Cloud economics, global reach, and personalization

How the intelligent cloud enables new opportunities for Media and Entertainment

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Executive Summary

Media and Entertainment is experiencing more rapid technological change than almost any other industry. Digitization and decentralized work streams have changed how content is made, and broadened the circle of creators beyond traditional producers. Meanwhile the move to online media and the ubiquity of mobile technology has fundamentally altered how audiences consume content, putting firms under pressure to deliver personalized content experiences to maintain audience interest, and to provide targeted advertising opportunities to meet the needs of advertisers.

This paper explores a few of the ways in which technology is disrupting content creation, distribution, and data utilization - and how firms across the media and entertainment value chain can utilize the intelligent cloud to optimize operations, engage audiences, and explore new models for revenue generation.
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Introduction

A producer sorts through thousands of images sent by crews on location in Greenland and Utah. She will send them to a small office in Adelaide to be combined into a dramatic ice age backdrop for an action sequence filmed outside of Toronto. Her staff in Los Angeles will review, cut and assemble footage while vendors in London, Seoul and Buenos Aires add the score and adjust background noise, fill-in crowds, fine-tune color, and remove an anachronistic tattoo. In parallel, a marketing team in NYC uses media analytics to find the 27 seconds of film that will draw the largest audience into theaters, and most eyes online. The producer needs to find an efficient solution to ensure that each team can access the materials and data they need quickly.

This scenario illustrates just one way decentralization and digitization are affecting media production, but global technological trends are creating a variety of fundamental shifts in the way media is created and the ways in which audiences consume content. These changes take different forms in specific verticals of the Media and Entertainment industry (M&E), in broadcasting, cable, online video, film production, publishing, marketing and advertising, as well as freelance journalists and creative artists. But across the industry there are some common challenges and opportunities created by the shifting technological landscape.

For example:

- The entire media value chain is becoming increasingly decentralized, evolving into a “value web” as companies expand business models to include functions from production to digital streaming services and retail, and more and more of the processes are outsourced to vendors and contractors.
- Global audiences are growing increasingly picky and expect a rich choice of high-quality content across multiple channels, platforms and devices. Today’s viewers, especially young viewers, use multiple media at a time – for example gaming on a console while watching a streaming TV show and snapping and tweeting real-time commentary on both from their phone.
- The move to online distribution offers a “backchannel” for media companies to collect vast amounts of data on audience behavior, which must be organized and stored efficiently to maximize audience engagement and optimize ad placement.

Working with customers and partners across the industry, Microsoft has identified four pillars of digital transformation in M&E, four key ways to drive efficiency and growth across the M&E value chain by leveraging the cloud, big data, advanced analytics, and artificial intelligence. This paper discusses some of the ways in which these technologies are changing how content is created, distributed and monetized, and provides examples for how M&E companies are leveraging Microsoft’s intelligent cloud to suit their current and future business needs.
Optimize content production and post-production within an integrated value chain

Our producer wants to ensure that all her post-production vendors can access the content and data they need. She’s working on a tight deadline, and needs a solution that will be cost-effective, fast, and secure. Meanwhile, the studio is looking for ways to track production progress and content versions, capture the data created along the process chain, and keep both the content and the data for archiving and future re-use.

The business of creating content is rapidly becoming more complex, as production and post-production work is decentralized across people and companies working all over the world. At the same time, the sheer amount of content generated is increasing exponentially, and the threat of content theft and copyright infringements is on the rise. In addition, audience demand for the latest content is sharply reducing the window for getting it out to viewers.

"Our competitive evaluations of the leading cloud providers showed that Microsoft Azure is the most open, trusted and global cloud platform that also enables true hybrid-cloud computing — which we believe is very important to media enterprises."

— Louis Hernandez, Jr.
Chairman and CEO,
Avid

Build with trusted partners on a platform designed for flexibility, security, intelligence, and global scale

“Key Pillars of Digital Transformation in Media and Entertainment”

Optimize content production and post-production within an integrated value chain
Reach global audiences with anytime, anywhere content delivery
Improve content, personalization, and advertising with media analytics and audience insights
Historically, the media value chain has been broken into many discrete pieces. Content is often stored on hard drives and shipped between producers and editors, and on along the value chain. Each time it changes hands, the content is transferred to a new system, often converted to a new format, and data is re-entered, introducing inefficiency and risk. Cloud computing offers a viable alternative: content stays in the cloud, and rather than moving the content from system to system, the tools and services necessary for processing move to the content, and users can access it from anywhere, streamlining production and improving security.

