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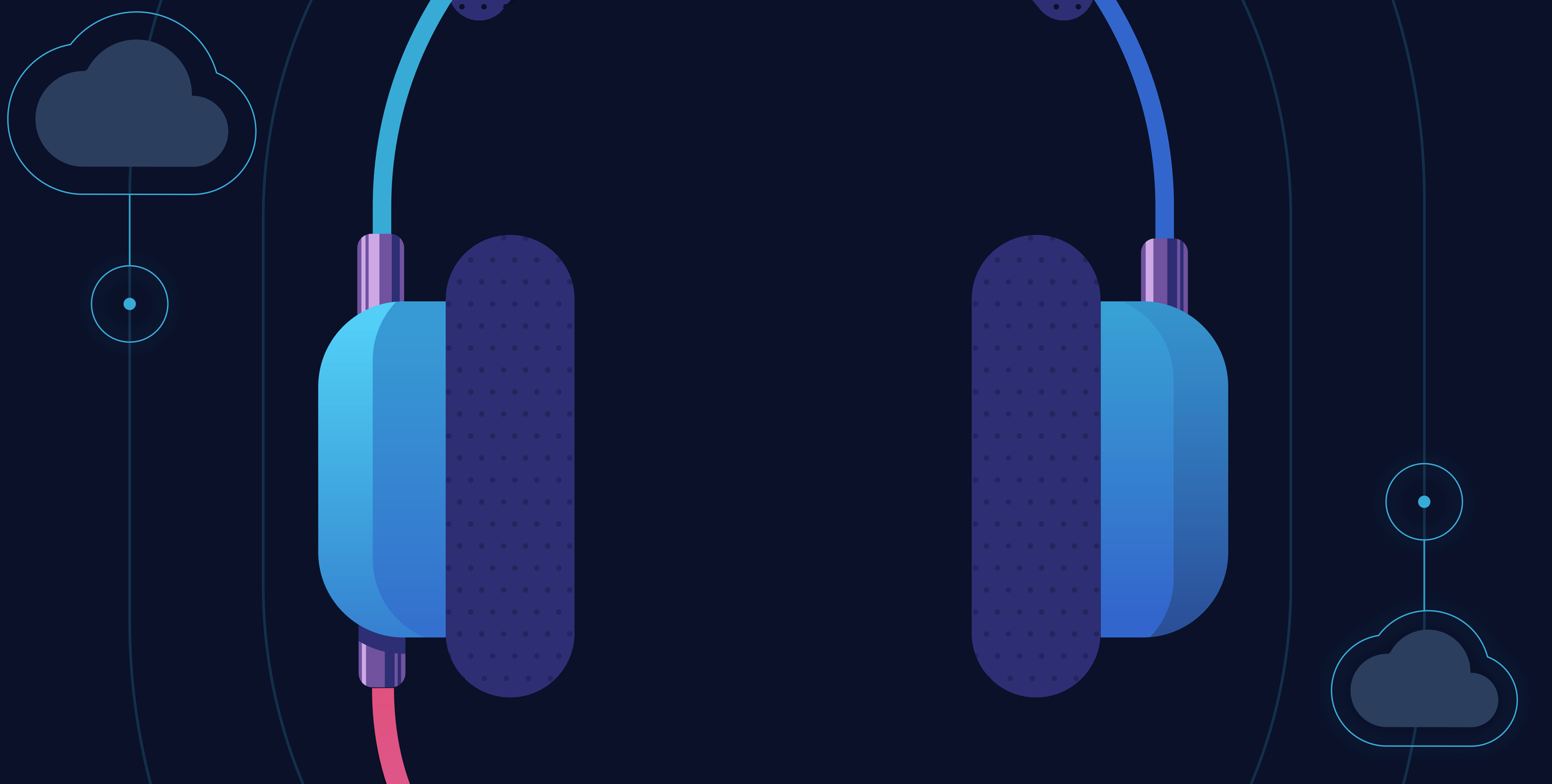


BRIDGING THE GAPS IN MUSIC STREAMING WITH DATA PIPELINES

Repertoire Metadata, DDEX and Transactional Reports

Contents

Introduction

Despite the looming recession, the shift towards additional revenue streams as a result of decreases in subscription revenue showcases the music industry's resilience. The RIAA **reports** that total revenue from recorded music increased by 9.3% during the initial six months of 2023, reaching a record-breaking first-half high of $8.4 billion. The music industry famously took a long time to embrace digital, but now paid subscription services are its largest drive of growth. In fact, streaming accounted for **84%** of total recorded music revenues in the U.S., growing 10.3% to $7.0 billion. For the fourth consecutive year, streaming got a share ranging from 83% to 84% of the total revenues. Many people are aware that data heavily drives these new digital distribution services. However, data science is leading the charge for growth and improved listener experiences in more areas of the industry than just this.

Many people are aware that these new digital distribution services are driven heavily by data, but they aren't the only areas of the industry where data science is leading the charge for growth and improved experiences for listeners. Traditionally, the role of a record label was to promote the artists they have signed.

The Vitality of Data

Today, streaming services have largely taken over the promotion role once held by record companies, by leveraging big data to provide highly personalized recommendations to users. One example is the introduction of a new feature called **DJ**, an AI-powered personalized guide that selects and plays music for users based on their preferences. It offers a curated lineup of music, along with commentary, and continuously adapts its recommendations based on user feedback. The other example is Pandora's recommendation engines that are powered by The Music Genome Project.

The technology attaches more than 450 attributes to each song, while an elaborate algorithm is utilized to determine a list of similar songs that can be recommended to users of Pandora's plaform. Beyond the streaming services, apps such as Shazam use a massive collection of data to provide music-related services to customers.

Investments in Data Strategies

The music industry seems to have learned its lesson after waiting too long to accept MP3s and the digital revolution that was to come. The value of broadening investments in data strategies and operations is apparent throughout the industry. Recently, Sony **hired** its first ever executive vice-president of AI to properly guide the implementation of such incentives, highlighting its significance for the future of the industry.

With the recorded music segment so deeply reliant on streaming, data now sits at the core of the entire business ecosystem. As the vitality of data rises, a lack of standardization poses significant complications.

Data Communication

Every recorded music track includes metadata, such as the copyright holders, royalty percentages, contributors, and more. While this information is critical for music management, the vital task of formatting and handling the growing quantity of data lacks universal protocols. Unfortunately, the absence of standardization leads to a wide range of solutions developed by record labels, music publishers, and producers. And the various tools result in fragmented datasets, human errors, and unwieldy complexities in the analysis, application, and sharing of this crucial information. For the digital music industry to achieve effective data communication between the various players involved, a universal standard is paramount.
Through the collaborrative work of DDEX (Digital Data Exchange) and other innovative players, the music industry is on track to adopting standardized data protocols that will shape and refine every component of the digital music supply chain.

Investing in data strategy and data science becomes critical for music companies to remain

vital in the music industry. However, while virtually everyone in the music industry agrees that it's essential to have an effective data strategy in place, many businesses have yet to achieve this goal. It remains common for companies to be running disparate systems that don't communicate easily with each other, resulting in massive inefficiencies, incorrect data, and a reduced ability to extract the valuable information from the data being collected to apply the available insights and opportunities to their full advantage.

In this paper, we'll focus on the software and engineering components involved in developing a comprehensive and effective data strategy, taking a look at howdata platforms are built, in an effort to better equip industry players with the knowledge they need to work more collaboratively and more efficiently and to choose the right tech partners to achieve their goals. **At DataArt**, we pride ourselves on assisting music companies by building modern data pipelines on a sound infrastructure that will vastly improve operations, reveal valuable insights, and stand the test of time as the industry continues to evolve.

"The music industry is really good at creating standards. Unfortunately, it's not very good at adhering to those standards.

Niels Rump

Secretariat of DDEX

"The industry has undergone significant re-growth... metadata is crucial for music professionals to decode music data exchange and ensure that the industry thrives.

