A CONCISE GUIDE TO...
TAKING REMOTE TV PRODUCTION TO THE CLOUD
The global demand for content shows no signs of waning. Whether it’s the five billion videos watched on YouTube every day, the 139 million Netflix subscribers or global TV rights for sports projected to grow by 75% to $85 billion by the end of 2024¹, by every metric, content is king. And it will continue to be so as we see more live, linear and on-demand programming than ever being produced and disseminated across a constantly growing and shifting array of platforms.

Volume is not the only driver behind the video content explosion. Flexibility, efficiency and speed to market are also massively important to reaching viewers in real time with a constant flow of fresh content. So finding ways to add new, quality video to the content mix is of critical importance to content producers serving the billions of people still watching linear TV, the 600+ million estimated OTT subscribers worldwide and the world’s 3 billion regular social media users. This momentum is driving forward-looking organizations into a future in which they must find new approaches and technologies to produce and deliver more live sports, entertainment, news and enterprise programming than ever to different audiences, without overstretching resources.

The COVID-19 crisis has accelerated changes in the video marketplace and brought into sharp focus the challenges of producing content at scale when the normal production workflow is disrupted. At the same time, it has led to a greater variety of virtual events that will be part of the enterprise communication mix long after the pandemic has abated. The ability to efficiently broadcast and livestream a growing range of smaller scale and niche sports and entertainment events will be part of a renewed post-COVID live dynamic in which bigger, more crowded is not necessarily seen as better. Furthermore, as we move past the coronavirus crisis into a future made safe for spectators to return to arenas and stadiums, a broader and more varied selection of major events – like top-tier college sports, professional games once left off the broadcast schedule and more esports tournaments – will find their own market.

As a result of these forces, the longer-term need is to produce the increasing range of content being accessed across broadcast, streaming and social platforms more flexibly and efficiently, with a faster time to market and at a lower cost per minute. This last element, cost, is often the most pressing requirement. In 2018, Micah Sachs, principal at CMA Strategy, estimated that the NFL Network spends roughly $1 million for each game it produces. Being conservative and assuming other production, administrative and on-air talent costs, he estimates the NFL’s TV operating costs were $200 million a year at that point. In the UK, the world’s largest public service broadcaster, the BBC, estimates that one-off live events and performances cost between £40,000 and £400,000 per hour to buy in from third-party producers.

The costs in both examples are made up of multiple elements, including logistics, staffing, facility, talent, production and content distribution. Critically, the recent pandemic has highlighted the need to run many more of these workflows remotely – enabling not just safe social distancing but better efficiency and unprecedented flexibility. This all adds up to an urgent need for more varied and creative approaches to the production process. Cloud-based TV production can play a key role here. In fact, as we look further into a future with more video and live events across more devices and platforms, it becomes clear that the cost-effectiveness, flexibility, efficiency and speed of cloud-based TV production will be a transformational force in the growth and development of media.
WHAT IS A CLOUD-BASED TV PRODUCTION SERVICE?

Across coverage of live sports, news, awards, music and enterprise events, the need to reduce costs, increase agility and improve time to market has led to increased demand for more efficient production techniques. New services have evolved to take advantage of elements such as cloud computing, IP-based networks, remote control of equipment and – crucially – a centralization of human resources to overcome the travel and logistics burden.

Cloud-based TV production enables video production workflow processes to be implemented via a hosted platform. A more comprehensive cloud-based ‘Production-as-a-Service’ offering, such as The Switch’s MIMiC, delivers a complete end-to-end workflow through a flexible, on-demand model that includes remote IP-video contribution, production, clipping tools, and distribution.

The ‘production-as-a-service’ approach allows all aspects of the production workflow, from editing and graphics creation to comms and talk-back, to be handled inside the cloud, while distribution via OTT services or private fiber network ensures livestreams can reach viewers globally on their platform of choice. Key features can include support for sports data feeds, contribution connectivity, contribution encoding equipment, program distribution and production staffing.

With a full ‘as-a-service’ offering such as MIMiC, multiple feeds coming from cameras at a venue – whether covering a basketball game, rock concert, esports tournament or product launch – are encoded into a compressed format and fed into the platform running within the cloud. Producers, using just a browser, either remotely or at a dedicated facility such as The Switch Production facility in Burbank, can now carry out the full scope of production.
WHAT ARE THE OPTIMAL USE CASES?

The use cases for cloud-based production are varied. Sports, esports, entertainment and enterprise events all have potential for the application of cloud-based production.

