Globo's Ultimate Operational Challenge: a creative workflow editing in cloud

Priscila David
Ariza Bertelli

Cite this article:

David, Priscila; Bertelli, Ariza; 2023. Globo's Ultimate Operational Challenge: a creative workflow editing in cloud. SET INTERNATIONAL JOURNAL OF BROADCAST ENGINEERING. ISSN Print: 2446-9246 ISSN Online: 2446-9432. doi: 10.18580/setijbe.2023.9. Web Link: https://dx.doi.org/10.18580/setijbe.2023.9

SET INTERNATIONAL JOURNAL OF BROADCAST ENGINEERING - SET IJBE V.9, 2023, Short Paper 9, 5 p
2023 SET - Brazilian Society of Television Engineering / ISSN (Print): 2446-9246 / ISSN (Online): 2446-9432

Globo's Ultimate Operational Challenge: a creative workflow editing in cloud

Priscila David, Product Owner Specialist, Ariza Bertelli, Media Solutions Analyst

***Abstract*—In 2022, the famous and epic soap opera "Chocolate com Pimenta" in Brazil became a good surprise for TV Globo: the post-production chain accomplished a** simple, **productive, and economical workflow. A cloud based, remote and collaborative editing produced the entertainment content in an innovative way. Globo, a free-to-air television network, saw in this path an excellent opportunity to thrive technologically and to offer spectators a unique experience. Globo's objective was to provide a special edition of the soap opera through Globo Play, an online video on demand platform, and by Open TV. Having the team in charge located at Post-Production Center of Estúdios Globo, the material was edited collaboratively in HD (XDCAM codec) directly connected to cloud. The process was successfully achieved and has helped to maintain Globo into the future of technological innovations. And besides, the business model of this unique approach was very attractive for Globo, solving the market need for a cloud-native solution, notably when the Post-Production Center deals with big files and assets routinely, enabling the increase of the content production to a next level (cost benefit). Globo interprets this initiative not as a mere technological advance, but also as a step taken toward a more concrete operational level. Through all the effortful work, Globo, its customers, and everybody involved in this project could come together to cheer and look forward for a brand-new efficient future.**

***Index Terms*—Post-Production, Globo, Globo Play, cloud, innovations, collaboratively, workflow, technological advance, efficient, future.**

I. Introduction

Cloud architectures are increasingly gaining space and notoriety in Media Tech companies due to significant advantages, such as collaboration, flexibility, and efficiency. Here are some cloud differentials:

A. Accessible

Through connectivity with the large internet network, cloud applications can be accessed anywhere and at any time, essentially enabling remote work.

B. Collaborative

Cloud native applications enable collaboration between users worldwide. Different workgroups can access and edit files simultaneously, enabling agile and efficient results.

C. Scalable

The cloud infrastructure is very broad, compared to specific servers for content storage. It is robust and stable to handle a significant amount of data traffic and is highly consistent.

D. Resilient

Cloud providers have automatic storage backup and disaster recovery routines, which greatly mitigate the risk of data loss in the cloud environment. In addition, cloud architectures benefit from periodic and continuous infrastructure and security robustness updates.

E. Efficient

The cloud context brings a new business model, where you only pay for the resources used, the environment works 24/7 without the need for a dedicated operational team.

Cloud architecture is evolving significantly around the world given the strong enterprise adoption, greatly driven by the growth of cloud service providers such as Amazon Web Services, Microsoft Azure, Google Cloud Platform, and IBM. More and more new datacenters are created fulfilling technical requirements such as low latency and high availability. Besides, Digital Transformation is an essential factor in cloud adherence, enabling agility, innovation, and efficiency since the constantly changing market demands. As more companies and users identify the benefits of cloud architecture, its growth tends to increase substantially in the coming years.

TV Globo is one of the largest television stations in Brazil and Latin America, in addition to being a Media Tech company, which combines elements of technology and media to provide innovative solutions and services related to the media industry. The company offers a distinguished programming, which includes soap operas, series, entertainment programs, journalism, sports, and movies. The broadcaster is also recognized for producing and exporting Brazilian soap operas to several countries.