Sergey Bludov

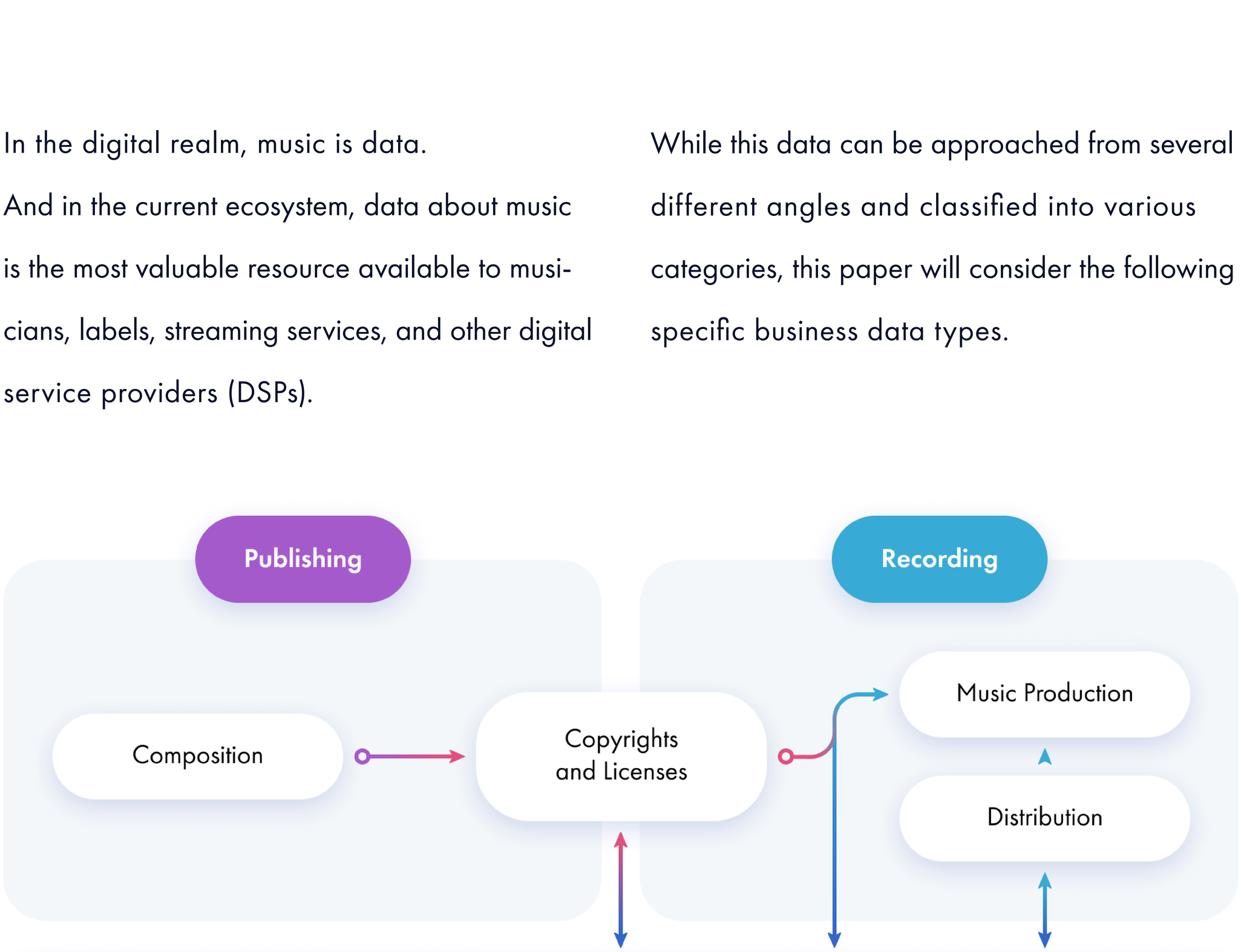
Senior Vice President at DataArt

At DataArt, we pride ourselves on assisting music companies by building modern data pipelines on a sound infrastructure

Definitions: Data Types and Data Management Approaches

In the digital realm, music is data.
And in the current ecosystem, data about music is the most valuable resource available to musicians, labels, streaming services, and other digital service providers (DSPs).

While this data can be approached from several different angles and classified into various categories, this paper will consider the following specific business data types.



1. Repertoire data associations in the music publishing and recorded music segments

Repertoire Data

Repertoire data includes information about songs, sound recordings and releases, data about songwriters, composers, and artists, and details about music publishers and copyright ownership. In the recorded music segment, it is sometimes also called “label copy”.

Although music copyright may appear fairly straight forward from an outsider’s perspective, the ownership of music actually resides within a complex system of rights holders, with shares often being altered on a deal-by-deal basis.

In circumstances where a single person writes and records a piece of music, they become the sole owner of the copyright. But this is a relatively rare situation in today’s industry. Typically, there are multiple people involved in the writing and recording of a song. And the ownership of that music is shared equally between the co-writers unless a different division is specified in a written agreement.

Music publishers may also gain percentages of copyright through publishing deals that are entered into by an artist or their record label, further complicating the matter of music ownership. Non-exclusive and exclusive licensing deals are another factor that can contribute to the owners of a song, while “work made for hire” situations, where a songwriter is acting as an employee of a company, generally result in the hiring party taking full copyright ownership of the music being created.

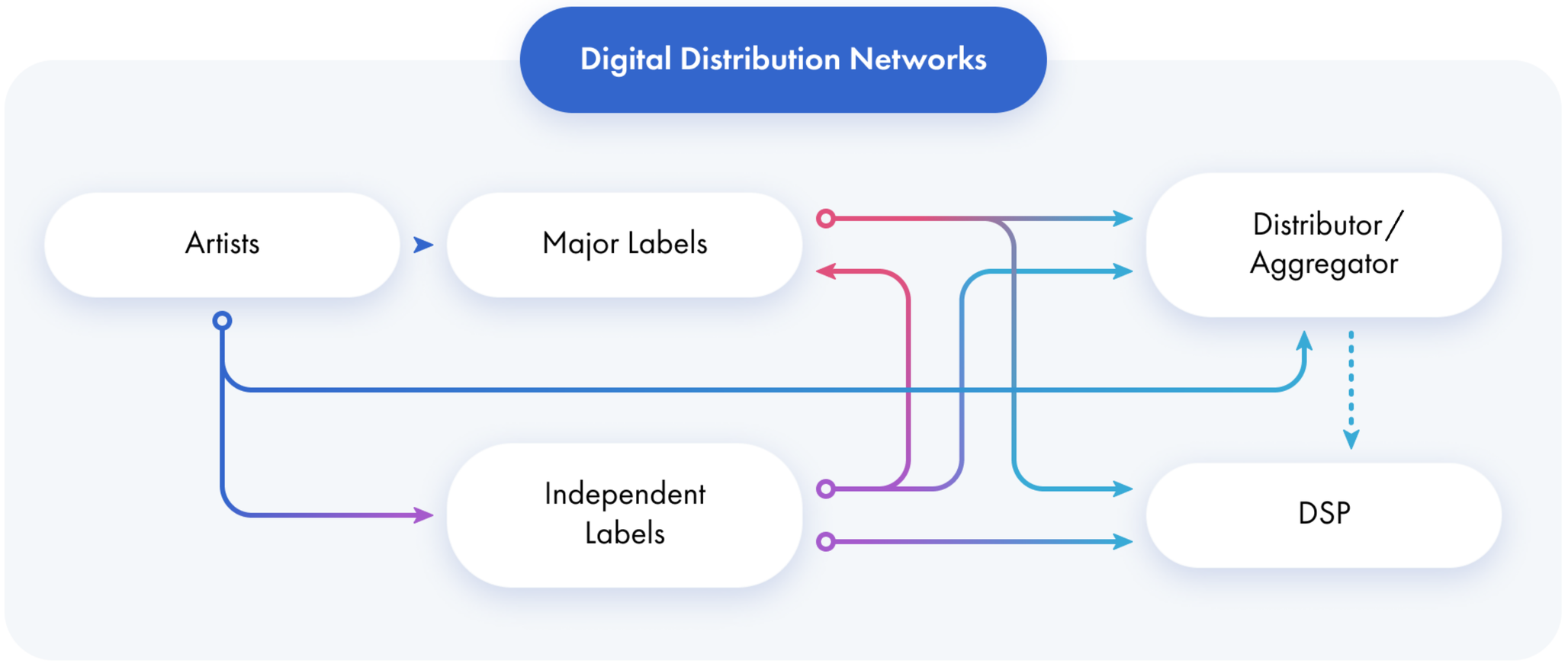
Detailed information about a song may be stored by multiple parties in their own proprietary systems, which can, unfortunately, lead to discrepancies about copyright ownership due to inaccurate or missing data.

