White Paper

Adopting Future-Proof NoCode iPaaS for Media to Maximize Hybrid Cloud

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Table of contents

Introduction

Technology is evolving at a rapid rate and the media industry is embracing these changes to allow broadcasters and content owners to improve quality, simplify and maximise workflows, reduce costs, increase ROI and of course expand audiences. Implementing a Hybrid Cloud is an ideal solution to combine cloud services and local operation, but doing this efficiently, cost effectively and more importantly ensuring the system is future proof creates several challenges. A NoCode iPaaS for Media can play a key role as a Hybrid Cloud deployment is one of the applications that comes naturally with this approach.

The best way to start designing a solution is to think of simple processes (prototypes) and start implementing them, then make adjustments to the prototype along the way. By means of a prototype it is verified that the business ideas work, it is analyzed how to improve the prototype and they can define the additional functionalities that are necessary.

NoCode integration platforms (iPaaS) represent a new generation of software that allow dramatically shorten the development of software projects, because it facilitates communication between business people and development teams, creating prototypes that visualize business needs, without writing code. We are talking about going from many months to two or three weeks, even days.

A NoCode iPaaS for media is essentially a platform with one or multiple sites where all the systems are integrated and simple workflows are defined with a simple NoCode Pipeline. If we think about the hybrid cloud challenges, which include multisite, different storage technologies and different systems to integrate on each site, all of this is covered by the NoCode iPaaS for media. As media abstraction is guaranteed, it's accessed seamlessly from the most efficient way on each site and all the systems are integrated with the platform and present the same methods. This means that we can say that the workflows are not 'site aware', they just have boxes that do some operations that can be changed easily from one site to another.

And more importantly, the NoCode iPaaS for Media guarantees the future proof of the solution, as new components can be added easily to create new services, or some components can be replaced for new versions or for new systems.

What is Hybrid Cloud?

Hybrid Cloud combines both private and public cloud services. It's a multisite deployment where the main system is located in the cloud and there are one or multiple sites which are on-prems. It uses cloud services and allows local operation.

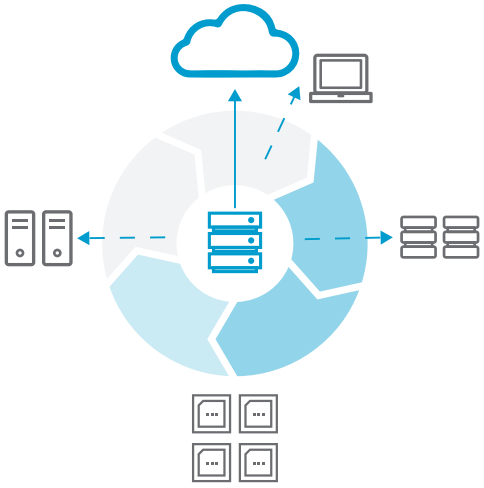
In recent years, the cloud has had a major impact on broadcast workflows with media companies moving their infrastructure to the cloud or private data centres, in a bid to simplify workflows and reduce costs. The main reason for moving to a Hybrid Cloud approach is that it offers media companies the ability to meet business objectives quickly, while maintaining full control of media archives and costs and ensures a low-risk transition into the cloud by moving the operation in-line with business needs. They can also pivot between local and remote operation depending on their requirements. Hybrid cloud takes the best of both worlds.

The Pandemic has been significant in this transition. When COVID-19 struck last year millions of people worldwide were forced to work remotely. The transition from office to homeworking for many businesses across all industries was challenging and the media industry was no different. Suddenly broadcasters and production companies found themselves faced with the challenge of continuing production, media management and distribution all while working offsite. The solution that many media companies are turning to, to assist with this transition is the Hybrid Cloud.

Hybrid Cloud has multiple use cases

- Multisite workflows where operation is split between different locations
- Use of AI tools to enrich local content
- Remote operation
- Maximize content accessibility
- Substantial content distribution - using AI services to scale up and down as required

To maximise Hybrid Cloud capabilities, the system has to be configured. It has to include all the applications and systems that are going to use the workflows, as well as all the storage locations across the different sites, and the workflows themselves.



