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# Uploader: Globo's Solution for Ingest Anywhere on the Post-Production Pipeline

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**Abstract—The Grupo Globo has been dedicated to continuous innovation in products that simplify the execution of main actions to ensure the delivery of high-quality content. In the context of media ingest, Globo created the Uploader application: a solution that facilitates the ingest process anywhere in the post-production pipeline quickly, simply and securely. The Uploader is the smart choice to optimize media transfer, it offers a secure, scalable platform that streamlines file uploading, enabling teams to work more efficiently from anywhere in the world. The goal of the Uploader is to boost productivity, security and collaboration across Globo. With Uploader, Globo moved away from old practices such as using several drives, which had significant slowdowns, transferring media via USB and downloading content from unreliable sites, all of which posed risks to the company. Additionally, Globo eliminated the need for manual ingestion, providing much-needed ease considering the volume of data managed by Globo. The Uploader application was born in the Cloud and features a monitoring system that provides an overview of actions within the application, such as upload quantity and countries where the service is used. Moreover, it currently encompasses web, desktop, and mobile instances and its functionalities include media delivery to MAMs, PAMs and Storages, as well as automating media flow on social networks. Uploader is a Globo's in-house tool, an efficient solution for transferring media files that specifically meets business desires. Globo interprets this initiative not as a mere technological advance, but also as a step towards a more concrete operational level.**

*Index Terms* — **post-production, Globo, innovations, ingest, media transfer, cloud, workflow, technological advance, efficiency, Uploader.**

## I. INTRODUCTION

Ingest is the process of content input into the post-production workflow. It's fair to say that it precedes the Editing stage. Generally, there are two types of Ingest: File Based and Live. File Based Ingest is known as the gateway for recorded audiovisual content or graphic elements such as openings, credits, overlays etc. Live Ingest involves the approach of inputting live content, characterized by being a growing file. The Uploader is a cloud native file based ingest tool.

The integration of cloud computing into the data ingest process has revolutionized how organizations manage and utilize their content. Cloud architecture has experienced significant growth in the business environment, driven by its distinct advantages. Among them, universal accessibility stands out, facilitating collaboration among globally dispersed users since the cloud architecture can be used anywhere and anytime.

Furthermore, it provides continuous operational efficiency, running uninterrupted every day of the week without requiring a dedicated maintenance team and eliminating upfront hardware costs. This allows companies to optimize resources and focus on their core strategies and also enhances operational agility by allowing organizations to rapidly deploy and scale content ingestion processes.

Additionally, cloud architecture offers stability to handle large volumes of data traffic, ensuring reliability and consistent performance in all circumstances. This capability is essential for supporting both sudden spikes and regular demands in data processing, keeping services available and operational without significant interruptions.

Therefore, the Uploader is strategically positioned as a cloud native ingest tool, leveraging all the advantages enabled by this architecture, thus making the Ingest process quick, simple, and secure.

## II. GLOBO COMPANY

The Grupo Globo stands as the largest media and communication conglomerate in Brazil and Latin America, renowned for its creation, production, and distribution of diverse and high-quality content.

Beyond delivering top-tier entertainment, the network consistently innovates to meet evolving consumer behaviors and advancements in content delivery technologies.

Through its five networked main stations and partnerships with allied companies, the Grupo Globo broadcasts across the majority of Brazil, managing a comprehensive production chain from content inception to the final product.

## III. POST-PRODUCTION PIPELINE

The media production and distribution chain consists of several key stages: development, where the project's concept and plan are created; production, where filming/recording takes place; post-production, where editing, effects, and final touches are added; and distribution, where the media reaches the audience.

In post-production is where the magic happens; the raw media is ingested, and from this material, all necessary edits, animations, and corrections are made to dazzle the viewer with the final product. It's also during this stage that there's an artistic and technical review of the content produced. As mentioned, it's within post-production that the ingestion process of the Uploader application is carried out.

## IV. PROBLEMATIC

The scenario in Globo's post-production before the Uploader lacked a standardized method for internal media submissions, relying on insecure and inefficient platforms. Globo discontinued outdated practices such as using multiple drives, which caused significant slowdowns,


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transferring media via USB, and downloading content from unreliable sites. These practices posed risks to the company, as exclusive content could easily leak.

Since submissions came from all over the world, there was a need for long-distance transfers at high speed, particularly to meet the demands of Journalism and Sports departments, which faced challenges within their current setup.

This prompted the need for a new application to standardize file uploads, ensuring they could be sent from anywhere in the world at high speed, reaching Globo's destinations (MAMs, PAMs, Storages and Platforms) without human intervention.

Upon reviewing market options, it became evident that not only were they costly, but all required adaptation or human intervention during the final delivery stage. Thus, the Uploader was developed to meet Globo's file transfer demands comprehensively, resolving initial challenges and enhancing efficiency with rapid uploads.

Additionally, through an in-house application, another feature was added: the ability to download videos from social platforms such as Facebook, TikTok, and YouTube using URLs chosen by users. This feature simplified usability and ensured security, preventing users from resorting to unreliable methods for online material downloads.