Globo has invested in technological innovation over the last few years to improve its production, transmission, and interaction with the public. Experimenting with cloud architecture could not be different for Globo to further boost its innovation context.

II. Globo company

TV Globo has its content broadcasted in most of Brazilian territory through its five networked main stations together with allied companies. Its high-quality standard has contributed for Globo to establish itself as a leader content producer whose prior mission is to delight people around the

https://set.org.br/ijbe doi: 10.18580/setijbe.2023.9 Web Link: https://dx.doi.org/10.18580/setijbe.2023.9

world with the best quality. Its path toward becoming a pioneer is due to its history being so linked to the history of Brazilian TV.

In 2015, Globo proudly released Globo Play that would embody the new range of opportunities aiming to break boundaries imposed by the fast pace of life brought by modern times. Globo understands that in the current context, watching TV in the traditional way might be challenging, which calls for the need for innovation, that is, the development of new ways of delivering content to spectators on varied platforms. Globo Play was born from the desire to provide the audience flexibility and mobility. Globo Play is an OTT and VOD digital platform, which, through GPS and IP locations services, offers video content to viewers on their smart TVs, mobile phones, tablets, and personal computers with access to internet. Additionally, Globo Play is compatible with the ultimate 4k and HDR technology.

III. Post-production pipeline

Post-Production is a super important step in the content production chain. It is the process where the raw material is edited to generate the finished material, also known as the desired final product, ready to be exhibited to the public.

In the post-production, processes such as video editing, sound and audio mixing, color grading, visual effects and artistic and technical review of the content produced are carried out.

This phase builds the content storytelling to be delivered to spectators and represents a key role while ensuring its technical quality, correcting possible errors that may have occurred during the recording.

In the technical context, post-production also takes care of media management along the content production path, such as video, audio, and image files, to facilitate access and efficient location during the editing process.

These are the main sub-steps of the Post-Production:

A. Ingest

It all starts with importing the media, captured during the recording, into the editing system. The Ingest stage is the entry point for content in Post-Production.

B. Content Storage

As important as the Ingest of the material, is the place where it will be saved for the editing step. The cloud architecture takes part in a fundamental role in this step, as the content is a very important material. High availability and resiliency storage are fundamentals in the post-production process. With the advancement of Cloud Journey, it was understood that cloud storage is an interesting model and that it makes a lot of sense as mentioned above.

C. Scene Editing

It is the step where the story line is originated. The editors select the best parts of the raw material, the most relevant clips and arranging the chronology of the facts.

D. Audio Editing

As significant as the video, is the audio treatment. During the Post-Production, a special attention is given to sound quality, such as: audio level, listening comfort, mixing dialogue with soundtrack or ambient noise.

E. Visual Effects

This is the part of the chain where visual arts or animated graphics are inserted, involving the creation and addition of these elements to the video, including multi-layer compositing, motion tacking, 3D modeling, animation, etc.

F. Finalization

It is one of the last processes of the Post-Production, responsible for joining/finalizing all the previous steps mentioned before. After creating the initial sequence, the editors refine the editing, always improving the narrative and the audio and video set.

G. Quality Control

In the last step of the Post-Production process, the content will be in the appropriate format for Distribution and Exhibition (Open TV, Pay TV, Streaming) and thoroughly reviewed. The story will be thrilling millions of people with an excellent audiovisual technical quality.

It goes without saying that all the previous mentioned steps can overlap and be repeated a few times throughout the Post-Production process as editors refine audio-visual content, meeting creative and technical requirements.

IV. Problematic

As we know, editing content in the cloud has gained a lot of popularity around the world, given the availability of taking advantage of shared resources in a scalable structure, capacity to store and process large volumes of data, which eliminates the need for local storage. Globo was looking for a new simple, efficient and innovative Post-Production workflow, where it would not have to burden traditional on-premises storages, and at the same time, would not impact the operational experience of editors, especially in terms of speed. The new solution needed to maintain the robustness, resiliency, low latency, and security of the usual on-premises structure.