This is a strong incentive for companies working in production and post-production to explore cloud solutions. The cloud enables them to evolve today’s disconnected value chain into a value web with less friction, decentralized orchestration, and increased operational efficiency. Moving infrastructure and workflows to the cloud can help M&E companies increase efficiency in a variety of ways, including:

- Increasing flexibility to work and collaborate from every corner of the globe, in real time
- Connecting across the entire value chain
- Shortening time-to-market for new content
- Strengthening protection against hacking and content theft
- Reducing capital expenditures

However, as most media companies have made significant investments in current on-premise infrastructure, and connectivity to the cloud still is an issue in some regions, moving to the cloud in one “big bang” is not an option. Most media companies will want to take a step-by-step approach, leveraging the cloud where it saves cost, shortens process times, and provides new capabilities like Artificial Intelligence gradually moving more and more workflows to the cloud.

A hybrid cloud approach gives media companies the flexibility to use existing on-premises and private cloud infrastructure alongside public cloud services. Partners like Avid can help companies connect on-premises users and private cloud workloads to remote users and cloud-based services to improve flexibility and scale.

With Microsoft Azure hybrid cloud solutions, companies fully control their own assets and sensitive information, while taking advantage of the services, resources, and elastic scaling of a cloud solution. Adopting Azure hybrid solutions also simplifies the transition to the cloud, allowing companies to migrate workloads and add cloud services when it makes the most business sense. In addition, leveraging the cloud makes it easier to integrate forward-looking technologies, like blockchain to automatically manage rights transfers through the supply chain, with minimal impact on operations.


“Adopting this ground-breaking technology will completely revolutionize the way we produce our global formats and opens up an unprecedented level of creative freedom.”

– Lisa Perrin
CEO of Creative Networks, Endemol Shine Group
EndemolShineGroup

“With the combination of our digital archive with online distribution, we are taking the first step into the cloud. But our vision is larger. The goal is to completely switch the entire production process – from filming to playout – to the cloud.”

– Ernst Feiler
Director Technology, UFA GmbH
UFA
Overall, the right cloud solution can fuel improvements across the entire M&E value chain from idea to viewing, and production is only one piece of that story. To be successful, content must reach the audience where they are—across the globe, watching prime-time TV news, or streaming the big game on the bus.

Reach global audiences with anytime, anywhere content delivery

The studio is considering options to attract international audiences to their pre-historic epic. To build hype, they want to stream the U.S. premiere live to international media and fans. They also need a solution to distribute the film globally on-demand in multiple formats and languages.

Today’s viewers have nearly unlimited choices for media consumption. Not only are the number of channels and amount of content growing exponentially, but the breadth of formats, platforms and apps on which audiences consume media is constantly growing and evolving as audiences increasingly move away from traditional consumption models. While TV viewing and print readership are declining in most developed economies, increases in online viewing and reading are driving more audience engagement overall. In addition, the market for Internet Protocol Television will grow from $1.4 billion in 2015 to $5.5 billion in 2020.

This increase in total engagement presents a real opportunity for M&E companies to reach larger audiences, but also creates new challenges. Setting up the infrastructure for a new media service is a complex task than can very costly and time-consuming, and labor-intensive. It is even more difficult when targeting new markets with unknown audiences and consumption patterns. In addition, the traditional development cycle for new channels, apps, and services can take months or even years – much too long to keep up with changing consumer demand.

In this competitive and crowded market, M&E companies are increasingly leveraging cloud solutions and adopting agile DevOps practices to meet these challenges. Cloud solutions can reduce upfront investments, offer improved scaling, and enable global reach. And DevOps practices help media service providers to continuously improve the apps, and quickly adapt them to changes in user demand. Combined, cloud solutions and DevOps practices can result in better apps, more audience reach, and higher audience satisfaction. Cloud technology enables companies to deliver a variety of

For the red-carpet premiere of Batman V. Superman, Microsoft worked with Warner Brothers to deliver a complete live-streaming solution to deliver the red-carpet action to fans around the world, and inside the theater. In just under two weeks, teams were able to create a broadcast-quality live-stream solution that would reach three times Warner Brother’s typical live-streaming audience.

“NBC Olympics’ coverage of the Rio Games shattered streaming records in the sports category, with over 3 billion minutes streamed. ... Our partnership with Microsoft Azure was critical in extending our reach to more people and more devices via cloud streaming than ever before.”

– Eric Black

CTO, Digital Media, NBC Sports Group

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popular and niche content to audiences all over the globe, whether they choose to consume a broadcast or livestream, at home or via mobile app.