Live events, especially major sports, have long been the cornerstone of traditional TV but this content is also increasingly driving streaming and social media consumption as well – with figures from the IAB showing that more than two-thirds of consumers globally have streamed live video and close to half have increased their consumption of this type of content year on year. Finding ways to get more live games and other events to viewers without breaking budgets makes cloud-based production a clear option for many leagues and rights holders as they look to meet future demand.

In addition, as more esports tournaments emerge as top-tier broadcast and streaming staples, a cloud solution offers a way for leagues to broaden their footprint while maintaining professional production quality. In these cases, the cloud-based model can accommodate additional live video feeds from another source – for example, the video output directly from competitors’ screens or a guest commentator who is connecting remotely via a video link over the internet. The feeds all go directly into the cloud and producers can carry out the same functions as in a live gallery environment.

Another major way a cloud approach can be employed is the delivery of live or near real-time ‘secondary event’ productions for live sports broadcasts. In this scenario, shoulder programming around major sports events, such as a special preview show framing the narrative ahead of the big game or analysis on the betting outlook, can be produced via the cloud as a separate feed. In other cases, the contribution feeds, like those going from a football game to a traditional broadcaster, for example, can be split – with a spur heading into the cloud production service. In this instance, the social/web teams now have a full, real-time ability to create highlight packages, clips and even entire separately produced shows that can be instantly published to OTT services such as YouTube Live, Facebook Video and Twitch. The latency involved is only a few seconds and the outputs can be encoded to any number of device/bitrate profiles along with file-based packages for distribution; these social/OTT producers now have a dedicated platform that is fit for purpose.
Enterprise use cases include live corporate events, both real and – increasingly due to the coronavirus crisis – virtual, including product launches, press conferences, investor briefings, customer seminars, all-hands meetings and campaign kick-offs. Producers of livestreams of these types of events can take in feeds from a range of participants via a video conferencing app such as Zoom, Skype or other IP video feeds and manage them in a cloud-based production platform.

For less high-profile sports and ad-hoc or one-off live events, cloud-based production opens the way for broadcast-quality packages – removing the cost and complexity that can burden traditional production models. All of the elements, such as graphics, audio and access to archive footage are accessible from the single cloud environment. By using IP network connectivity, and delivering via an end-to-end platform such as MIMiC as an ‘on-demand’ service, capacity can scale up for only the duration of the event and then cease. Although live is where the cloud production really shines, the platform is also suitable for file-based workflows where its biggest strength is to simplify distribution into social/OTT platforms that have a direct off-ramp.

**WHAT ARE THE KEY BENEFITS?**

When assessing the benefits of cloud-based production, there are multiple criteria to benchmark against. The primary goal for many organizations is cost reduction and the cloud model has clear advantages in this area, but there are other ways it adds value and offers clear advantages.

Perhaps the most powerful benefit of cloud-based production beyond cost-effectiveness is flexibility. With a cloud methodology in place, content producers adapt quickly to manage almost any circumstance, regardless of the location of the event, staff, distribution method and target content. In a world where IP-based networks are dominant for the distribution of content, cloud-based technology, with its software-defined architecture, makes it easy to adapt the workflow without having to physically change hardware. In the recent COVID-19 crisis, remote editors using cloud-based production were able to work from home with just a browser. Across a multitude of use cases where each production needs to do things slightly differently, having video, IP networks and cloud-based production tools accessible via the same platform provides a powerful combination.

Efficiency and speed are other key elements of cloud-based production that holds huge appeal to many content producers. Just by being more flexible, a cloud platform can help optimize efficiency often just by simplifying the logistics, travel and resourcing around the production of sports and other live events – elements that those producing live events often find themselves juggling when the production components are more fixed. And speed is crucial to capitalizing on the immediacy of an event – sporting, news or entertainment – and represents a huge difference in value for subscribers and advertisers alike, especially for social platforms. In this respect, the cloud-based production method is well suited due to the sheer speed of delivery. For example, the time between many sports coverage feeds coming into the cloud and a highlight package being made available on video-enabled social platforms could be measured in minutes – and with every few seconds of delay, rights holders risk losing viewership to rivals and pirated content sources.

Finally, reliability underpins everything in the telecast and streaming of live content and a typical cloud production environment can run transparently, securely and independently of the main broadcast feed from a major event. Even in a scenario where the cloud workflow is the primary production and distribution method, the design is based around a highly virtualized and microservice-based architecture to avoid a single point of failure. As a further backstop, cloud production can be architected to offer a pass-through ‘clean feed’ that can go straight through from contribution to encoding, then CDN distribution – almost like an override switch – to ensure that there is never a ‘black screen’ situation. As we move into a more content-rich future, cloud-based TV production gives broadcasters, rights holders and other live content producers more assured and dependable options than ever.
Until now, there has not been a true end-to-end cloud-based production solution. What has been available in the marketplace is predominately consumer-focused solutions and limited broadcaster-ready alternatives. The Switch’s MIMiC offers a genuine broadcast-quality platform with a combination of capabilities, features and related services that were previously not available through a cloud-based offering.