What are the challenges when implementing a real-world Hybrid Cloud

The first challenge is point-to-point integration:

- Each system in the platform has a different API
- Each system needs to understand each other
- Changes in one component affects other components
- It can be difficult to maintain and evolve – if one system changes an API for example, it will affect all the other systems

The second challenge is media location and technologies:

- Different technologies and access methods
- Minimize media movements
- Workflows need to be media location aware

The third challenge is multisite workflows:

- Minimize media movement between cloud and on-prems
- Local media management capabilities
- Global management and monitoring to include metrics, reports and the capability to optimize the workflows as required

Enter the Media Integration Platform

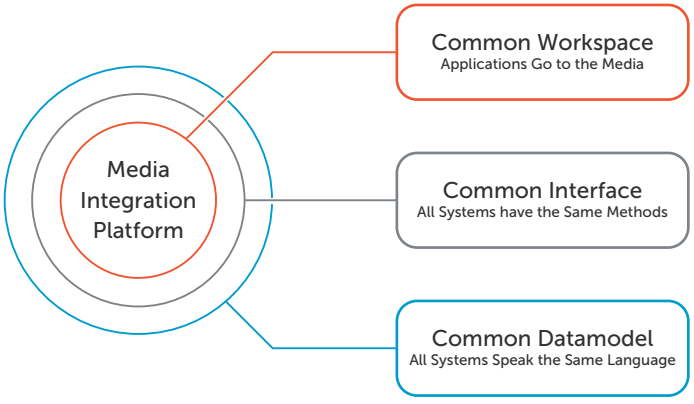
The solution to implement and future proof Hybrid Cloud deployment is a Media Integration Platform, which overcomes these challenges.

> "Using a Media Integration Platform means that there's no point-to-point integration because all the applications are integrated with the Platform."

The Media Integration Platform also provides:

- Media location abstraction
- Intelligent BPM
- Usability
- Flexibility and Evolution

The Media Integration Platform can be defined in three ways. First, it provides a Common Workspace, which allows all the applications to be accessible to the media and not the media delivered to the applications, this is crucial. Second, it has a Common Interface so all the applications present the same methods, and third, it includes a Normalized Data Model so all the applications speak the same language.



Common Workspace

- Adds an additional layer of security as it prevents the original media from ever being modified
- Provides a place for all temporary media to be stored
- Defines a set of normalized files so that the application knows what other files will be stored here
- Optimized for each site – on cloud or on-prems
- Offers global management features – quotas, reports etc.

Common Interface (One to Many Integration)

- All applications to be used in the system present the same method for the same functionality, which is key when configuring workflows. The user can change different applications in the workflow and create new workflows by copying existing ones, or deploy new workflows in the cloud or on-prems
- Same methods will have the same name – Transcode; Analyze; SentTo; and GetFrom. This is known as One to Many Integration
- This leads to workflow simplicity
- Workflows will be future-proof because we'll have the freedom to change workflows in the future without requiring complex modifications

Normalized Data model

Now that we have a common workspace where all the applications are held, in order to access the temporary media or the original media we have a Common Interface. This means that all the methods that carry out the same tasks will have the same name, and all applications will speak the same language. This is achieved by defining a Common Data model. This is the Integration Platform Data model that contains all the Content Metadata, which is part of the content.

This includes:

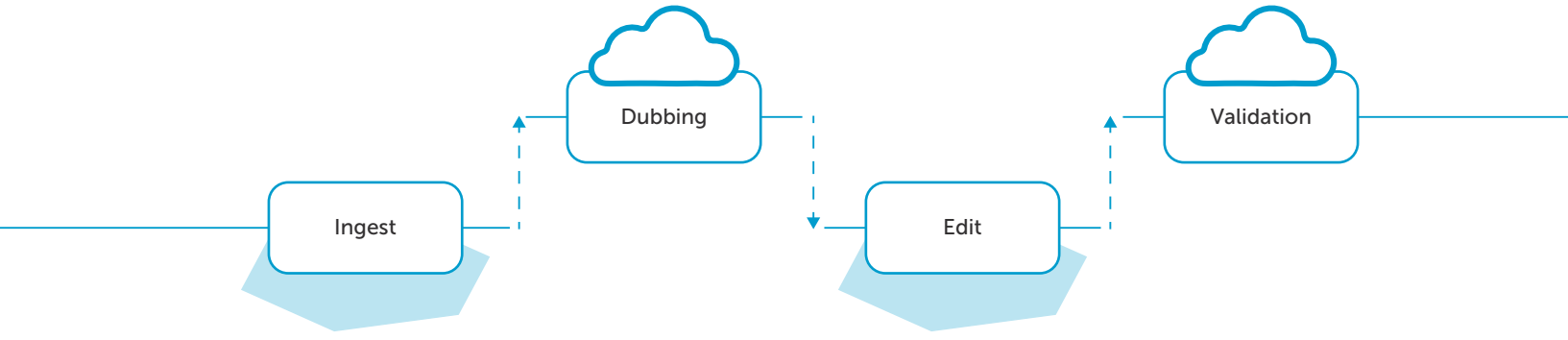
- Editorial
- Technical metadata
- Timeline annotations
- It will also contain the dynamic metadata, which is generated as part of the workflow for example, QC Status. This is important, when the applications make decisions based on this metadata during the workflow, they're independent of the previous stages and of the application that created this metadata
- Workflow simplification
- Future proof and self-sufficiency because the customer doesn't have to carry out complex modifications in the workflow

