grabyo

2020 CLOUD VIDEO PRODUCTION

Disruption and the future

CONTENTS

INTRODUCTION

The way consumers watch video has radically changed. For decades, linear TV viewing has dominated across households, but today, OTT, mobile and social platforms are becoming the media destinations of choice for consumers of all ages.

The Grabyo 2020 Value of Video Report, which surveyed over 13,000 consumers across 11 territories, found that online streaming subscriptions have surpassed pay-TV subscriptions with 55% penetration for streaming ahead of 50% for TV.

Device use is shifting rapidly too. The majority of pay-TV customers (58%) and online streaming customers (65%) watch video regularly on their smartphones. Despite variance in which video services consumers pay for, the three most popular devices for consumption remain the same: smartphones, smart TVs, and streaming devices (eg. Roku, Amazon Firestick, Apple TV, Chromecast).

The most popular video devices are connected. Consumers want the flexibility to access the same content on any device, at any time, in any location. Consumers don't want to adhere to rigid broadcast schedules, or be restricted to viewing on a specific device.

Yet there are challenges in distributing linear TV content to multiple digital platforms. Traditional broadcast infrastructure and systems aren't suited to digital distribution, they require complex, high-cost workflows that restrict the potential of digital content and product innovation.

Too many digital TV experiences are simply linear TV services rebroadcast on the internet - ignoring the unique characteristics and potential of a video experience delivered on a personal, connected device.

So what does this mean for broadcasters, publishers and rights holders?

Production teams must move from legacy broadcast hardware to software-based solutions, built in the cloud.

This white paper will explore what it means to be truly cloud-based and how video production workflows can be future-proofed to meet the needs of a connected audience in the 21st century.

CLOUD PRODUCTION FOR BUSINESS:
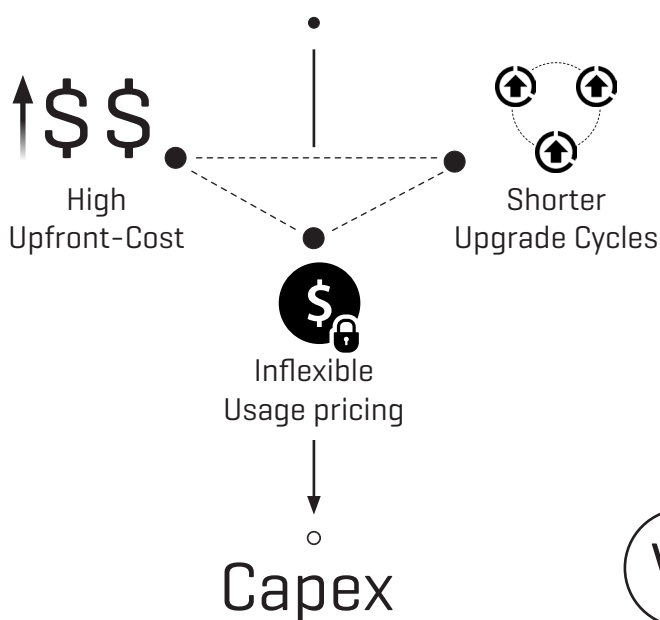
INVESTMENT AND RETURN

Cloud-based systems enable businesses to be more flexible and agile. The transition to cloud technologies has been happening for many years, but for most media organisations cloud-based workflows exclude video production.

A distinct difference between cloud-based systems and local infrastructure is the type of investment required. Cloud solutions are usually delivered as SaaS (software-as-a-service) with variable, usage-dependent fees which impact customer operating costs (OpEx).

Traditional hardware investments require capital investments (CapEx) in infrastructure, with high upfront costs that are amortised. The lack of flexibility means most companies buy too much capacity up front and then are forced to retain specific infrastructure and services, even as the technology becomes increasingly obsolete. With cloud, the move to OpEx based "pay-as-you-use" models, means lower upfront costs, flexible pricing and the opportunity to scale services and technology in line with demand.