In addition, the new workflow needed to have an interesting business model for Globo, where the budget consumed by each share of this storage location could be financially passed on to the respective Production that contracted the service (“pay as you go”). In other words, Globo was looking for an approach of technical and business innovation.

In this way, it was understood that the cloud architecture associated with the Storage as a Service model would be an interesting case to be explored and experimented by Globo to

https://set.org.br/ijbe doi: 10.18580/setijbe.2023.9 Web Link: https://dx.doi.org/10.18580/setijbe.2023.9

confirm the technical, operational, and financial viability to be practiced.

V. WORKFLOW PROPOSAL FOR CASE "CHOCOLATE COM PIMENTA"

"Chocolate com Pimenta" is an epic soap opera in Brazil, it has been shown a few times by Globo and is always a record audience. In this way, this would be the key product to take advantage of this new workflow.

Figure 1: Globo's Soap Opera

In a search of a solution, where it was possible to send files to the cloud in a high speed and the possibility of obtaining them with low latency to a local infrastructure, whenever required, in addition to the requested synergy with the editing software, we explored LucidLink application and created the following workflow:

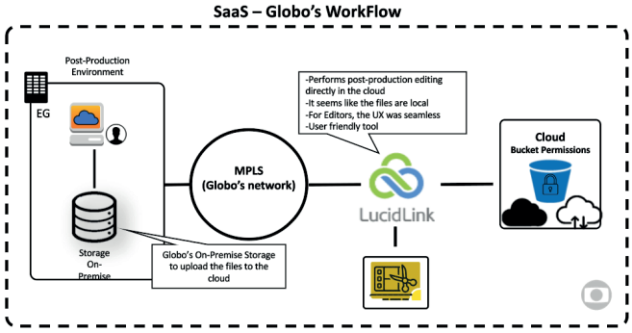

Figure 2: SaaS - Globo's Workflow

The content is sent to the cloud in an innovative way: the file is divided into small packs of approximately 256K, and these are sent in parallel, making everything faster (of course, the network directly influences this upload).

For example, a 1GB file would be divided into approximately 4 files of 256K, and these sent in parallel, would arrive in the cloud faster, as shown in the illustrations below:

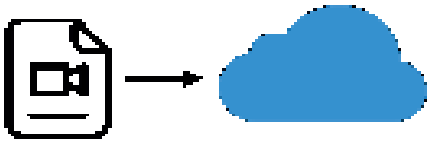

Figure 3: Normal Sent

Figure 4: Pack Sent

The same process occurs when downloading the file, which makes this operation much faster than usual.

Furthermore, the software is mounted on a computer as a local drive, which is very close to the on-premises environment, and can be used with Linux, MAC and Windows, facilitating the entire editing workflow.

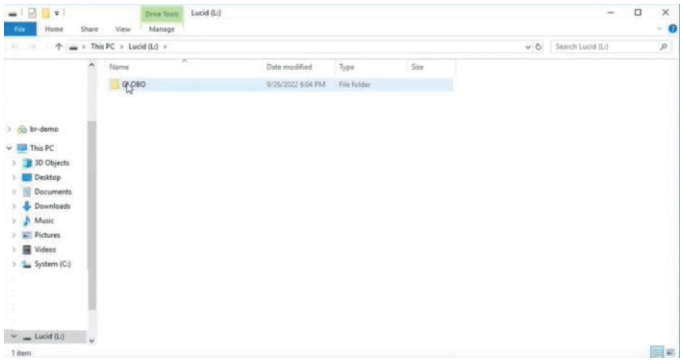

Figure 5: LucidLink drive in Windows

The software has several ways to be accessed, and an interface capable of mapping the number of files that are present in the cloud bucket, in addition to track the remaining uploaded files that are still being sent to the cloud.