Performance rights organizations (PROs) have made many attempts to create a single, universal database for music compositions, but this invaluable resource has yet to come to fruition.

One of the early attempts was the International Music Joint Venture, which was launched in 2000 through a collaboration between several collection societies, including ASCAP, Dutch PRO Buma/Stemra, the UK's PRS for Music, and SOCAN in Canada. However, this lofty venture failed to see the light of day.
Another attempt came in 2011 from the World Intellectual Property Organization with their International Music Registry (IMR) project, but sadly their goal to develop a universal music rights database didn't make it to the finish line.

Currently, there are active initiatives aiming to develop a centralized music rights database. RDx (Repertoire Data Exchange) was launched in 2020 as a collaboration between WIN and IFPI with several music licensing companies and record labels using the service, and more expected to join in this year. Songview is another current venture, this time led by ASCAP and BMI, with the aim of bringing the majority of music licensed in the United States into a single copyright database that is authoritative and readily accessible.

While these initiatives show great promise, it's essential that artists and record labels are able to easily deliver information about new releases into the system, in addition to claiming their existing resources and having the ability to communicate specific terms and conditions from their partners and distributors to receive valid reporting and accounting in return.



2. Music distribution via complex interconnected networks

Transactional (Performance) Data

Music distribution has undergone a massive transformation in the move from physical medums to the digital era.

Digital sales surpassed physical mediums for the first time in 2015 and have continued to increase the gap in the years that followed.

In the current climate of streaming, distribution networks have become extremely complex and interconnected. Indies often use the majors' distribution chains while the majors' strike deals with indie distributors to extend their reach.

While some companies integrate streaming services directly, others gain access to streaming reports via aggregators and other DSPs.

All of this often leads to disjointed sales reports coming from multiple sources and processed separately by different internal teams.

In addition to sales, transactional data covers music consumption and consumer behavior, royalty distribution, and more. The plethora of data received from DSPs goes far beyond the numbers of downloads and streams.

The collected data provides the industry with the vital information needed to develop innovative tools that help companies meet a variety of business objectives, as previously published in the article **"Artist Analytics: New Frontier For the Music Industry"**:

1 **Tracking Performance and Artist Development:**

From tracking each time someone streams a song to identifying the geographical areas where their fanbase is growing quickest, analytics is vital when developing an artist's career. Music companies gain a competitive advantage by possessing the expertise to effectively extract, analyze, and apply this data to its fullest potential.

2 **Measuring Marketing Campaigns:**

One of the many benefits of the digital age is the expanded access to data. The music industry collects a staggering amount of information that can be used to measure the effectiveness of marketing campaigns in correlation with sales data, allowing companies to quickly adjust their strategies accurately to maximize ROI.

3 **Discovering New Talent:** A compelling online presence brings the industry to the artist, and vice versa. But it's analytics that makes this process possible, allowing companies to discover new talent and new potential hit songs through recommendation engines and sophisticated discovery algorithms.

4 **Fan Engagement:** Artist analytics tools are capable of identifying an extraordinary number of connections between fans and the rest of their interests and lives, thereby greatly enhancing the ability to know an artist's audience. Through understanding how fans discover new music and knowing their preferences, the possibilities for deep fan engagement grow exponentially.

5 **For Artists:** Knowledge is power. For artists, the music industry can be highly complex, making it difficult to be certain that their careers are running smoothly and fairly. Analytics help artists keep track of day-to-day business operations, which helps them to be sure that they're being paid correctly at all times.

Building efficient data pipelines for music companies typically requires the identification of correlations between the repertoire the company manages and its performance.
To establish these connections, one must somehow integrate a range of incompatible systems to enable them to communicate with each other. Without this communication, the digital music supply chain cannot operate successfully.

Music Metadata

A specialized data set is required to facilitate communication between repertoire and transactional data, between publishers, labels and DSPs and their often-incompatible systems: metadata, which can be defined as data about the data.

As soon as you provide rich metadata, the usage of the music goes up by a significant amount of time.

Niels Rump
Secretariat of DDEX

Music metadata can be split into three categories:

1 Descriptive Metadata provides details about the recording content, such as song title, release date, performing artist, main genre, and much more.

2 Ownership/Performing Rights Metadata is used to specify the copyright of recorded music to ensure that royalties for its performance are distributed in the correct percentages to the rightful owners.

3 Recommendation Metadata provides subjective tags that aim to describe the sound of a recording to power recommendation engines, such as genre and mood.

While metadata is essential for the organization of music and the payouts of royalties earned by its performance, the information lacks a centralized standard, resulting in inaccuracies and inconsistencies. This unfortunate reality means that sometimes copyright owners don't receive payments for the use of their music, with some estimating billions of dollars lost in unpaid royalties. The metadata problem is so big that specialized companies – metadata providers – have arisen, such as OpenPlay and Music Story.

While the development of unified metadata standards and repertoire databases continues, the reality is that music companies are often reliant on each other and on the metadata providers to fill in the gaps. The cumbersome nature of these current processes can be alleviated by adopting the standardized model provided by DDEX.

DDEX is a very important standard, but it is very complicated. It is by far not a standard that anyone follows to the degree that they should. It's a standard that requires a lot of effort, commitment, time, and dollars to really get right... it shouldn't be a scary barrier for anyone to step into our space.