TRADITIONAL HARDWARE

High Upfront-Cost

Shorter Upgrade Cycles

Inflexible Usage pricing

Capex

CLOUD BASED

Low Upfront-Cost

Unlimited Upgrade Cycle

Pay-Per-Use

Opex
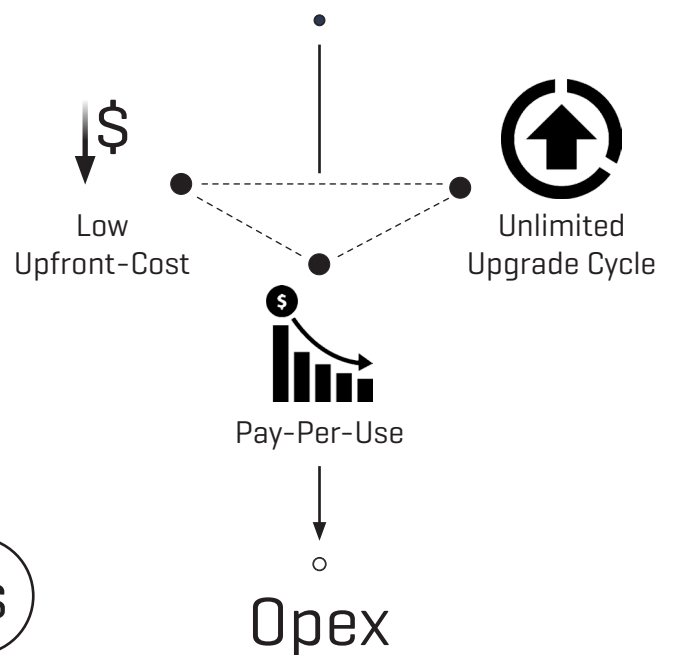
Vs

SCALABLE USE, SCALABLE COST

As with any cloud-based technology, video production can be tailored to the use case and needs of the service. With horizontal scaling, cloud based production set-ups can be brought up and down instantly, delivering more production instances, adding encoding power, increasing ingest capacity, or altering stream resolution, quality or available storage.

For large events or productions, a publisher can bolster capabilities in the cloud for the duration of the event and then scale back down afterwards, reducing costs.

UNLIMITED UPGRADE CYCLE

Single-purchase equipment for video production, be it software licenses or hardware equipment, has a limited shelf life. In order to access the latest developments, features or technological upgrades, businesses need to overbuy capacity and then go back to spend more to upgrade their production equipment on a cyclical basis.

With cloud services, this isn't the case. As features or upgrades are released onto cloud-based platforms, they are available instantly. There is no need to upgrade hardware, infrastructure or production equipment to access them.

The flexibility of using cloud platforms is extended by open architecture design which enables integration with other applications and services. This enables cloud platforms to offer additional services and quickly adapt to the needs of its users.

Open APIs allow functional integration at speed, increasing the scope and complexity of the overall production and offering greater flexibility to users to meet specific video or broadcast requirements.

RESOURCE MANAGEMENT

Cloud-based tools are intuitive and easy to use, which can benefit both recruitment, skills development and resource management. Less specialised training is needed to master live and VOD production systems, as these platforms focus on essential tools and customer-centric user-interfaces (UI). The resources needed to manage cloud-based productions are much less intensive than traditional hardware based solutions where many services require dedicated operators with specific product knowledge and experience.

Cloud platforms also have a sense of presence. Multi-user collaborative workflows are possible in cloud environments without the users needing to occupy the same physical space. This is a significant change from traditional production set-ups in a gallery, control room or outside broadcast (OB) truck. The modern "front-bench" of production may be completely disaggregated with users operating specific controls from multiple remote locations - connected in real time via the cloud.

CASE STUDY:
EA SPORTS STAY AND PLAY CUP

EA Sports hosted a remote eSports tournament, the 2020 Stay and Play Cup, using Grabyo Producer in April 2020.

Using Grabyo Producer, a cloud-native live production suite, EA Sports was able to mix video and audio from 20 football players who appeared on the broadcast playing FIFA 20.