As soon as the file is uploaded to the cloud, it is already possible to verify it from another machine and a different user.

It also provides permissions for folders within the drive, where the administrator can change the access for each user, with specific privileges.

https://set.org.br/ijbe doi: 10.18580/setijbe.2023.9 Web Link: https://dx.doi.org/10.18580/setijbe.2023.9

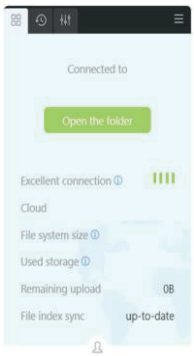

Figure 6: LucidLink Interface

Another great differential of this workflow includes its business model, which has compatibility with different cloud providers, where you pay for the storage used at the peak of the month. The cloud was also part of our study with LucidLink, as it allows us to send and receive files at high rates.

Other differential is the functionality of the local cache that enables operational fluidity in terms of editing.

The tests of this workflow were made for some chapters of the special edition of "Chocolate com Pimenta" in XDCAM 50 and edited in a professional edition software (installed in a local machine). During the test, users did not see any differences between the new workflow and the on-premises structure, which was extremely similar to what was done previously with on premise storage.

Figure 7: Special Edition

VI. Conclusion

We illustrate the conclusion of this article with a comment of one of Globo's editor: "This here is the ease that the editor needs to work [...] it works perfectly, it is looking like the local drive". The implementation of the workflow was extremely successful and the feedback from the operational team from Post-Production was very positive. Users are getting a smooth and efficient experience, as if they were working in a local workflow.

The architecture also allowed the material in the cloud to be collaborative between users, regardless of their geographic location, with high availability storage and the reliability, security, and integrity of the files.

This new workflow optimized internal processes, generating cost savings, and boosting the efficiency and quality of audiovisual production. All this reinforces the importance of the cloud for the industry and the journey toward an increasingly collaborative and technologically advanced future.

Acknowledgment

The authors would like to express our sincere gratitude to the people below for their invaluable guidance and support during the path of this research. Their experience and encouragement were fundamental for the elaboration of this study:

Adonias Nobrega de Melo Junior
Erik Haier Maia
Heloisa Dina Felix Lima Bezerra
Isabelle Ferreira Pesset
José Almeida Junior
Kaique Rodrigues de Amorim
Marcelo Vale Fontana
Marcos Luiz Morais Santos
Rebeca Pereira Borges de Souza
Roberto Tavares de Menezes Filho
Thiago de Carvalho Barreiros

Thank you all for your contributions, making this research a reality.

References

[1] Lucid Link Work Flow https://www.lucidlink.com/workflow. Accessed: 2023-07-19

[2] Globo Group Company https://grupoglobo.globo.com/. Accessed: 2023-07-19

Authors

Priscila David was born in Rio de Janeiro, Brazil in 1989. She graduated as a Telecommunications Engineer Bachelor, holds an MBA in Strategic People Management. She was the author of the Poster "4K and 4K-HDR VOD in Rio's 2016 Olympic Games" published by IBC in 2017.
She has been working at Globo for 17 years. In the last two years, she has been the Product Owner of Post-Production projects in the Media Solutions area at Globo.

Ariza Bertelli was born in Minas Gerais, Brazil in 2000. She is majoring in Electrical Engineering with an emphasis on Robotics and Industrial Automation. She was a member of IEEE from 2019 to 2021. She received the award for the 3 best education project at RNR: "Talking with the hands" in 2020. She has been working at Globo for 1 year as

https://set.org.br/ijbe doi: 10.18580/setijbe.2023.9 Web Link: https://dx.doi.org/10.18580/setijbe.2023.9

a Media Solutions intern, and in June 2023, as a Media Solution Analyst.

Received in 2023-06-06 I Approved in 2023-08-04

https://set.org.br/ijbe doi: 10.18580/setijbe.2023.9 Web Link: https://dx.doi.org/10.18580/setijbe.2023.9