VSN
INNOVATION & MEDIA SOLUTIONS

Product Information

VSN Explorer MAM

Content

00 _ Introduction

These days, the audiovisual industry is becoming more and more competitive, which makes every second vital when it comes to creating and producing content. The proliferation of new screens and devices has brought with it a new and more demanding audience that demands more and more original and quality content related to their interests, and they want to consume it when, where and how they want. That is why it is now necessary to manage large quantities of video files, with different formats and destined to different platforms, a growing complexity that calls for a correct management of the assets of an audiovisual company and for automating as many tasks as possible to increase efficiency and avoid human errors.

With **VSNExplorer MAM**, VSN's media and content manager, technology is an ally again and the creative industry can focus on what it does best: creating.

01 _ The VSNExplorer family

The **VSNExplorer** platform, focused on media and business process management, consists of four modules and four advaced functionalities specially designed to meet the most demanding needs that any company from the Broadcast, Media and Entertainment, corporate, educational or institutional industries that regularly work with audiovisual content may have, regardless of their size or the complexity of their internal workflows.

The scalability, modularity and easy integration of VSN's solutions allows them to respond to any management, organization and control requirement from both the content and the business processes of the companies, whether in on-premise, Cloud or hybrid environments, no matter how or when the

users need to use them. They also allow companies to expand their systems while their business is expanding, providing a rational and adapted structure to their present and future needs.

The **VSNExplorer** platform features the most cutting-edge technology to make all of this possible split up into four modules and four advanced functionalities: Media Asset Management (**MAM**), Production Asset Management (**PAM**), Business Process Management (**BPM**) and Business Intelligence (**BI**) on the module's side and VSN NewsConnect, VSNExplorer Exchange, Wedit and AI on the AF side:

> "
> **We employ the latest technologies with open, flexible and scalable architecture, giving the client maximum freedom, adaptability and customization of current and future flows.**
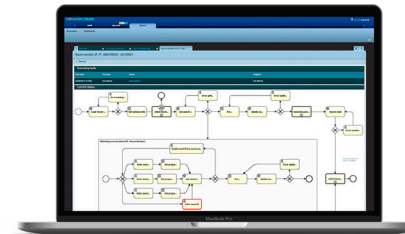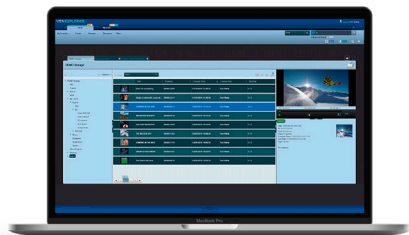> "

01 _ The VSNExplorer family

VSN**Explorer** MAM

All the necessary tools for the complete management of the media's lifecycle.

VSN**Explorer** BPM

Allows to orchestrate, automate, optimize and define the workflows and processes of any company, improving its productivity.

VSN**Explorer** PAM

Software focused on production environments, specially designed for the organization, management and progress monitoring of tasks and workflows.

VSN**Explorer** BI

Provides reports, graphs and detailed analysis, generated automatically or manually based on information extracted from the MAM assets in order to analyze the company's performance and assist in business decision making.

01_ The VSNExplorer family
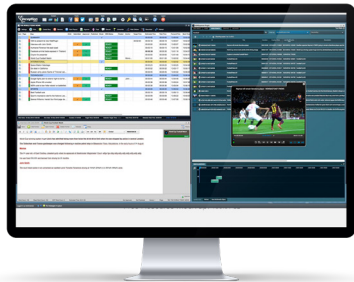
VSN **NewsConnect**

The latest revolution in news production! Create a solution perfectly tailored to your needs by integrating the third party systems of your choice and making all of them accesible through a single interface.