The Stay and Play Cup set up, from inception to execution, took just 10 days. EA's service ran at 20 Mbps, allowing for 15 concurrent live streams and 45 concurrent Grabyo users to ensure smooth delivery.

The Stay and Play Cup was broadcast live to EA's digital channels on Twitch and YouTube, with the final also running on cable television via ESPN 2, delivered from Grabyo. This is the first time the Grabyo cloud platform was configured for broadcast output in addition to concurrent streaming on digital and OTT.

Cloud platforms connect users, which enhances productivity. Integrations with other applications, such as social media platforms, online video platforms or web-based video players, makes video distribution faster and easier.

CULTURE:

HOW THE MODERN WORKFORCE CAN THRIVE IN THE CLOUD

In addition to the technological benefits of cloud-based workflows, the culture of a company and working environment can be greatly enhanced. From improving work-life balance, to increased flexibility and creativity, and the ability to build more sustainable systems with reduced environmental impact.

Employees are able to work from anywhere in the world, at any time, on any connected device. This could be a home PC, company laptop or a personal smartphone.

The options for remote working have changed dramatically. From capturing a breaking news story in the field using a smartphone, or producing a live talk show using a laptop, to commentating on live sports from your bedroom.

Offering this flexibility to employees helps develop a more productive and creative workforce. Digital teams are able to work independently and collaboratively to foster new ideas. This is especially useful when a team is spread across multiple locations or regions.

CONNECTING WITH TALENT

A traditional production setup involves lots of resources, hardware and a complex management process. This is exacerbated when broadcasting from multiple locations.

Ensuring talent is in the right place, at the right time, with the correct infrastructure, tools and connectivity is a continuous challenge for production managers. Cloud-based production removes many of the obstacles involved in creating content when the talent is working remotely.

When producing broadcasts from multiple locations with multiple participants, cloud platforms can provide each guest with a simple way to contribute. Using just one click of a web link, or simple conferencing tools such as Zoom, guests can join any broadcast using a personal laptop or smartphone with an internet connection.

CASE STUDY: MTV'S REMOTE GAME SHOW

MTV produced a completely remote game show, broadcast to its Facebook and YouTube channels using Grabyo and Zoom during April 2020.

The show required minimal resources for producers to overlay graphics, switch feeds and interact with the audience in real-time. The talent just needed to join a Zoom session to participate. MTV's digital team ran the entire show remotely without needing to organize travel for equipment or personnel, or hire a production space which adds further logistical challenges.

PART THREE

AUDIENCE:

In 2020, Grabyo conducted new research into the video consumption habits of global consumers. The data collected is a representative sample of consumers in the US, UK, France, Italy, Germany, Spain, Japan, Thailand, Brazil, Argentina and Australia.
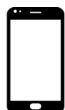
The objective of this research is to find out how consumers want to access video.

DELIVERING AN AUDIENCE-CENTRIC CONTENT STRATEGY

WHICH DEVICES DO CONSUMERS USE TO WATCH VIDEO?

57% watch video on a Smartphone

44% watch video on a Smart TV

47% watch video on a Laptop/PC

28% watch video on a Traditional TV

WHICH DEVICES DO CONSUMERS USE TO WATCH VIDEO MOST OFTEN?

29% of these watch on smartphones most frequently

37% of these view on smart TVs most frequently

26% of these watch on traditional TV sets most frequently

24% of these watch on laptops/PCs most frequently

WHICH PLATFORMS DO CONSUMERS USE TO WATCH VIDEO MOST OFTEN?

67% rank online streaming services in their top three video platforms

65% rank social media in their top three video platforms

57% rank pay-TV/premium cable in their top three video platforms

53% rank Freeview TV in their top three video platforms

PART THREE

WHAT DOES THIS MEAN FOR VIDEO PRODUCTION TEAMS?