On the ingest side, consumer-focused ‘prosumer’ platforms often only support a single video feed. This is fine for a vlogger but, considering that a typical football game will have at least 6-8 cameras, this is woefully inadequate beyond limited use cases. A full broadcast-ready platform like MIMiC will support up to 20 live stream sources at 20 Mbps full HD, including video on demand assets.

In the production layer, MIMiC similarly ensures broadcast level capabilities and options that set it apart from most other platforms. Where prosumer apps may allow for a single graphic plane or audio overlay, MIMiC is designed for larger scale events with multiple graphic overlays and support for sports data feeds. In addition, MIMiC can also support channels for comms and talkback going directly back to the event or studio location to interact with talent and technical staff such as camera, lighting and sound technicians.

One of the most powerful capabilities of MIMiC is the ability to support multiple operator positions; this means a multi-person team can have a gallery director, replay producer, cutaways editor, studio producer, graphics operator and others – as needed – all working
simultaneously via just a browser. What’s more, content producers have the choice of either using their own production crew or relying on The Switch to provide a full complement of experienced operators who know how to deliver award-winning programming.

The last major difference is in the distribution part of the chain, where content encoding and distribution is an integrated layer. In the case of MIMiC, this means delivery to up to 21 destinations including Facebook, YouTube and Twitch as part of a portfolio of social channels. This can also include direct distribution via public internet, or distribution via OTT services and/or The Switch core network. For customers already using The Switch’s transmission network, MIMiC enables them to seamlessly deliver their content into the cloud so that it is ready to use across secondary digital productions and social media. Finally, MIMiC complements the existing remote production services The Switch helped pioneer, enabling rights holders, enterprises and other content producers to choose the level of service they need depending on the type of programming or event.

WHERE IS CLOUD-BASED PRODUCTION TAKING LIVE BROADCASTING?

Cloud-based production has emerged as a technology and service combination whose time has come – and its role will only expand moving forward. It already solves an inherent need across the live TV and social content creation spectrum with a method that is cost-effective, flexible, efficient and capable of enabling content producers of all types to meet consumer demand for immediacy across multiple platforms.

Top-tier broadcasters, awards organizers, production companies and sports teams and associations are among the media and entertainment players already testing the waters and realizing the benefits of cloud production. For potential users with limited resources currently looking to grow their content fast and efficiently, such as upcoming esports and lower-level sports leagues, the cost-benefit analysis points to a compelling case for cloud-based production as a fundamental tool for much of what they do. Further down the road, as major sports leagues and organizations worldwide look to broaden the content they can take to their fanbases and rights holders aim to make the most of their investment, cloud production offers a way to bring more games to more people across more platforms without the content producers overextending themselves.

Moreover, looking to a future in which social media-based content delivery starts to offer revenue potential on par with that of traditional TV and pay-TV business models, what began as a sideline is likely to swiftly evolve into a profit center. Cloud-centric models are likely to see, additional technologies, such as ad-insertion, viewer interactivity and AI-based automation added as optional layers.

The final takeaway is that like many internet inspired innovations, the use of cloud production is easy to deploy – and, in the case of MIMiC, provides a technical architecture that works alongside existing broadcast workflows without adding any inherent risk.
or compromise to well-established processes. The service allows right holders using The Switch's transmission and full remote production services, for instance, to incrementally increase their live coverage footprint efficiently and cost-effectively without disruption – all while maintaining quality. As remote production emerges as the de facto standard for many sports and events, The Switch’s MIMiC cloud-based service provides a state-of-the-art TV production offering that is set to play an integral role in the industry’s transition.

ABOUT THE AUTHOR

Robert Szabo-Rowe, Senior Vice President Product Management, The Switch

Rob brings more than 25 years of senior executive management experience to The Switch across the technology, media and telecommunications sector. In his role at The Switch, he takes the strategic lead in the creation and delivery of best-in-class products and services across the company’s entire live production and transmission portfolio, driving growth and innovation – including MIMiC, the on-demand cloud-based production-as-a-service offering. He previously served as Executive Vice President and General Manager of Live Production and Infrastructure for Snell Advanced Media (SAM), responsible for the company’s live broadcast solutions and its migration to IP. Previously, Rob held roles as CTO for Cambridge Positioning Systems, and Vice President of Network Design and Technology for Aerial Communications Inc (now part of T-Mobile).