



WHITE PAPER

Cloud Technology for TV Broadcasters

Baskar Subramanian

Co-founder

Amagi Media Labs Pvt. Ltd.

amagi

Introduction

Cloud technology is disrupting economies and business models across multiple industries worldwide. Leveraging utility-computing, storage and network bandwidth - it enables flexible, boundless and globally coordinated operations. It also allows the timely scaling of infrastructure in tune with business needs, and helps in developing distribution models that let businesses reach their end-users directly.

Broadcasting as an industry is at the cusp of change. The internet has transformed into a viable and highly desirable content distribution infrastructure. This, in turn is leading to tectonic shifts across the industry, enabling end-user distribution opportunities for broadcasters.

Broadcasting is now a global business, encompassing increasingly complex and expensive operations. The complexities of global team distribution, joined by the challenges of technological diversity among content channels and viewer-fragmentation, act as deterrents to cost-effective functioning.

Cloud computing is the silver bullet for the broadcast industry - it enables global operation scaling, worldwide distribution and an overall reduction in infrastructural expenses.

Flavours of the cloud

The cloud exists in various flavours, and is one of the most misused words in today's technical jargon. Largely, there is a consensus that there are three 'classes' of cloud-Public, Private and Hybrid.

Public cloud infrastructure is available in the form of utility services, that are used by businesses to buy computing, storage and bandwidth resources on-demand.

Private clouds are for companies that want to manage their data and processes in an environment with exclusive access only to their own resources.

Hybrid clouds are a mix of both public and private clouds with business functions split across their infrastructure, depending on the security needs of various functions.

Broadcasting is a content-centric business and it is the crown jewel around which an organization and its workflow revolves. It is critical to have comfort in choosing the cloud architecture that guarantees security of content, combined with the flexibility for accomplishing different business processes.

How can TV broadcasters leverage the cloud

Cloud computing can have tremendous advantages for broadcast businesses across a wide spectrum of business functions. We will discuss some of the key functions where there are immediate and big benefits:

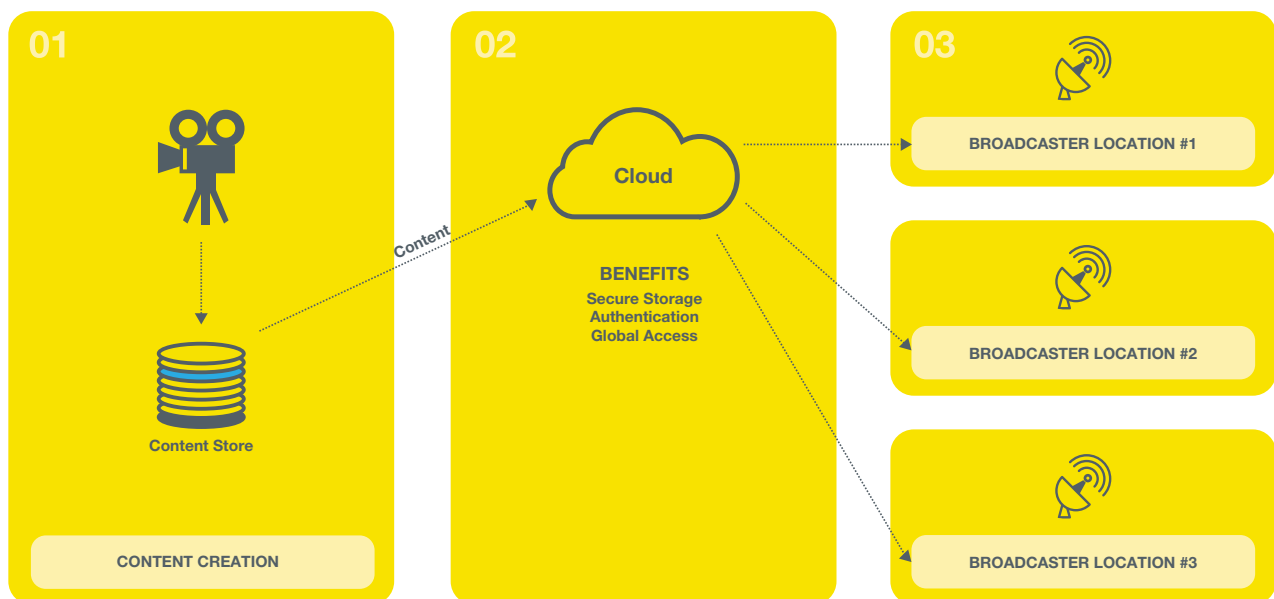
- Content flow from content creators to broadcasters
- Post-production workflows
- Content delivery to distribution platforms
- Direct-to-consumer distribution model