Over the past five years online video consumption has grown rapidly.
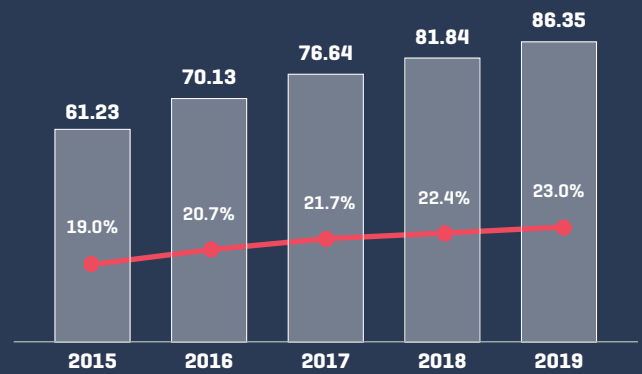
Average Time Spent per Day with Digital Video by Adults
US, 2015-2019

Key Data:

● Minutes

● % of total time spent with digital media

Source: eMarketer, August 2017

	2015	2016	2017	2018	2019
Minutes	61.23	70.13	76.64	81.84	86.35
%	19.0%	20.7%	21.7%	22.4%	23.0%

This presents a number of challenges to broadcasters and publishers. First, how to produce content for these devices and platforms, and second, how to meet the qualitative and quantitative production standards consumers have come to expect.

Traditional broadcast infrastructure and equipment is not designed for the agile world of digital media.

One of the most prominent shifts in the video industry has been the rise of social media platforms and their transformation from networking tools to entertainment destinations. In 2018 Mark Zuckerberg, Facebook founder and CEO, famously predicted that Facebook will have become a video platform by 2021.

Across social media platforms, engagement happens when content is live. Being first-to-market is vital. To capture audiences and establish a primary destination for content, video production must be rapid, agile and focused on real time interaction and sharing.

Near-live clips and live social broadcasts create community experiences, which engage audiences and drive discussion and viral distribution, broadening reach and generating longer watch times. Audience participation drives engagement, which means content that drives conversation will lead to more consumption on all video platforms.

OPTIMIZE LOCALLY, ALIGN EVERYWHERE

The most successful digital publishers don't treat all platforms and content the same way, they optimize.

Video optimization includes aspect-ratios, content formats and duration. On social platforms such as Tik Tok, videos can be no longer than 60 seconds. In Tik Tok's case, the platform is for light-hearted, fun content, which usually includes music or augmented reality (AR) filters. Digital teams must adhere to the tone of their target platform to resonate with the audience.

YouTube and Facebook are platforms for longer-form content, compilations and highlight packages. Videos must have high production values. These platforms also support higher fidelity live streaming, up to 1080p/60fps and 4K (UltraHD), and offer complementary options for audience participation, comments and feedback.

Creating all of these different content types of content can be a challenge for production teams, a challenge made even more complex by remote working.

ALIGNING A VIDEO STRATEGY WITH THE CLOUD

With cloud technology, teams can share assets to repurpose and reconfigure existing content for use on other platforms. Delivery is rapid, as modern cloud-based video tools have direct integrations with the major social, mobile and web-based platforms. Video creation is collaborative and content publishers can localise content quickly for global distribution online.

Delivering content to various channels and managing assets in a centralized system ensures all content is on-brand and on-message. Brand awareness and quality assurance are more achievable objectives when teams can collaborate on content and share assets easily.

TECHNOLOGY:

HOW CLOUD PRODUCTION WILL REDEFINE THE VIDEO EXPERIENCE

The traditional workflow to capture, encode, manage, distribute and archive video requires a high level of investment in hardware equipment and resources. Processes are slow and inefficient, with high levels of segmentation, disconnected workflows and limited scaling. This inflexibility does not suit the world of digital video publishing, where agility, speed and scale matters.

Cloud-native video solutions are elastic. Scaling resources up or down to meet changing needs is part of the product architecture. Usage-based pricing models scale on-demand and don't waste computing power or storage space.
Cloud platforms are reliable and redundant. Industry-standard cloud practises are designed with redundancy in mind. Customers can build infrastructure across multiple regions and data centers to ensure no single point of failure brings the service down.

