwide leader in video technology solutions for producers and distributors of broadcast-quality content. Built on the world's fastest and most reliable IP multicast network, LTN's universal media ecosystem unites modular services and integrates with other leading technologies to bring full-video-chain workflows, driving scale from creation and acquisition to monetization and delivery. LTN has been connecting the world with transformative video experiences for more than twelve years and continues to make content more valuable and relevant to media organizations and global audiences.