Content creator to broadcaster workflow

High resolution content is sourced from multiple locations into a broadcaster's content store for processing and distribution. All of these can be managed over cloud networks, where content creators and broadcasters can be connected over a secure cloud platform to transfer media content.

This enables broadcasters to commission content creation across the globe, have instant access to early versions of the content for quick feedback. Once the content is ready, it is pushed to a secure cloud, from where it is accessed by broadcasters in any of their global facilities.

This workflow enables a seamless flow of content across geographies, and enables review, feedback, and editing discussions to take place in real-time as the content gets produced.



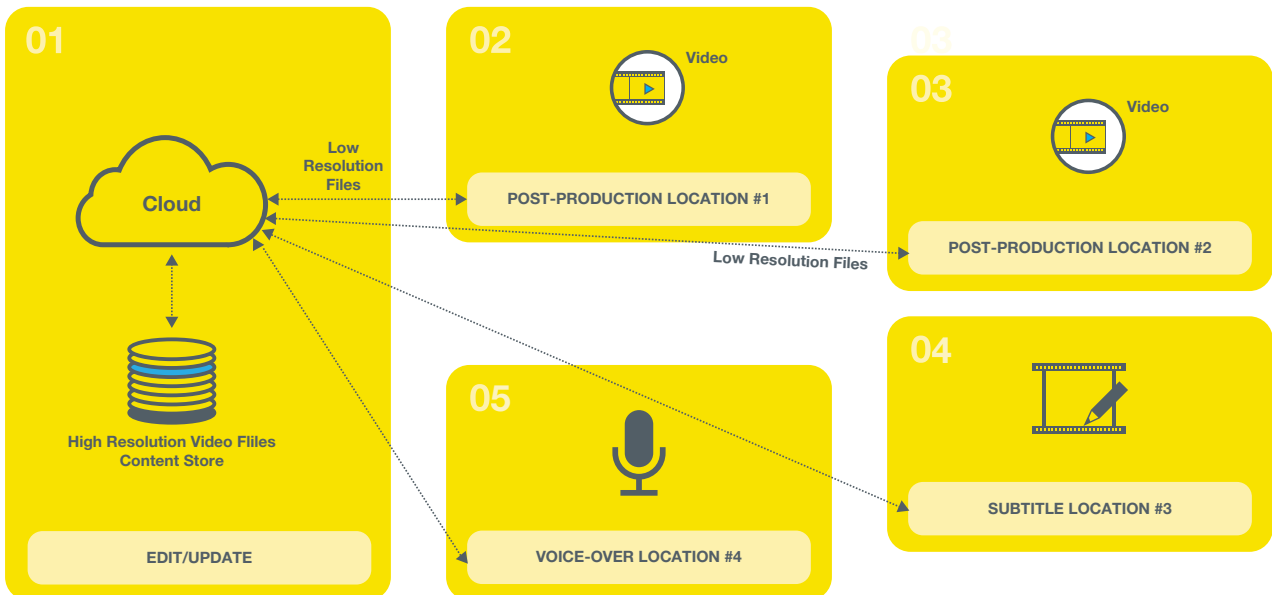
Post-production workflow

Post-production of content has always been a large-scale content-transfer activity. A large volume of data is sent to post-production locations and brought back to delivery locations, leading to a rigid and long post-production process.

With cloud technology, many companies are innovating on this workflow, where the master content is uploaded to a secure cloud. Low-resolution versions are sent to post-production locations where the edits are made. Once the edits on the low-resolution version are reviewed and accepted, these changes are pushed back to the cloud, where these edits are applied on the master content in a batch process.