## V. INGEST PROPOSAL

The Uploader was designed to handle file transfers for Globo as a whole. This translates into a very high volume of files, many of which exceed 10GB. However, there are various types of transfer workloads. Some campaigns (destination) receive files that are less than 1GB, while others need to transfer raw production files that can reach up to 100GB. Additionally, there are campaigns that need to send content from other countries, where latency can exceed 500ms.


Figure 1: Uploader's Interface (confidential information has been redacted)

A fully cloud-based architecture would not suffice due to egress costs and latency concerns. Therefore, the platform was designed to accommodate various types of transfers and was divided into two main workflows: one with an on-premises architecture and another with a cloud-based architecture.

### *A. HTTPS Flow*

This flow was designed to handle lighter workloads and to be practical, as it does not require a VPN connection or external agents. It is even possible to send files via the Uploader mobile application. The mechanism used for this transfer is multipart upload to a cloud bucket, which enables secure and fast internet-based transfers. However, this approach does not handle very large files and network variations well.

### *B. FAST Flow*

This flow, entirely on-premises, was designed to handle more robust workloads with larger file transfers and high latency. It utilizes a specific transfer protocol that allows the use of the entire available network for transfers and performs well under network variations. However, it requires a desktop and VPN connection for use.

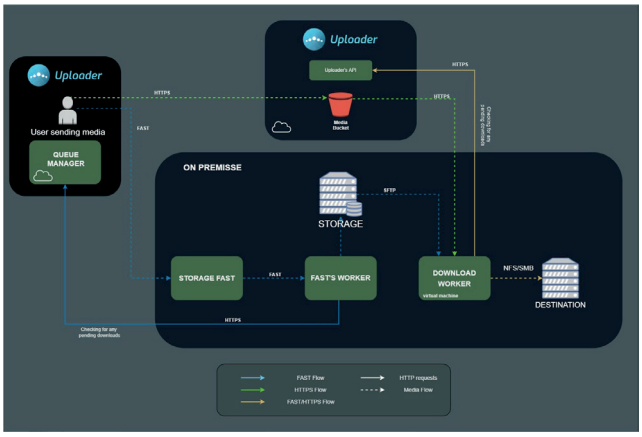


Figure 2: Uploader's Architecture

The diagram above represents a high-level view (HLD) of the Uploader's file transfer architecture. The user selects the campaign they want to send the file to and their preferred method of transfer. Choosing the cloud method sends the selected files via multipart upload to a cloud bucket. Opting for sending the file via the Fast protocol, the file is sent to a centralized on-premises storage. At the end of both workflows, the files are routed to a predefined destination in the campaign, and the download worker downloads and sends them to the correct destination (anywhere in Globo's environment).

All backend transfers are event-driven and occur in parallel to minimize delays.

## VI. UPLOADER RESULTS IN GLOBO

The Uploader is currently used as a contribution tool in various Globo productions such as Journalism, Sports, and Entertainment. Uploader currently features comprehensive telemetry and analytics, allowing detailed monitoring of the platform. It has over 1.500 active users, with approximately 10.000 uploads per month totaling 20 TB of data. Out of these 10.000 uploads, less than 500 resulted in errors and the average usage session time is just 5 minutes, showcasing the tool's efficiency and reliability. We receive uploads from journalistic correspondents worldwide, further demonstrating the platform's success within Globo.


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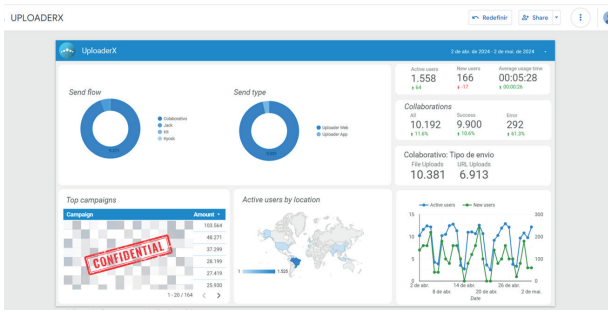


Figure 3: Uploader's Metrics

## VII. CONCLUSION

The Uploader is a living tool within Globo, a result of the constant pursuit to simplify the work of collaborators while also providing the security that the company requires regarding the leakage of exclusive media.

Training sessions are recurrently organized in collaboration with business units across various sectors of the company aimed at disseminating at the G5 level (Globo headquarters in São Paulo, Rio de Janeiro, Belo Horizonte, Recife and Brasília) and addressing potential user queries, as well as gathering feedback.

Through these efforts, we aim to evolve the product with new features demanded by our stakeholders and also proposed by us through our lens of technological innovation, guided by user feedback.

As a result, Uploader has optimized the ingestion process at Globo, leading to cost savings, increased transfer speed, and enhanced security. This entire scenario underscores the tool's importance towards a future where collaboration, efficiency, and technology continually advance together.

## VIII. ACKNOWLEDGMENT

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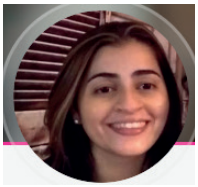

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