Workflow Example: Localization

In this case media is ingested locally and some localization is carried out. This takes place in the cloud, where people are connecting from different territories to access the original low-res media to generate a dubbing track in the specific language required. If editing is needed this can be carried out on-prems using the high resolution copy. Finally, low-res validation is carried out in the cloud, from the different territories, in order to check that the media that's been generated fits the audience specifications.

The key points in this workflow include:

- The original media is never moved so all the high-res media stays on-prems
- Significant content accessibility from the cloud using cloud services to access the low-res content in the cloud from different locations
- The copy that is generated to be validated is low-res, we are never moving the high-res media into the cloud



Media Location Abstraction

Let's now look at the Media Location Abstraction feature of the Media Integration Platform. All the media stored on the Platform is identified by an ID. The advantage of this is that all the different applications that are being used during the workflow execution don't need to be media aware. All they have to do is request the media ID and the Platform will automatically serve the content from the most suitable location, depending on where the workflow is being executed.

For example, if the workflow is in the cloud, it will open the media from the cloud service e.g. S3, and if the workflow is on-prems it will serve the media from local storage e.g. a NAS. Making the workflows independent of the physical location where they're being executed is key. This gives users the visibility and transparency to focus on business strategy.

- Media is identified by an ID
- Abstraction of the Media Location: cloud/on-prems
- Abstraction of the adapters: NFS, S3, Azure etc.
- Workflows don't need to be media aware (unless required)

Following are some examples of applications that require access to the media with different technologies:

1. Cloud
- Transcoding: AWS Elemental
- AI: Curio, Google Vision

2. On-Prems:
- NLE: Adobe CC, Avid Interplay
- AutoQC: Baton, Vidchecker
- Transcoding: Vantage
- ...and more...

When we're implementing and configuring these workflows, we don't have to put specific stages in the workflows that are dependent on the location where the workflow is being executed.

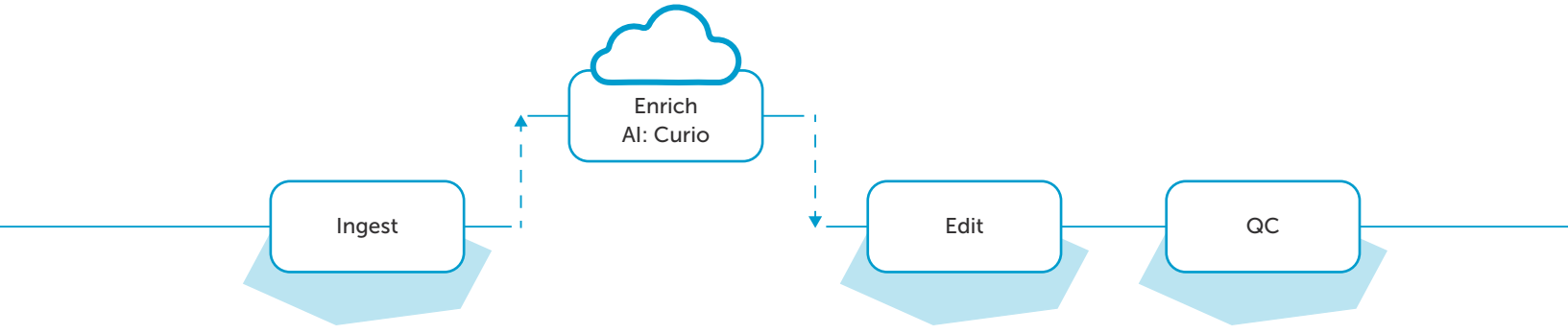
Let's look at this in more detail:

