![A close up of a logo

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Transforming the News Cycle

A Media Case Study

BACKGROUND

With more than 80 years of video, audio, and image content – multiple petabytes of data – one of Australia’s largest broadcasters engaged Kablamo to build a digital content archiving platform to help transform its business.

In the face of new market entrants, an increasingly competitive landscape, and budgetary constraints, the broadcaster sought to reinvent its content archiving system to better use its data trove. The aim was not only to improve how quickly it could respond to breaking news, but to also help uncover historically significant footage forgotten on physical reels while future-proofing storage needs with the limitless scalability of cloud.

CHALLENGE

Previously, any content categorisation or collection was done manually. This meant large amounts of time were needed to sift through physical archives to locate required footage. This manual process would take days, if not weeks. The new digital platform would have to accelerate this process to just hours, if not minutes.

Not only did the broadcaster have multiple warehouses filled with physical reels, but five separate and siloed on-premise systems stored the content that had up until now been digitised. These legacy systems were costly to maintain and almost impossible to scale. The new digital platform would have to enable producers to quickly identify and recall the necessary collateral needed to develop better quality content, with far more context, faster than competitors. With a rapid 24-hour news cycle, this speed-to-market would be critical in competing against a new breed of digital media disruptors.

As the platform would lie at the core of the broadcaster’s business, completely redefining its news gathering and production processes, it had to above all else be scalable, resilient and future-proofed. This was critical as the broadcaster’s journalists, film crews, and photographers produce new content every minute of the day – often from remote and regional Australia.

SOLUTION

From the outset, **Kablamo** was committed to educating the customer, sharing knowledge on predictable innovation lifecycles so the broadcaster could own the implementation after delivery.

Throughout the process, user-experience and design was front-and-centre, and we collaborated with multiple internal stakeholders and product owners to ensure we delivered the best solution possible. Ultimately, the digital content and archiving platform was built upon multiple next-generation technologies and strategies, including:

* Simplification of multiple complex legacy data sources into a single-view of assets
* Implementation of Facial and Object Recognition so content can be uploaded without manual tagging
* Augmentation of Facial and Object Recognition with speech-to-text to provide deeper context and more accurate tagging
* Deployment of serverless relational databases for availability and resiliency, while also enabling the automation of administrative tasks
* Architecting graceful degradation across multiple **AWS** services to ensure resiliency and business continuity
* Introduction of an Agile mindset and consistent scrum practices and process

Given how much content the broadcaster produces every day, the platform was built on **AWS** and designed to have limitless scalability. The five legacy storage systems were consolidated, with the content migrated to the new fully scalable cloud platform, enabling simple and infinite scalability while also delivering significant ongoing cost savings.

AWS SOLUTION COMPONENTS

Artificial Intelligence and Machine Learning – particularly around facial recognition with **AWS Rekognition** – were key elements of the Proof of Concept. Speech-to-text via **Amazon Transcribe** bolsters the power of facial recognition by applying additional metadata tags for even deeper context. These elements are designed to remove the need for manual tagging, while ensuring every single piece of content is accurately categorised.

* + Facial and object recognition: Using **AWS Rekognition**, video and image files can be uploaded without manual metadata tagging. This not only automatically identifies faces in the footage, but also provides context by identifying features such as location, activities, and sentiment.
  + Speech-to-text: **Amazon Transcribe** enables audio and video upload without having to tag metadata. As well as automatically identifying key tags, this adds a deeper element of identification to **Rekognition**, helping producers find the perfect content for news packages.

Underpinning these AI/ML elements the solution was built using the latest **AWS** tools:

**Aurora: Aurora** was chosen for resiliency and because during development, both Kablamo and the broadcaster planned to take advantage of serverless Aurora in the future. In addition to future-proofing for serverless architecture, **Aurora** enabled the broadcaster to build content packages to pre-empt major news events (e.g. elections, the passing of prominent public figures, or historic event anniversaries) so the related content can be recalled much faster – critical in the highly-competitive media industry.

**S3 Glacier:** Glacier was chosen to control storage costs. While the client will eventually archive its entire catalogue in this solution, much of the content would only be recalled in isolated circumstances. Through lifecycle rules, content is automatically shifted to **Glacier’s** ‘cold storage’ and, to ensure rapid restoration when required, expedited retrieval enables content recollection in just minutes. This gives the broadcaster the benefits of Glacier’s low- cost storage without sacrificing retrieval speed.

**ECS: ECS** manages all tasks running on **EC2** containers and enables simple, rapid scaling – a core requirement of the solution due to the continuous creation of new content. **ECS** was

chosen over Kubernetes for automation and management in part to future-proof the solution and make it easier to leverage **Fargate** and **Lambda** workloads in the future.

**EC2: EC2** instances are being used for a critical element of the solution – given the multiple regional offices, each with disparate internet connections, **Kablamo** sought to orchestrate a way for these offices to recall only necessary sections of content. E.g. the full size of a video in the primary **S3** bucket may be 300GB, but the relevant section for the regional office may only be 5GB. With background **EC2** instances, relevant sections of the larger clip can be ‘snipped’ and put back into the primary **S3**, allowing the regional office to only recall the 5GB clip. Additionally, all three Sydney **EC2** availability zones are being used as part of resilient architecture design.

**S3: S3** is the primary data store given its infinite scalability, incredible redundancy, and superior performance.

**SQS: SQS** bolsters the scalability of the solution by ensuring the system performs even if multiple users upload large files simultaneously – with many news crews gathering content across Australia daily, this was essential. **SQS** is a key element not only for scalability, but also resiliency, as queues continue processing even if the system goes down.

Additionally, Amazon **ALBs** are deployed for improved performance and future Lambda function support, **Route 53** for reliable and cost-effective DNS services, **CloudFormation** for secure and automated provisioning, and **VPC** for fine-grained networking control.

While the interplay of all the **AWS** services ensures the platform is available whenever needed, an added element of resiliency has been built in by architecting ‘graceful degradation’ into the solution. This means each service also operates independently – if one service goes down, only that service is impacted. For example, should **S3** fail, only uploads would be unavailable, but users can still search through the archive.

BENEFITS

Since delivering the digital archiving platform, the broadcaster is now able to produce high quality content, with deeper context, much faster than they ever imagined.

Whereas previously the process for identifying and recalling content was manual and labour intensive, taking between two and four weeks to uncover a master file, this can now be done within five minutes. The broadcaster’s employees are now able to self-serve, searching through the archive themselves as and when they need through a Google-like platform.

In addition to these efficiency and process improvements, the broadcaster has saved millions of dollars as **AWS’** unlimited scalability means it no longer has to purchase expensive on-premise storage – a prospect it was facing as its prior storage platforms had reached their capacity. Previously, the broadcaster had five separate legacy storage systems which have now all been migrated into a single-view of assets on the new **AWS** platform.

KEY METRICS SINCE DELIVERING THE CLOUD-BASED PLATFORM INCLUDE:

* 1,713,466 records uploaded (Video; 317TB. Audio; 40TB. Image; 25GB)
* Records processed or downloaded more than two billion times
* 403,432 record searches conducted
* 99,676 video proxy files played or downloaded

<https://www.kablamo.com.au/media-and-video>

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