Microsoft Azure is enabling M&E firms to gain strategic advantages through cloud services that simplify global development and distribution and scale to meet any need.

- Azure Media Services reduce the complexity of cross-platform delivery, enabling delivery to current and future devices and platforms without the need to re-encode content.
- Azure’s live and on-demand streaming services scale to reach any audience size cost-effectively, from small to global audiences, and make it easier to reach audiences around the world with the ability to playback multi-language audio streams, see subtitles, and localize the player.
- Azure’s media player technology easily integrates into web and mobile apps, automatically chooses the best playback format, and provides flexible ad-insertion options to meet any business need.

These are just some of the ways that cloud platforms can help media companies shorten time-to-market for new services and increase audience reach. The next section will discuss how advanced analytics about how users interact with a service and metadata that gives descriptive information about content itself can close the digital feedback loop for media.

Improve content, personalization, and advertising with media analytics and audience insights

In anticipation of releasing the movie to streaming services, the production company is working with advertisers to place ads. They need to understand the audience and the content itself on a granular level to guide the ad creative work, and the most appropriate ad insertion points.

Given the scale of choices available to consumers, modern media companies must deliver innovative, engaging, and personalized experiences. This type of delivery requires granular access to content, and insight into audience preferences. In other words, it requires data, the ability to make sense of the data, and the ability to apply the insights gleaned, in real time, improving the content experience and advertising effectiveness. Fortunately, modern media analytics and audience analytics empower innovative firms to maximize the value of their data, driving a “Digital Feedback Loop”.

“By using Microsoft Azure, we were able to develop a distribution platform that delivers ‘the content you want to view, when you want to view it. It’s not just a simple customer-vendor relationship. Microsoft is approaching this as a partnership where we are improving services and technical support to develop the market together.’”

– Osamu Hamada
Operating Manager of the Systems Division,

Rakuten ShowTime
Media Analytics. Media analytics services based on AI technologies can automatically generate descriptive information (“metadata”) about audio and video files, making content more searchable, enabling more granular access, and enhancing monetization opportunities. Media analytics services can recognize and tag faces, objects, brands, and actions in video; convert speech to text, analyze positive and negative sentiment in spoken or written content, extract key words discussed, translate content into any language, and identify shot changes. This metadata enables granular access to content, helping journalists and audiences alike to quickly find the content they want, and advertisers to place ads in the most appropriate location.

Audience Analytics. With today’s abundance of content, and a segmented market, matching viewers to the specific content they want is key to success, which means that companies must deliver personalized, inspiring content experiences, combining recommendations, implicit and explicit personalization, curated content, and a dose of serendipity. To tailor content experiences efficiently, companies need a deep understanding of the audience to create or purchase the right content and match it to the right consumers. Big data and machine learning technology can help M&E companies understand how their audiences respond to content on a very granular level.

Combining this data on content, its usage, and audiences creates a digital feedback loop that helps drive improved audience engagement and better content investments, as shown below. This “digital feedback loop” is a virtuous cycle driving continuous improvement of customer value – and profitability.

Media Co. delivers TV and movies to customers via an on-demand streaming service

1. AI-powered content indexing and recommendations point customers towards content that matches their interests

2. Viewing telemetry is tracked and combined with reviews to understand customer preferences

3. Media Co. completes the cycle by capturing customer usage data across its updated catalog of shows

4. Media Co. refines recommendation algorithms based on customer preference data

5. Aggregate customer preferences inform content acquisition strategy

Microsoft Azure offers a powerful suite of cognitive services, including media analytics capabilities designed specifically for M&E, like video indexing, video summarization, keyword extraction, and sentiment analysis. Microsoft Azure also provides the big data and advanced analytics services to gain deeper audience insight, enabling personalization, smarter content investments, and optimized ad insertion. While streaming analytics enable real-time decision making, a library of customizable machine learning models enable deep insight. These services can be combined with data exploration and visualization tools like Power BI to provide deeper business insight and improve longer-term business decision-making.
Azure, the intelligent cloud, powers the data insights that help M&E firms stay competitive in the age of online media. The next section explores how Microsoft and its ecosystem of partners work as trusted partners to help M&E companies realize the full value of an integrated value chain, anytime/anywhere distribution, media analytics, and audience insights.

Build with trusted partners on a platform designed for flexibility, security, intelligence and, global scale

Cloud computing has tremendous potential to drive growth in M&E. It enables organizations to create content more efficiently, distribute content more effectively, and gain meaningful insight into content itself and the audience that consumes it. In short, the cloud presents incredible opportunities for transformation and building new revenue streams. However, trying to re-create everything in the cloud can also be expensive, risky, and time-consuming to develop and deploy. This is why Microsoft partners with the best solution providers for the M&E industry to support media companies in their “journey to the cloud,” starting where M&E companies are today.