Workflow example 1: Changing one System for Another

One of the key features of the Media Integration Platform is that we're easily able to change one system for another in order for the system to be future-proof and to provide future workflow evolution. For example, we can have a content enrichment workflow using AI tools where the media is ingested on-prems, enriched in the cloud and finally editing and validation is completed on-prems. In this case, if for example there are new AI tools that are more suitable to the workflows that we're executing, or we want to test a new AI tool, all we have to do is change the AI engine. In this example, Google Vision for Greymeta, other than this the rest of workflow will be unchanged. This is because we have a Common Workspace, we have the Common Interface and the response given by Google Vision and Greymeta Curio is Normalized.

It's as simple a s changing the operation in the workflow:

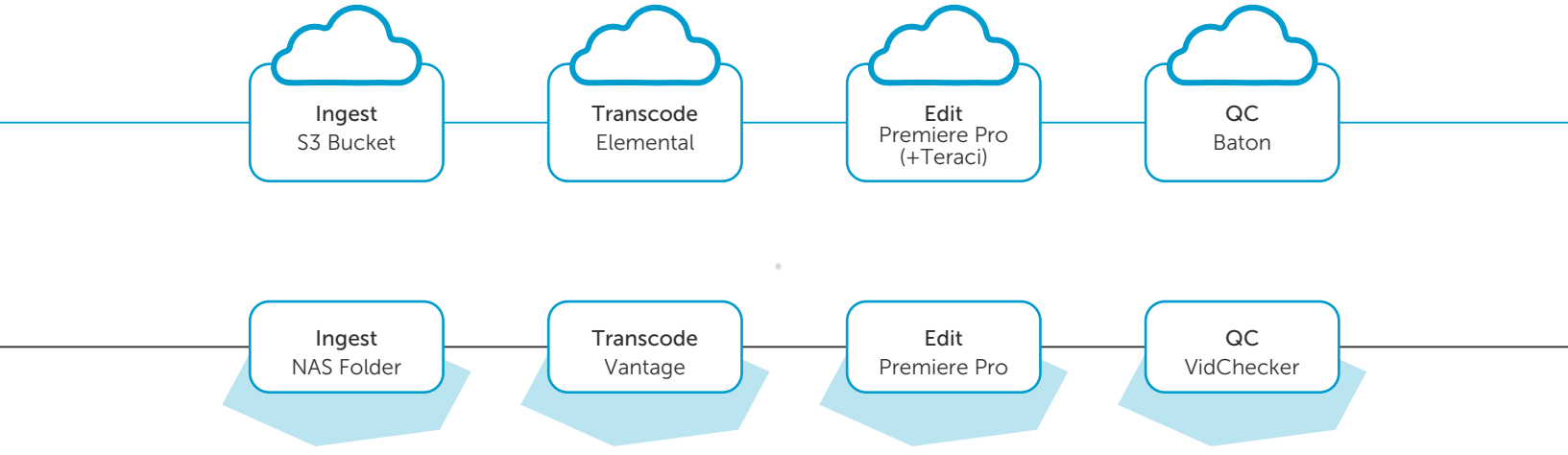
- The response is normalized to the Media Integration Platform's data model
- The next stage (edit) will be unaffected
- The media location: Google Storage >S3 storage is transparent for the workflow



Let's look at this in more detail:

Workflow Example 2: Moving selected operations into the cloud

This example is a Content Preparation workflow. For HD content this is carried out on-prems using all the applications deployed on-prems, which in this case is: Ingest - NAS folder; Transcode - Vantage; Edit - Premiere Pro; QC - VidChecker. In this example, content that requires fast processing is received in UHD. In this instance we can deploy a new workflow to process the content in the cloud. The current workflow simply needs to be duplicated and adjusted for the new products in the cloud. For Ingest we will be using S3 - Bucket; Transcoding - Elemental; Edit - Premiere Pro +Teraci; and QC - Baton. Again, the only thing that the users have to do is focus on the business outcome. They don't have to focus on the different technologies, adapters or interfaces that are being used by the applications because the Media Integration Platform will abstract all these details and implementation behaviours that are specific to each application, so that the workflow can be deployed really quickly, in just a few hours.