Above all, the cloud is flexible. Teams can test new workflows and solutions rapidly, discarding services that don't work and quickly extending investment for applications that drive real business value. The ability to test and learn extends beyond content to the entire video ecosystem. The ethos of entrepreneurship and innovation is to 'experiment often' and 'fail fast', using cloud services makes this a viable option

HOW IT WORKS: GETTING THROUGH THE 'FIRST MILE'

The 'first mile' consists of getting content into the cloud. Once it's there, there are almost limitless possibilities to enhance and augment the content before it is published to consumers over the 'last mile'. This is an example set-up based on Amazon Web Services (AWS) infrastructure:
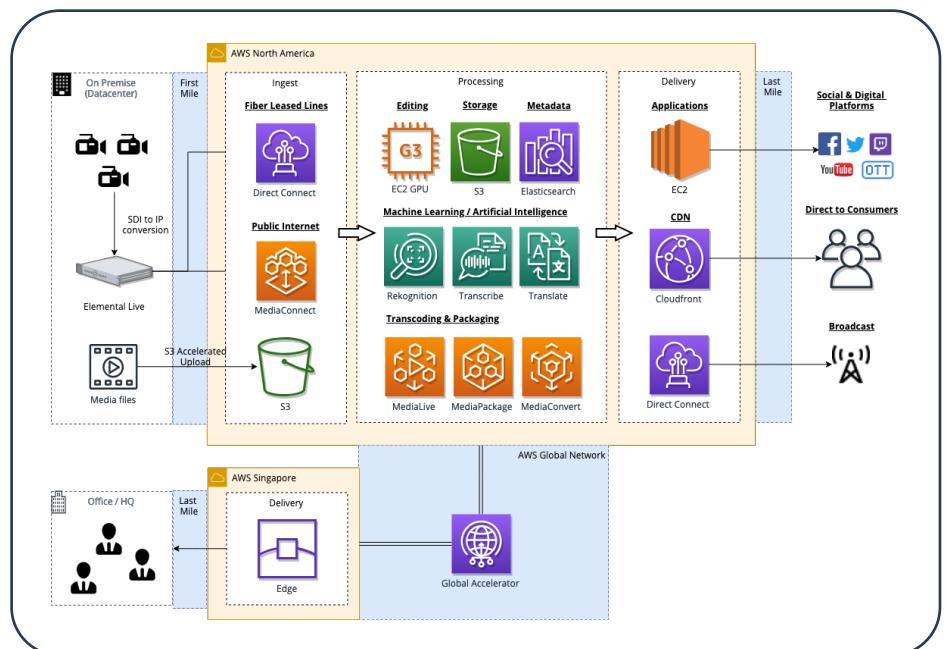
Before ingesting content to the cloud, there are some important considerations:

- Required and available bandwidth (vs what is available)
- Latency levels (from source to destination)
- Network flow (public internet vs private leased lines)
- Any protocol specifics required (such as TCP vs UDP)

Network flow configurations will dictate service options and the quantum of investment needed. A private leased line can be expensive, in some cases requiring long-term contracts. These networks are also fixed to a specific data centre, so cannot move locations. But reduced flexibility may be a reasonable trade-off as private leased lines are dedicated and uncontended, meaning they have far better predictability for available bandwidth and expected latency.

Conversely, the public internet is cheaper and accessible from anywhere, but can be unpredictable. When the network flow has a heavy-load and is fighting for bandwidth with other connections, it can impact live streams unexpectedly. UDP connections suffer image quality loss, or constant buffering through a TCP connection. Unfortunately, it's hard to predict when video performance will drop using public connections.

There is a middle ground. Using 'acceleration' via an edge server, it is possible to improve the connection by reducing the distance network traffic has to travel over the public internet.