Edward Ginis

Co-Founder of OpenPlay

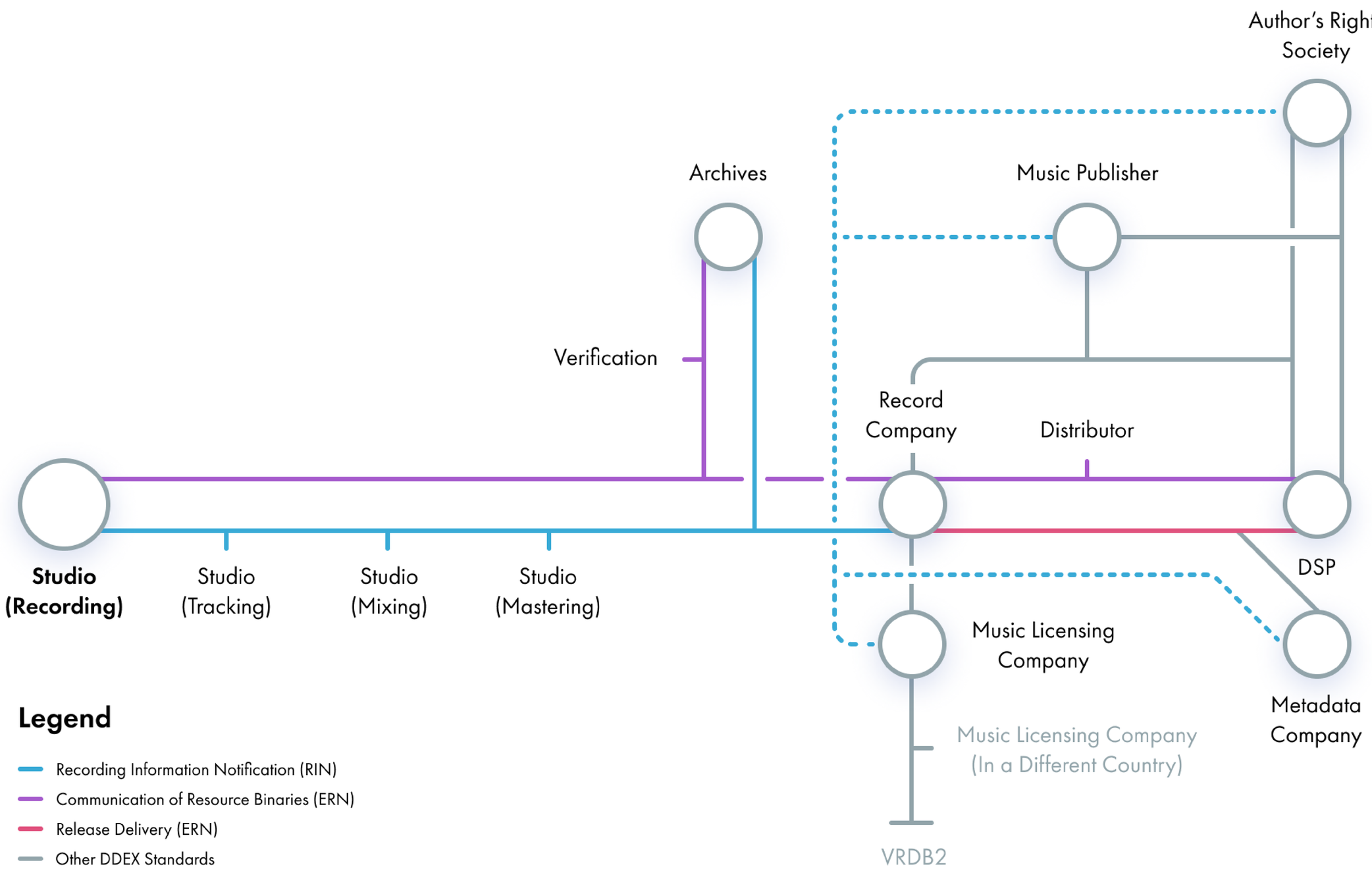
Digital Data Exchange was formed in 2006 to develop and implement digital music supply chain standards. The not-for-profit consortium was established by a group of prominent companies and organizations and has since expanded to include members from every sector of the music industry.

DDEX's standardized data formats are available for implementation at no cost and without the need to be a member of the organization. At the same time, membership has grown substantially in the years following its launch. With leading charter members that include Amazon, Apple, Sony, Universal Music Group, Pandora, Spotify, ASCAP, BMI, and many others, DDEX has since been joined by such prominent industry players as Warner/ Chappell Music Publishing, SoundCloud, BMG Rights Management, CD Baby, and many more.

DDEX is the ultimate solution for data standardization... we are constantly evolving those standards. They are complex, because the industry is complex.

Niels Rump,
Secretariat of DDEX

For a wide range of companies in the music industry, whether a record label, publisher or distributor, DDEX has become an essential tool to building scalable data operations and, thus, a vital component for success in the rapidly expanding digital music economy in the streaming age and beyond.



3. DDEX standards within the music industry

Source: ddex.net

Repertoire Delivery to Digital Music Supply Chain with DDEX

ERN Standard

The initial link in the digital music supply chain involves the dissemination of new release information from a label/artist to distributors, DSPs, and other partners. To conduct initial communication about a new release and its availability, DDEX employs a Release Delivery standard. Defined in the Electronic Release Notification Message Suite Standard (ERN), DDEX's solution provides the ability for a content owner to share comprehensive data about each new release, including complete metadata and all of the terms and conditions for its availability. While an ERN standard message is typically sent from a record label to a digital music retailer, this format can also be used to communicate release information to metadata companies and music licensors, or to claim rights for music works in user-generated content.

Utilizing DDEX's communication standard carries the advantage of greatly increased efficiency by removing the need to send release information in multiple formats to distributors or other partners. The ERN standard is an XML specification consisting of five sections of message and metadata elements outlining the details of a release and each of its components, such as the tracks of an album.

ERN was recently **updated** to enhance functionality and reduce complexity. It includes support for immersive audio data, authorization of user-generated content and more detailed album visibility dates. By expanding the artist product information that can be shared and then used to enhance fan experiences, companies

like Universal Music Group, and Spotify have committed to implementing ERN 4.3.

DDEX offers a well-documented standard that's relatively straightforward to implement. However, challenges often arise when aggregating information from internal systems and mapping it to the standard.

As commonly occurs in long-standing businesses, the process of digitalization left many music companies with fragmented internal systems. This issue was exacerbated by mergers and acquisitions, in addition to the blurring of lines between publishers, labels, and distributors.

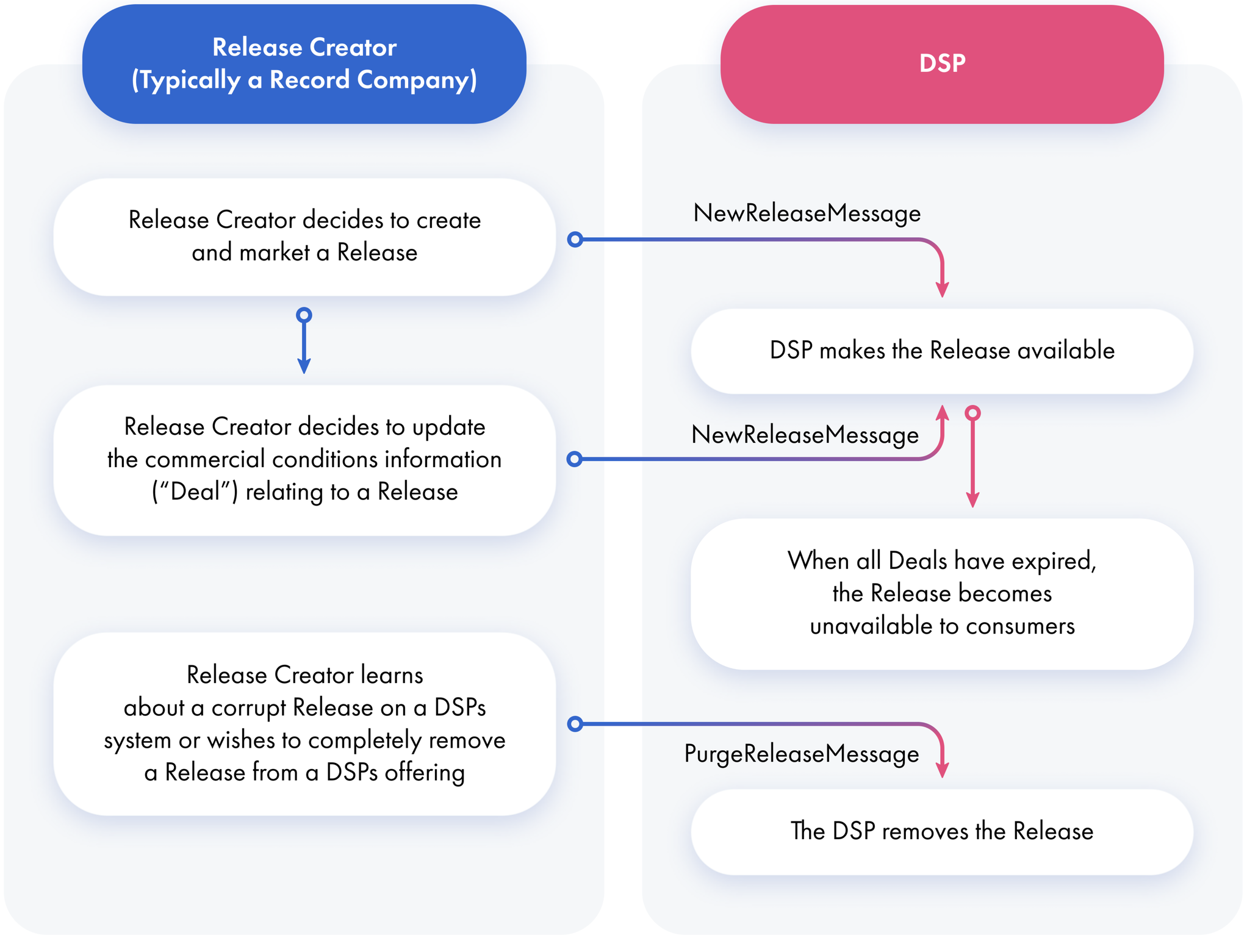
As a result, some processes are manual and disparate, while workflows are often managed by various teams with minimal integration. For example, organizations may find themselves with deal information in a legal system, while repertoire data and transactional reports reside in other systems. In such cases, the unfortunate lack of standardization results in the complex process of building bridges between a range of internal systems to facilitate communication.