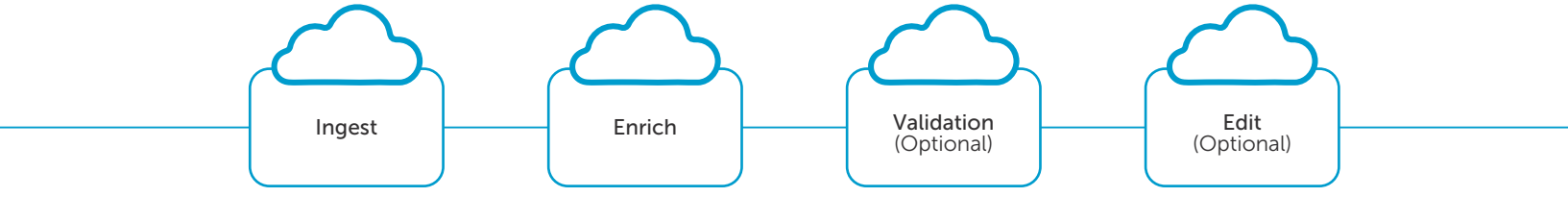


Intelligent BPM

This is another key feature of the Media Integration Platform. As we've already mentioned, it's important that the workflows are simple, future-proof and easy to configure, without having a deep knowledge of BPM innovation. This can be achieved with intelligent BPM, which abstracts the users from all the details and all the BPM notations by simply dragging-and-dropping boxes of different tasks that they want to complete. The system will provide them with flexibility and future proofing. Another key feature of Intelligent BPM is that it can take advantage of all the different tools and software in order to optimize the workflows as much as possible and allow users to only focus on specific tasks that are unique to them.

Workflow Example: Multiple Versions Generation

In this example, everything is executed in the cloud. The media is received in the cloud, which triggers an AI analysis to detect nudity and violence and validation is triggered depending on the result of this analysis. This is key because it means the users will only have to focus on validating and editing the content if something is detected. The definition of the workflow is really simple as the user again just has to drag-and-drop boxes from the set of available applications that are in the Platform. They don't need to know about complex BPM innovation, which is knowledge that's really only required for experts.



Results

Software Defined Workflows

One of the outcomes, which was highlighted in Movielabs and Hollywood Studios August 2019 "Evolution of Media Creation" whitepaper, is Software Defined Workflows. Content production workflows are non-predictable, they don't know in advance how many colour corrections or visual effects for example, are going to be created. This means the workflows must focus on specific production needs, allowing creatives to do everything that they need and not limit their creativity because they're focussing on technology. The fact that the technology is future-proof is crucial particularly now that we are living with COVID-19, which causes a lot of uncertainty in terms of production and content generation needs.

- Content Production is iterative, non-predictable
- Focus on the creatives not on the technology
- Agile to attend Production needs

Future Proof

The platform must be able to evolve quickly to new production needs, to switch between cloud services and on-prems operation and to provide remote operation. It must adapt quickly to these new requirements. Also, if new content needs to be produced to be optimized in the cloud, it can spin up and down cloud services as and when required. It must also be able to evolve to add new applications and new systems and also be able to produce more content efficiently in the future as technology evolves.

- New systems can be changed easily
- Changes in locations do not affect the workflow logic
- Quick time to market for future needs
- Interoperability
- Reduced total cost of ownership
- Customers' self-sufficiency

Conclusion

M&E market and consumer behaviours are changing faster than ever before. With the acceleration of digital media transformation, NoCode iPaaS is now one of the hottest and fastest-changing software categories. Users want seamless, effortless integrations. Developers want to spend less time on repetitive API research and integration maintenance. Product/solution wants to own the user experience.

A NoCode iPaaS for Media allows both "technical" and "business" users to create any type of process, from simple to complex, without writing code. With a NoCode iPaaS-based solution, technology development becomes more agile, collaborative, dynamic and responsive to customer needs including:

- Ability to translate business requirements and outcomes into technology solutions
- Unprecedented flexibility, speed and agility to adapt to changing customer conditions
- Maximises efficiency and reduces costs, improves profitability and accelerates growth
- Dramatically reduces delivery times

Hybrid cloud is the best solution for all the advantages mentioned in this paper. Configuring and deploying an efficient hybrid cloud is complex. And having a future-proof hybrid cloud is even more complex. This is why having one NoCode iPaaS for Media with all the features discussed is absolutely key to leverage the potential of the hybrid cloud, maximise interoperability and enable users to define their processes autonomously and create workflows in a flexible and agile manner.

For more information,

click here

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Written by
Julián Fernández-Campon, CTO, Tedial

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