This workflow provides extreme flexibility and agility in getting post-production activities completed. The entire workflow becomes location-independent. By sending low-resolution files across the locations, time is saved. Moreover, all master content is secured in one location.

The same workflow is now getting extended to subtitle and voice-over services, which allow work to be undertaken in parallel, and the final master file is prepared in the cloud with all the edits, tracks, subtitles, and metadata for playback and distribution.



Content delivery to distribution platforms

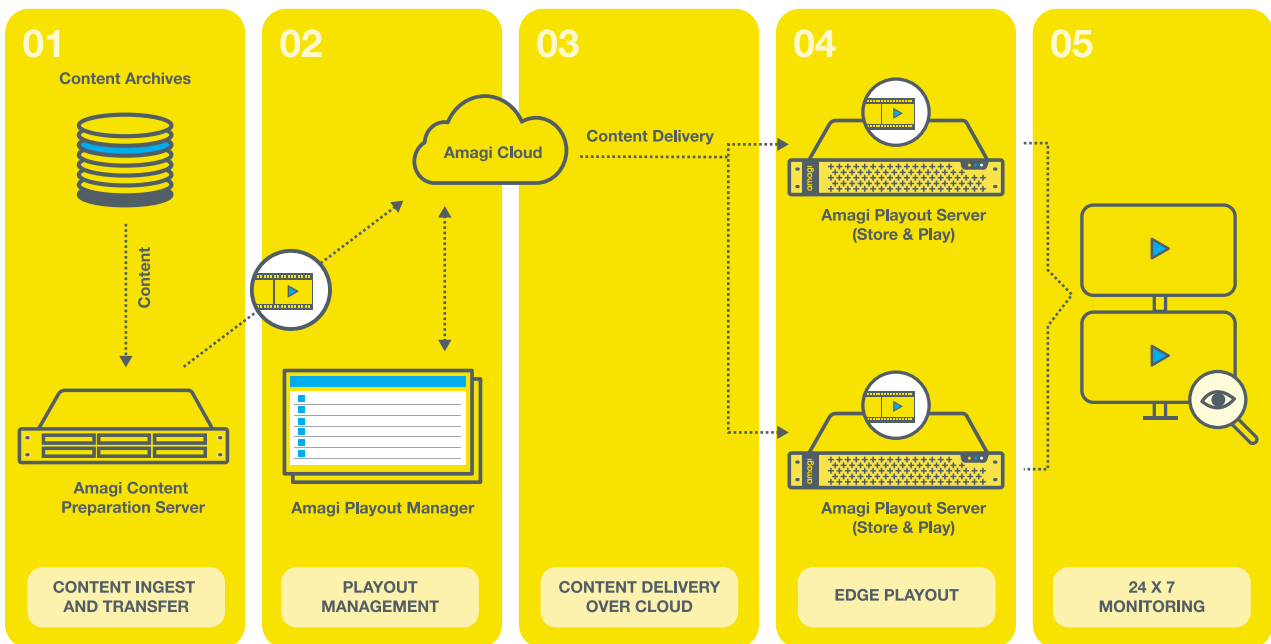
Traditionally, all content delivery on linear feeds use satellites. Satellites are expensive, but provide a larger geographic reach, which incidentally justifies their cost.

As TV networks started expanding across the globe, they faced several challenges. While broadcast regulations and content rights were country-specific, advertising needs were regional in nature. These issues translated into a requirement for multiple linear feeds for different countries. Delivering these linear feeds on a separate satellite meant that the ROI for such country feeds was elusive, almost non-existent.

With the advent of cloud computing combined with edge playout devices, it has become possible to air linear TV channels worldwide without satellites altogether. In this model, edge playout devices are placed at multiple distribution head-ends across regions. All of these playout devices are connected to public Internet connections, and are controlled, monitored and fed content through a secure cloud infrastructure.