Modernization of Internal System

If your company is running disparate systems, we highly recommend the modernization and integration of your internal systems as the first step in your data management strategy. Although modernization is not a prerequisite for the implementation of DDEX or integration with industry partners, updating your systems and creating a unified "source of truth"database/-data warehouse will substantially improve data operations across your entire orgaization.

One of the advantages of DDEX is the fact that does not require single orchestration. Conversely, it allows for the collection of data from various sources.
At the same time, the collected data must be consolidated and converted to match the ERN (or other standard) specifications.

The DDEX message choreography goes like this:



There are several common use cases for DDEX messages, including:

- Delivering a new release to distributors and other industry partners.
- Claiming resources in user-generated content.
- Updating/delivering changes to previous messages.

A typical DDEX message is comprised of three main elements:

- Resources – the primary assets, such as audio or video tracks, plus secondary assets, including graphics and booklets.
- Releases – the products that encompass the resources.
- Deals – outlining the details of allowable uses for the release.

```
<?xml version="1.0" encoding="UTF-8" standalone="yes"?>
  <ResourceList>
    <Video>
      <VideoType>ShortFormNonMusicalWorkVideo</VideoType>
      <VideoId>
        <!--- Adds one asset label to the Web asset (optional and can be repeated) -->
        <ProprietaryId Namespace="YOUTUBE:WEB_ASSET_LABEL">foobar_web_video_label</ProprietaryId>
      <VideoId>
    </Video>
    <Title LanguageAndScriptCode="en" TitleType="DisplayTitle">
      <TitleText>A little bit of Foo</TitleText>
    </Title>
    <Title LanguageAndScriptCode="ja" TitleType="TranslatedTitle">
      <TitleText>キャン・ユー・フィール. . . ザ・モンキー・クロー!</TitleText>
      <SubTitle>ライヴ・アット・武道館</SubTitle>
    </Title>
  </ResourceList>
  <!-- The ReleaseList contains two releases in accordance with the "Video Single" profile.-->
  <ReleaseList>
    <Release IsMainRelease="true">
      <ReleaseId/>
      <ReleaseReference>R0</ReleaseReference>
      <ReferenceTitle>
        <TitleText>Can you feel ...the Monkey Claw!</TitleText>
        <SubTitle>Live at Budokan</SubTitle>
      </ReferenceTitle>
    </Release>
  </ReleaseList>
  <DealList>
    <ReleaseDeal>
      <Deal>
        <DealReference>YT_MATCH_POLICY:Monetize in all countries</DealReference>
      </Deal>
      <Deal>
        <DealTerms>
          <CommercialModelType>SubscriptionModel</CommercialModelType>
          <Usage>
            <UseType>OnDemandStream</UseType>
          </Usage>
          <TerritoryCode>US</TerritoryCode>
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        </DealTerms>
      </Deal>
    </ReleaseDeal>
  </DealList>
</ern:NewReleaseMessage>
```

4. ERN message sample

Challenges of DDEX Integration

In the years since the DDEX standard was established, substantial advancements have been made. While earlier versions used different integration parameters for each DDEX member, the current standard requires only minimal

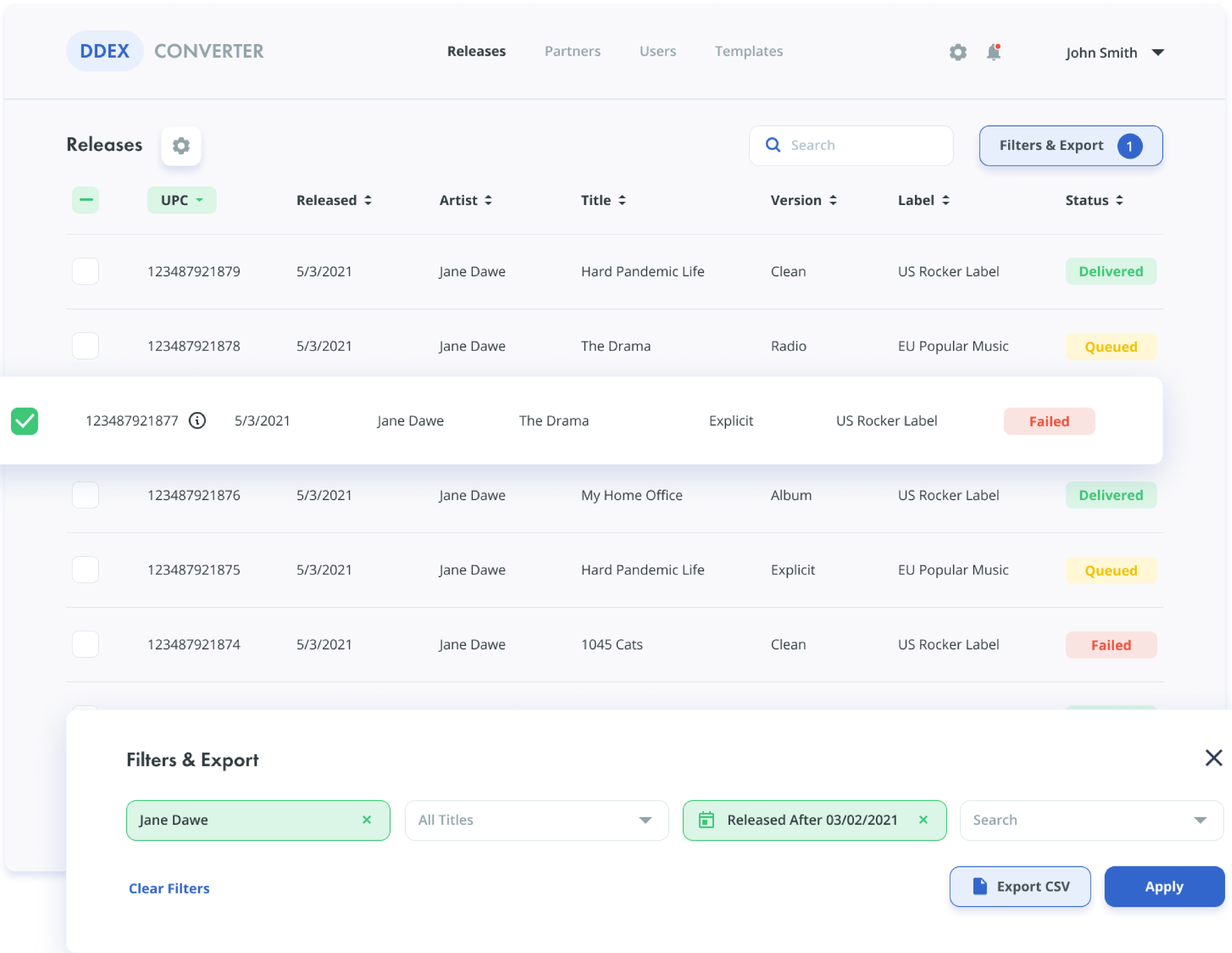
adjustments, resulting in the need for adaptations to 10% of the basic format versus up to 60% in earlier versions.

Typically, the most significant integration challenge exists in mapping metadata between internal systems and the DDEX feed.