There are many factors for M&E firms to consider when choosing both a cloud platform, and the providers that enable solutions to address business needs. Microsoft’s enterprise expertise, global and secure Azure cloud and deep bench of trusted industry partners deliver cloud solutions tailored to the needs of large and small companies across the M&E value chain.

**Private Cloud. Public Cloud. Or Hybrid.** Azure and Azure Stack enable private cloud, public cloud, and hybrid cloud solutions that offer the best path to the intelligent cloud while leveraging your existing on-premise investments. Combined, Azure and Azure Stack offer the flexibility to migrate a few workloads or entire value chains to the cloud as it suits your business needs.

"With more video content being managed and distributed over IP, media companies gain the benefit of network agility, flexibility and elasticity that cloud-based video capabilities offer. Our collaboration with Microsoft advances the industry by providing incremental optionality for deploying our market-leading production, playout and distribution solutions in Azure."

– Charlie Vogt
CEO,
Imagine Communications
**The most compliant cloud.** Microsoft Azure holds more certifications than any other cloud, including media-specific certifications and audits from the Motion Picture Association of America and Content Delivery and Security Association.

In addition, Azure provides advanced security and threat protection to secure data, manage access, find vulnerabilities, detect attacks and respond quickly across on-premises and cloud services. You own, manage, and control your data stored in the Azure cloud – Microsoft adheres to stringent privacy standards.

**The intelligent cloud.** The Azure cloud offers powerful machine learning, real-time analytics, cognitive, and bot capabilities through open APIs, which enable you to turn your content and audience data into a competitive advantage.

**The global, hyperscale cloud.** Azure enables global reach without requiring you to build expensive capacity, and provides instant scalability to meet any level of demand. Azure is available in 140 countries, including China, and is backed by Microsoft’s $15 billion (USD) investment in global datacenter infrastructure.

**The trusted cloud.** Microsoft has decades of experience working with enterprise clients across industries. We also have firsthand experience with digital transformation, as we have been transforming our own workflows and go-to-market strategies. Our expertise enables companies to explore new opportunities and business models and plan for end-to-end digital transformation with a trusted advisor and thought partner.

**The preferred cloud of leading solution providers.** Microsoft’s extensive partner ecosystem, including Adobe, Avid, Ooyala and many of the best-known names in the industry, delivers industry expertise in every area of M&E to create flexible, custom solutions that meet enterprise-level and specialized business needs across the entire value chain. Our partners enhance the value of the Azure platform with pre-built and custom designed tools and services that integrate with current infrastructure for a truly tailored solution.

Microsoft Azure enables media companies to compete in the digital-first world by providing a scalable cloud offering to meet growing consumer demand, flexibility to launch new business models, agility to reduce time-to-market of new services, and end-to-end solutions that make it easier to design, build, and manage immersive applications.

“Through this alliance, Microsoft and Ooyala are in a position to seize a major opportunity together, to drive standardization of the next generation of personalized, IP-delivered video offerings, based on our combined solutions.”

– Belsasar Lepe
SVP, Products & Solutions, Ooyala

“By connecting the Adobe Experience Cloud and Document Cloud with Azure, Dynamics 365, and Power BI, we’ve developed comprehensive content, marketing, sales, and data capabilities that no single vendor can offer.”

– Nik Shroff
Director of Microsoft Solutions, Adobe
Conclusion

While increased competition, lowered barriers to entry and changing media consumption habits create challenges for media companies, innovative technologies like cloud computing, advanced analytics and AI are creating new opportunities across the entire M&E value chain. These changes are happening rapidly, and both established and new companies are exploring the best ways to utilize this technology to optimize operations, provide a better audience experience, and create new revenue streams.

Microsoft offers the advanced tools and services, trusted enterprise expertise, and deep bench of knowledgeable industry partners to ensure that your cloud solution meets your business’s unique needs. The Azure cloud provides secure, scalable, and cost-effective solutions that enable M&E firms to meet the demands of changing technology and customer preferences and transform their business to stay competitive in a crowded market.

“As the world of media production resources move to the cloud, integrating these resources into the workflow and budgeting workflow with holistic views across all resources will now be possible.”

– Martin Karlsson
CTO and VP Product Portfolio, Net Insight
Learn more

- Visit https://www.videoindexer.ai to see Microsoft Artificial Intelligence applied to media analytics.
- Contact your Microsoft representative to arrange a workshop or strategy discussion