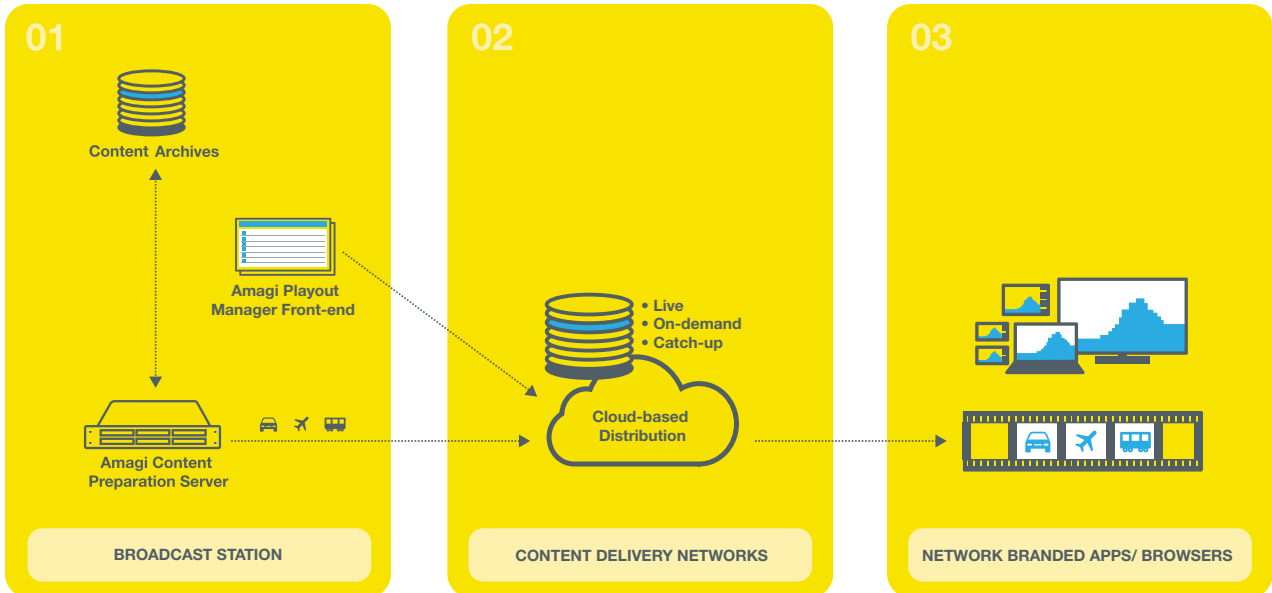
For TV networks aiming to expand globally, cloud-based broadcast infrastructure delivers tremendous benefits in terms of cost-savings and worldwide manageability. Multiple networks across the globe are leveraging this model to either augment their existing satellite feed with a few hours of local content in specific geographies, or to completely adopt an edge channel playout infrastructure.

Amagi cloud playout infrastructure is one such managed infrastructure solution that has been deployed by multiple TV networks worldwide, with a guaranteed SLA of 99.99% uptime.



Direct-to-consumer distribution model

With an increase in bandwidth for home internet connections and the rapid proliferation of mobile devices, TV networks and content owners have the unique advantage of reaching consumers directly with their content (Popularly known as OTT, or Over-The-Top delivery).



Multiple TV networks and content owners are creating their own portals and mobile apps to distribute their content directly to consumers. The content owners and TV networks can now host their content on the cloud, and leverage OTT infrastructure providers to create linear, on-demand video catalogues, and distribute content through their own branded apps and web portals.

Amagi provides an end-to-end hosted OTT platform, which TV networks and content owners can use to create linear and on-demand channels, for marketing and distributing to end-users. Amagi has also integrated mid-roll ad-monetization capabilities to generate revenue for TV networks through content viewership.

Conclusion

As broadcasting responds to the existing market dynamics of global content access and to the Internet as a distribution platform, cloud computing infrastructure is the only option for TV networks and content owners to scale their business and make it competitive in terms of ROI.

By embracing the cloud, broadcasters can render their investments and businesses future-proof in the coming decades.

About Amagi

Amagi is the world's largest platform for delivering targeted TV content and advertising anywhere across the globe. Every month, Amagi delivers and plays out more than one million advertising seconds and thousands of hours of content for many leading broadcasters. Amagi's patented core technology delivers new market access, content localization, and advertising revenue streams for broadcasters at a fraction of the cost when compared to existing traditional satellite and fiber based delivery models.