These complications arise from differences in referential values, a lack of universal naming conventions, and conditional fields.

One of the best options to process and eliminate discrepancies, as well as to set up advanced validation and filters, is to build a DDEX converter.

Typically, it is a small application that allows the client company to gather metadata files for releases associated with their catalog from various internal systems, parse and map appropriate data to DDEX XML files and to communicate metadata and corresponding media files via DDEX to the client's wide network of industry partners.



5. DDEX converter UI mockup

Building a Transactional Data Pipeline

Although music companies have generally relied on manually sharing files via email and portable storage devices, such procedures are rapidly fading into obsolescence. These days, an increasing percentage of music industry players are utilizing automated processes, further cementing the vital importance of streamlining data operations from both business and technological standpoints.

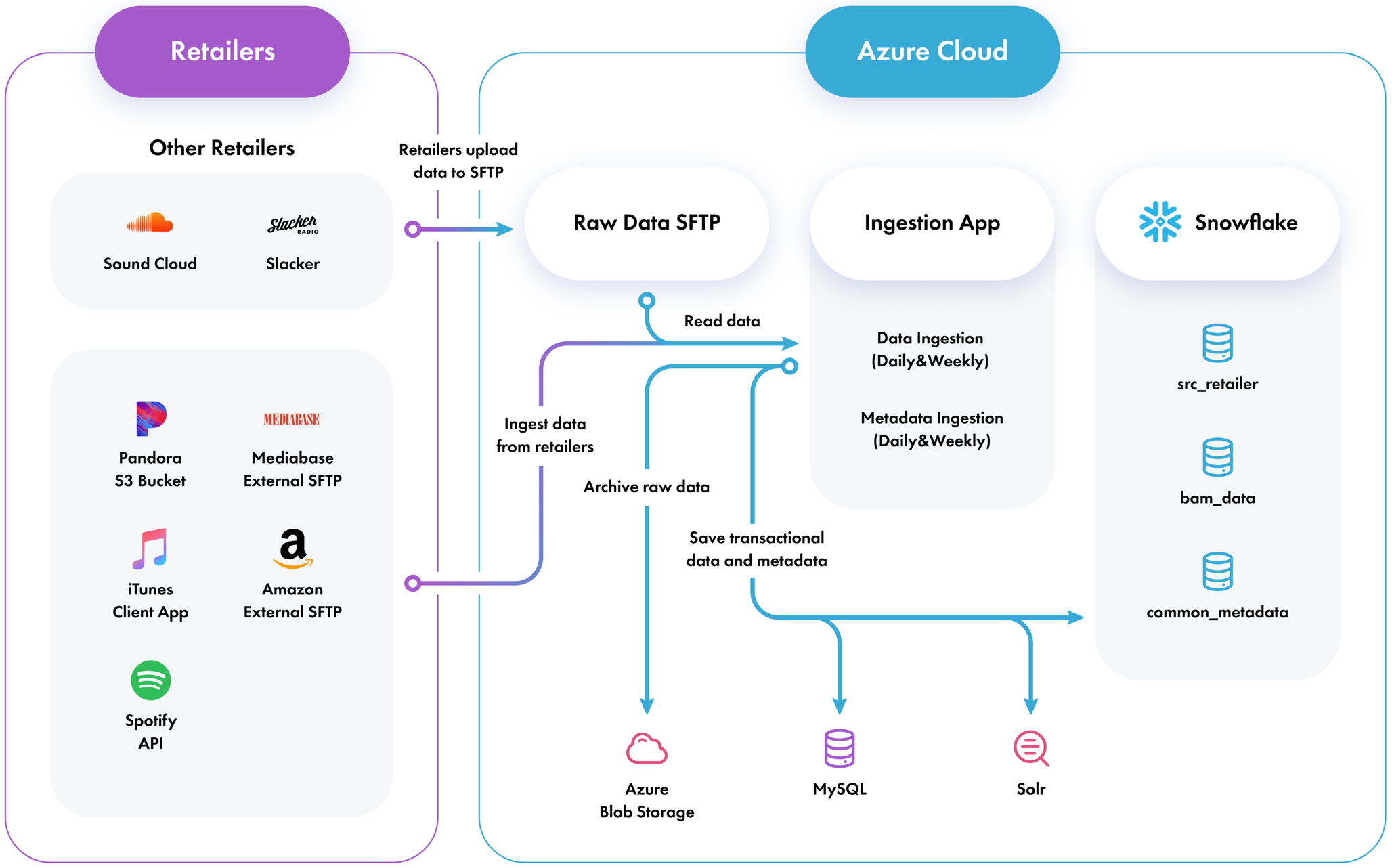
All data pipelines begin with data acquisition, typically consisting of data extraction, transformation, and loading (ETL). In other words, data acquisition can be defined as a process of extracting relevant information from various internal and external sources, processing and remodeling the data into a homogenous format, and loading it into the data storage in a structured way.

Typical Means of Data Exchange

The majority of data pipelines extract data from both internal databases and external sources. This paper focuses on data extraction from external operating systems to examine the existing principles of data exchanges between record labels, metadata companies, distributors, and DSPs. Similar principles can be applied to other players in the digital music supply chain, though it's imperative to individually assess each case prior to making any such considerations.

Based on our experience, the typical means of data exchange/extraction for music data pipelines include:

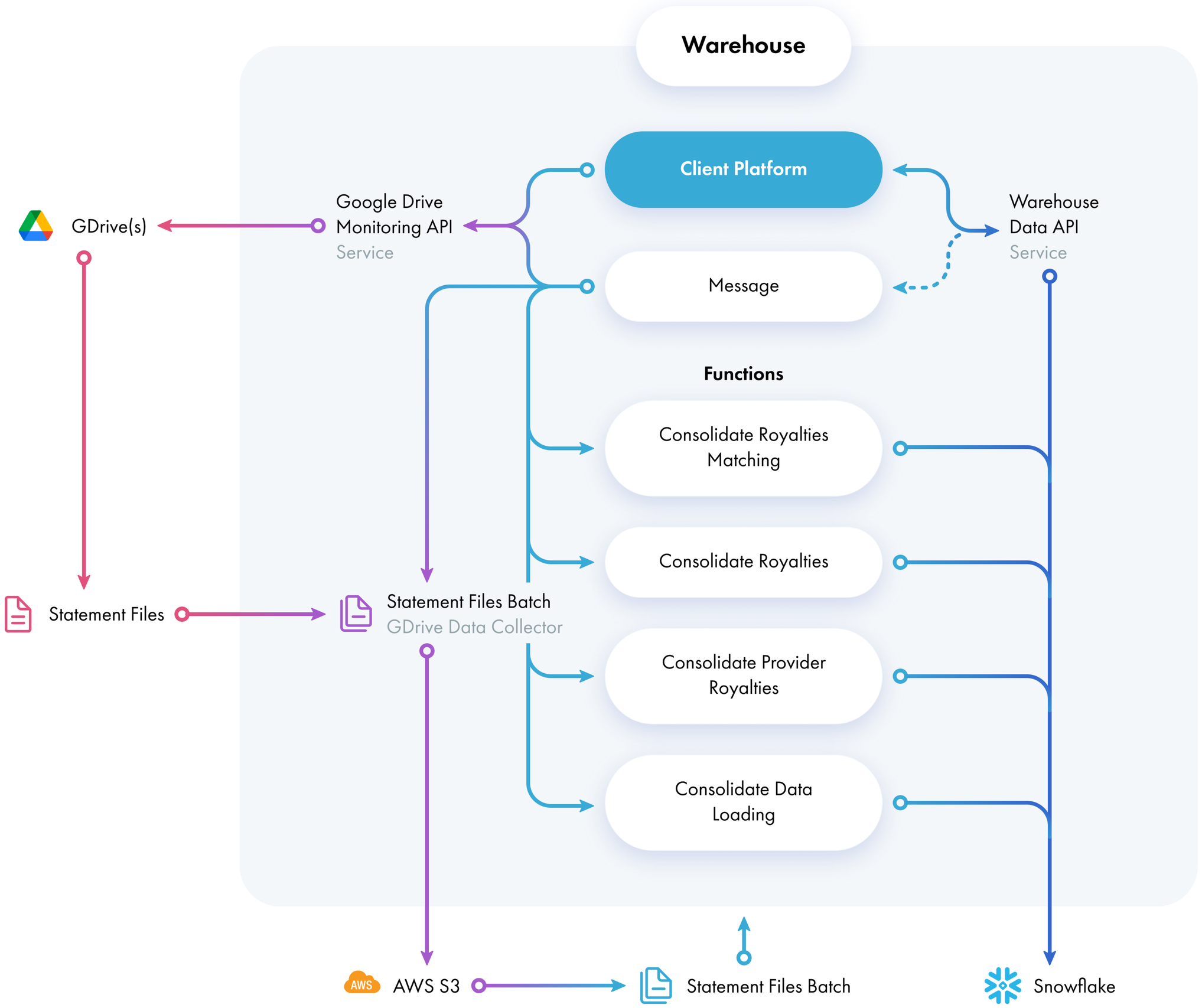
- API: An Application Programming Interface provides a highly efficient means for processing data. Through real-time communication between multiple applications, an API enables rapid data exchange while reducing the likelihood of human error.
- FTP/SFTP: Built on a client-server model, FTP and SFTP protocols are based on using separate control and data connections between the two parties to facilitate the transfer of digital information.
- Other online storage (e.g., Google Docs): Typically used by companies with manual processes, Google Docs and other online storage options offer relatively simplistic file-sharing functionalities that may be included in more robust automated strategies.