By connecting to an edge server, a large portion of the network flow can be completed through a private, uncontended connection to the cloud. This gives far more mobility over a fixed line, as it no longer needs to originate from a data centre and just needs internet access.

Overall, it is best to ensure that use of the public internet is kept to a minimum during the 'first mile'. Acceleration over a private network, such as AWS MediaConnect, is recommended for video quality and performance.

FINISHING THE 'LAST MILE'

Once the flow reaches the cloud, the creative possibilities are endless for the production teams.

For video processing, there are options to perform pixel manipulation for video editing, effects and production. It is possible to apply machine learning (ML) to extract speech-to-text for automated closed captions, or apply image recognition to tag and classify videos and images.

Extracting metadata is simple. AI/ML services enable rapid and scalable context-extraction with efficient storage through tag management for search. Storing and archiving content can be managed with high confidence levels.

The cloud also enables powerful integrations with other SaaS solutions, such as AWS MediaConvert or AWS MediaLive. This can be extended to other cloud platforms such as Microsoft Azure or Google Cloud with containerisation allowing flexible deployments across multiple cloud and hybrid-cloud architectures.

The hyper-agile, rapid-scaling process of passing broadcast streams through the cloud is being adopted by leading broadcasters. Consumers want to watch video anywhere, anytime and broadcasters need solutions that will enable them to adapt quickly as digital viewing continues to rise. Maximising media assets across all available channels is becoming critical to growth.

THE FUTURE OF CLOUD TECHNOLOGY

Speed of deployment and service flexibility allows cloud-based production platforms to easily integrate and test new protocols and APIs for digital teams, making them available more quickly.

Adopting alternative transport protocols, such as Zixi or SRT, enables cloud-based platforms to deliver broadcast-quality content over the internet, reducing production timelines and creating more economical workflows. Forward error correction and packet-retrieval enables these new transport protocols to support higher fidelity broadcast video formats without compromising on quality, speed or accessibility over the public cloud.

Hyper-connected infrastructure in the cloud is also a strong foundation for harvesting and maximizing metadata. Already, many major publishers are looking for ways to harness the power of metadata for content production.

The collaborative nature of cloud-based production allows teams to create and share metadata-rich assets that can be available immediately and optimized for use across multiple channels. This includes enhanced asset discovery and organization, through to automated publishing and new recommendation and content discovery services for consumers.

While many publishers are still configuring how automation is best used in video production, cloud-based platforms are integrating this functionality.

Automated systems are most effective when equipping human editors with the tools they need to work more efficiently. This ranges from asset management to automated clipping, highlights and content distribution.

The creation and management of assets is an area in which automation also plays a role. When creating a piece of content, an algorithm could suggest a complementary asset, be it VOD or graphics, which saves time and resources for producers.

In publishing, automation has not yet replaced human resources. Content can lose its impact when not packaged or delivered correctly. In digital video, reduced processing time and production agility is where automation will have the biggest impact for publishers across all content genres.

The future of TV is the internet, which means production is moving to the cloud.

PART FIVE

TRY GRABYO

Grabyo is the leading cloud video platform, trusted by major global broadcasters, media rights holders and publishers across the globe.

Grabyo provides an integrated set of services that includes live video clipping, live production, distribution and editing.

Source

Browser-based video production, editing & distribution

Real-time publishing & monetisation

Studio

✂ Live clipping   ✕ Social publishing

((•)) Live streaming $ Monetization

Producer

Live production   Remote live streaming

Live graphics editing   Social comments & polls

Editor

Rapid video editing   Real-time highlights

Square/vertical/horizontal edits   Audio replacement

RTMP / HLS streams

Mobile

VOD

Owned and operated platforms

Grabyo has strategic partnerships across OTT, social media and broadcast including Twitter, Facebook, YouTube, Twitch, Instagram and Snap. Grabyo partners created over 650,000 clips and 16,500 live broadcasts, generating more than 12 billion video views in 2019.

To get in touch with us to discuss this white paper, or to find out how we can help you, contact us at hello@grabyo.com.

Thanks for reading.