6. Data ingestion from DSPs via SFTP & API
Architecture mockup using Azure Cloud and Snowflake

- Cloud storage (AWS S3, GCP /GCS):
  Cloud storage provides users with flexibility and scalability, making it a viable option in the digital music industry data pipeline.

Integration via an API provides the most efficient method for data exchange with its real-time transfer capabilities. However, not every provider has APIs in place, making it necessary to use other procedures at times. For those with a cloud infrastructure already established, cloud storage carries the advantage of easy integration due to most of the required features being available out of the box. At the same time, there are companies involved in the music data pipeline that continue to run manual



7. Data ingestion from Google Docs
Architecture mockup for royalty statements pipeline

processes via online storage options, which can additionally be includedin complex automated operations.

Key DSP Ingestion Specifics

Apple Music and Spotify support Batch REST API to provide detailed reports to labels and distributors. With exceptionally high data granularity, these reports include both consumption and repertoire information to facilitate comprehensive analytics and discovery.
The primary challenges in using this technology are data volumes and data latency.
The high granularity of data reports can generate in excess of 100GB per day, making it essential to build data pipelines with high volumes in mind.
Another critical consideration is the one-day delay in the delivery of these reports, thereby creating the necessity for a fast and efficient ETL/ELT process to ensure that the data is accessible to analysts and business users in a timely manner.

Amazon Music provides very similar capabilities to Apple Music and Spotify. The primary difference is Amazon's lack of an API, leading the company to deliver its information via AWS S3 while providing a smaller quantity of reports and data points.

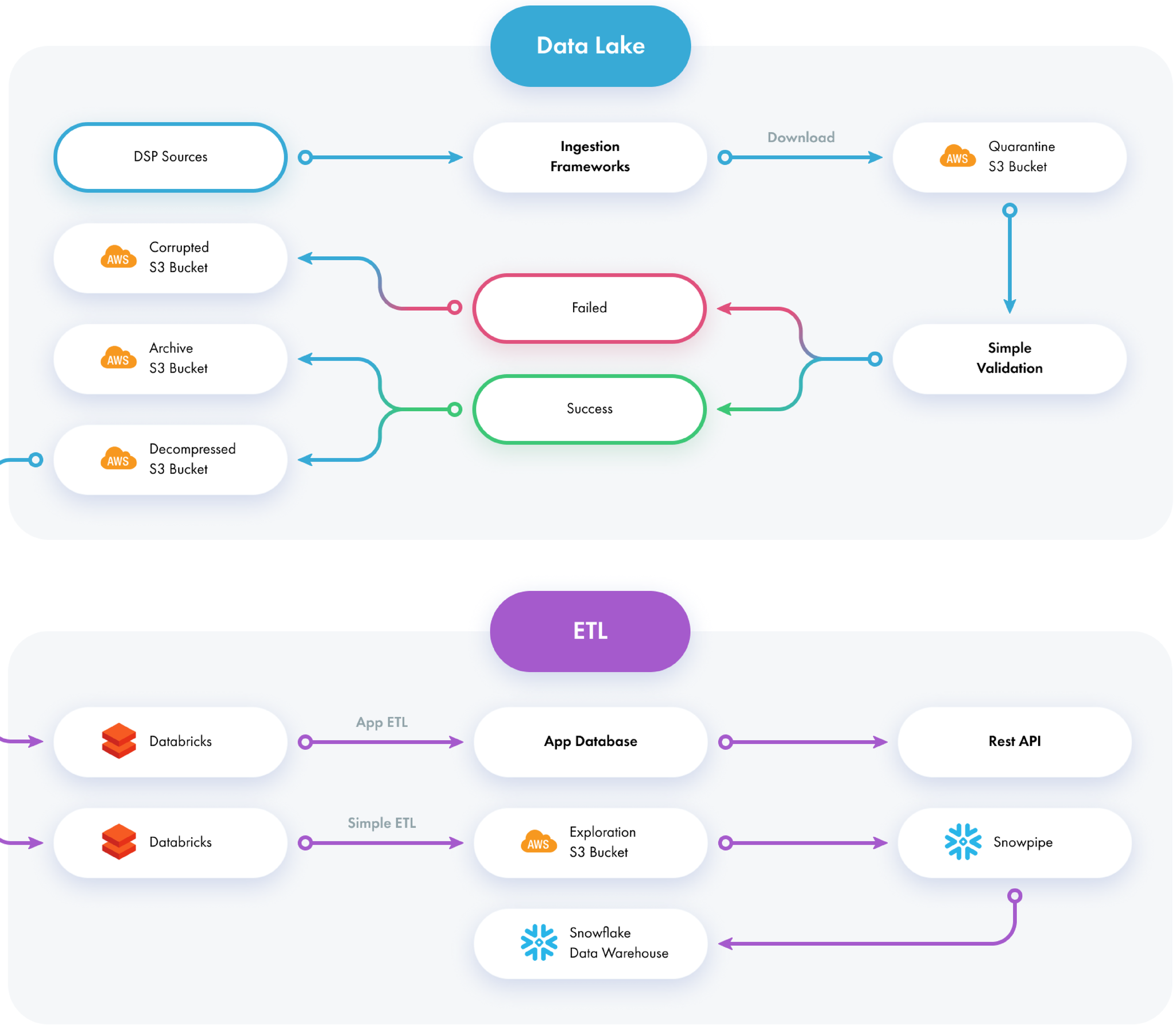
YouTube delivers consumption and metadata reports via REST API, like Apple Music and Spotify, but with subtle differences, such as a two-day delay instead of one.
The challenges in managing YouTube data include even higher volumes, complex video to music mapping, and UGC videos.
The reason for YouTube's high volume of data in its reports arises from user-generated content videos, as a hit song may be included in hundreds of thousands of different instances.
Even without UGC videos, the relationship between song and video is not one-to-one, so platforms that process YouTube data must build additional functionality to properly handle the information.

Data Transformation

The most important step in setting up a pipeline is the transformation of data. Once the information has been extracted, it must be analyzed for accuracy and consistency.

If incorrect or incomplete data is detected, it must be removed or corrected as determined by the relevant business rules.

When working with music data, including metadata, one of the most challenging and time-consuming tasks is data mapping.



8. An example of ETL pipeline using AWS, Databricks, and Snowflake

Any mistakes made in this crucial step can result in major problems, ultimately leading to inaccurate analysis.

In a nutshell, data mapping is the procedure of matching fields between multiple databases. To ensure data accuracy and usability, data mapping must be used to bridge the differences between varying systems.

In much the same way as DDEX integration, the challenges in data mapping arise from inconsistent object definitions, a lack of standardized naming conventions, single field mapping to several (and vice versa), and conditional fields.

Once all of the data has been cleaned and validated, it's moved to a data warehouseto be stored according to an organized methodology.

Choosing a Data Warehousing Provider

The specific needs for a data warehouse depend on many unique aspects, and the rapidly evolving digital landscape requires music companies to be agile and to quickly adapt while scaling for tomorrow's data volumes. Modern data strategies require robust technological tools to accommodate the growing demand for analytics and real-time reporting, especially with the dominance of streaming as a preferred distribution model and revenue source for many businesses in the music space.

A few years ago, **Amazon Redshift** was dominating the field, but today we help many of our clients implement or migrate to more agile alternatives such as **Snowflake** or **BigQuery.** It is important to highlight that not one solution fits all, a fact supported by the current lack of a clear market leader.

Typically, media & entertainment companies seek a data warehousing provider to enable the following:

- Cost-effectiveness
- Scalability
- Security
- Efficient resource management

On-demand pricing with different line items

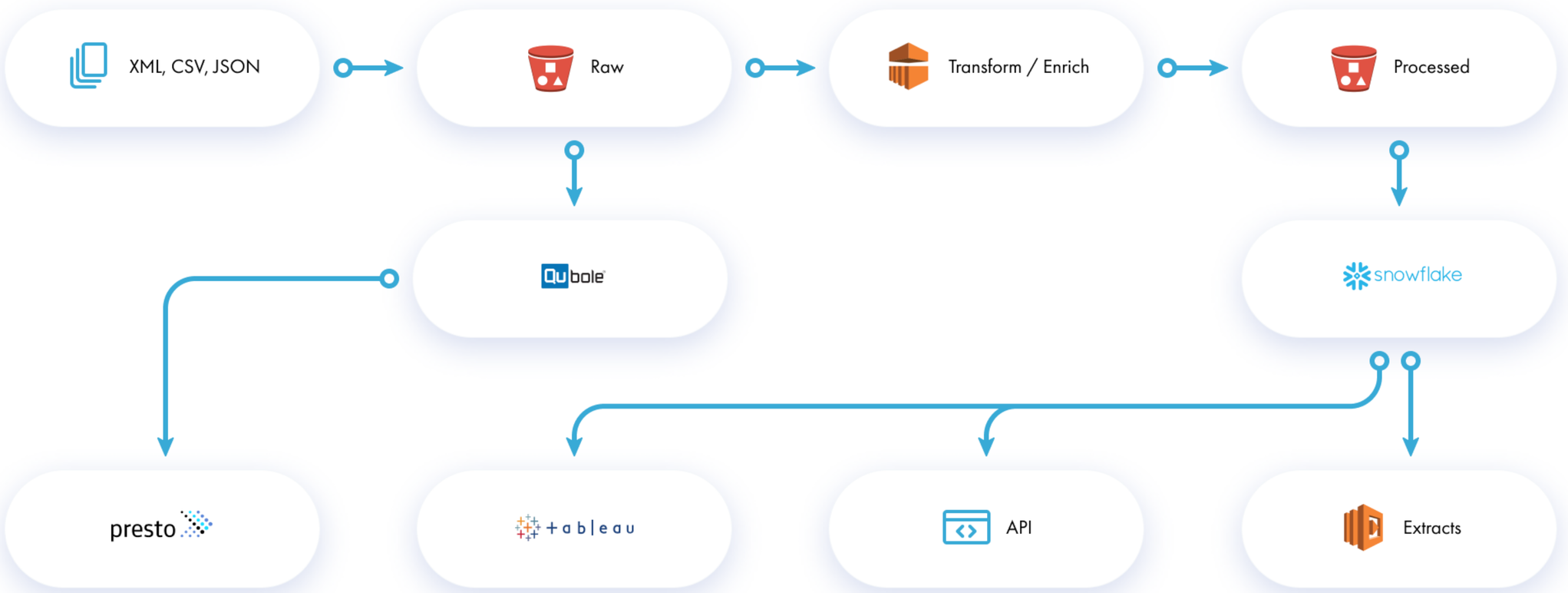
for usage and storage provides opportunities to reduce costs, depending on how much you access the data compared to how much data you're storing. And engineering teams will appreciate the ability to deploy individual warehouses for each project.

Data Lakes

As more music companies adopt data science, the demand for custom analytics solutions will grow exponentially. For this reason, some of our clients choose to work directly with data lakes, in addition to or even bypassing data warehouses entirely.

Data lakes store raw data in native formats while enabling users to access data beforeit has been processed, cleansed, and structured to be stored in a data warehouse. Consequently, data lakes allow analytics teams to go beyond pre-defined queries and pre-defined data types and to get their results faster than is possible through a traditional data warehouse. **Presto** and **Amazon Athena** are popular query services used to analyze data from data lakes, alongside up and coming tools like Snowflake and Databricks.

While it's unlikely that data lakes will ever entirely replace data warehouses, such additional tools are crucial. It's clear that traditional



9. A data pipeline example with both a data lake and a data warehouse

data warehousing approaches, processing volume, and speed are no longer sufficient. Business users expect data management solutions to consume data on the fly to provide valid, actionable insights. These concerns are especially relevant to media & entertainment enterprises as they strive to analyze user behavior, provide personalized recommendations, and manage ad spending in real-time to stay on top of shifts in consumer demands.

Before deciding which solution would be the best resource for your business, be sure to talk to a data and analytics expert with experience in assisting media companies

Conclusion

Music Is Data

Digital music is data and there's no question that data about music is the most valuable resource for all parties in the music business. From treaming services and other DSPs to musicians and record labels, the collection, analysis, and application of data lives at the center of all music industry operations in the digital ecosystem.

In this paper, we've provided an overview of the many facets of data management that we hope will assist music companies in creating a comprehensive data strategy.

Many organizations continue to run disparate systems, resulting in the need to build bridges between various internal operations to facilitate communications. We believe that all music businesses will benefit from the modernization and integration of their data management systems, thereby creating a single point of information to greatly improve data accuracy and streamline processes in every aspect of business operations.

We're living in an era of digital automation, and music companies are increasingly shifting to new processes through the application of innovative technological tools.

While building a transactional data pipeline is a significant undertaking, the long-term payoff completely overshadows the initial investment of resources.

Working with an experienced team of data strategists allows companies to put their trust in seasoned experts to guarantee effective results that will stand the test of time as the industry continues to evolve.

The development of a comprehensive data strategy is essential for the operation of a viable business in today's music industry. Mountains of data are being collected

every day, but this information is only valuable when the right analytics tools and processes are in place. Without an effective strategy, no company can act upon the information being stored, leaving precious insights hidden within heaps of data. By implementing a customized data strategy that's thoroughly tailored to meet your particular goals, you will unlock the gold from your data, allowing you to apply the garnered insights to gain a competitive advantage in the rapidly evolving music business landscape.

Learn More

At DataArt, we've worked with a wide range of companies in the music industry to develop every conceivable component involved in data management. We apply our expertise to take music companies to the next level of expansion and success, with greatly improved efficiency, accuracy, and insights into both the current ecosystem and future landscape of the music industry. Please **contact us** at your convenience to learn more about the benefits DataArt can provide to your company in the thriving and ever-changing music business.

About DataArt

DataArt is a full-service software engineering firm and the trusted technology partner of market leaders. Our company stands at the forefront of digital transformation, offering a unique blend of global scale, dedicated industry practices, and cutting-edge innovation. With **20 domain-focused innovation labs**, we are committed to designing and engineering data-driven, cloud-native solutions with speed, quality, and precision.

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