Wedit

Web-based video editor that enables quick low-res editing by cut, audio editing, voiceover recording in the timeline, basic effects and even generating Edit Decision Lists (EDL) for advanced editing in non-linear editors (NLE).
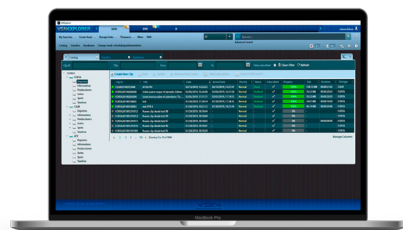
VSNExplorer Exchange

Content hub in the cloud or on premise, suitable for work environments where a big volume of content has to be exchanged and available in more than one location. Transfer media files in a cost-effective and secure way.
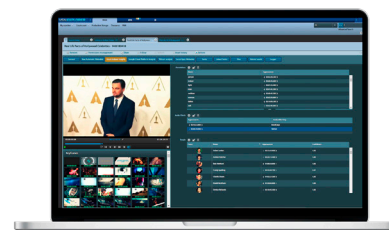
Inteligencia Artificial

VSNExplorer integrates with the AI engines of Microsoft Azure, Google Cloud, IBM Watson, AWS and its own VSN AI, allowing for automatic metadata detection and cataloguing and more accurate content searches.

02 _ What is a Media Asset Management?

A **Media Asset Management** (MAM) system centrally manages, organizes and catalogs any type of assets or audiovisual content. It offers the possibility of associating one or several customized media and metadata files to each of these assets to ease both the search, location and recovery of the content, as well as its distribution and transfer.

In general, every media asset of a company must be properly managed and protected in order to extract the greatest possible value from them. This is why having an advanced media management system has become a key aspect and requirement for any company working with video and media files on a regular basis.

VSN's specific proposal to solve the companies' needs in this area is the **VSNExplorer MAM** module: a state-of-the-art, scalable, open and flexible media management system, capable of adapting to the specific needs or requirements of any Broadcast and media company, large corporation or public or educational institution, according to their video file management and preservation needs.

03 _ Main features of VSNExplorer MAM

- Web-based interface (HTML5), ready to operate in cloud environments, which eases the distribution of files to different storage technologies (SAN, NAS, LTO, etc.) and to cloud storage systems (Amazon S3, Google Cloud Storage, Azure, etc.)

- Open architecture (API) and scalable, to allow multiple integrations with third-party systems, meaning the solution can grow and be adapted as much as the client requires.

- Dedicated protocol for file transfer acceleration (UMP), based on IP networks.

- Assets control as soon as they are ingested in the system, including format transcoding as required.

- Advanced cataloging tools and predictive search.

- Automatic metadata extraction through public (Microsoft Azure, Google Cloud, IBM Watson, etc.) or private Artificial Intelligence engines to achieve maximum adaptation to the specific search and cataloging needs of each user.

- Parameterizable metadata in an easy and intuitive way, including the possibility of multiple field types and advanced permissions management.

- Manage different kinds of content (sets of differentiated metadata) by areas.

- Multiple segmentation layers for each asset and multi-company configurations for maximum customization.

- File encryption for maximum security in media archiving and transfer.

- Smart storage management: Online, Offline, Nearline, Cloud, etc.

- Permission management by user, department or rank.

- Real-time file tracking and monitoring services of files transfers.

- Multiplatform distribution, including linear TV, non-linear channels (Web TV, VOD, OTT, etc.) and social media (Facebook, YouTube, Twitter,, Dailymotion, etc.).

04 _ How does VSNExplorer MAM work?

04.1 Ingest

Ingesting is the first phase of the content's lifecycle in the system. From the outset, it is essential to have full control over the assets and to assign them the appropriate information for their subsequent processing, identification, retrieval, archiving and distribution. From the beginning, it is essential to have total control over the assets and assign them the appropriate information for their subsequent treatment, identification, recovery, archiving and distribution. **VSNExplorer** guarantees this total control thanks to its advanced features so that from the very first moment the users can smoothly manage their most precious assets: the contents.

Through its advanced client VSN Desktop Agent, **VSNExplorer MAM** allows for the registration and transfer of contents to the system from any local or remote location, using VSN's acceleration protocol for file transfers, UMP, when there are latency issues. In addition, users can upload content using the web interface simply by dragging and dropping.

Once the content is ingested, the system automatically transcodes the media, generates a low resolution copy of the material, the identification thumbnail and the keyframes of the content, detecting every change in the shot automatically and allowing users to quickly navigate through the media.

VSNExplorer also integrates with different SDI ingest solutions, either their own (VSNAutorec or VSNOne TV) or from third parties, thus allowing for the automatic inclusion of these contents in the MAM and optionally importing metadata contained in different files (XML, TXT, XLS etc.) or through API.

04 _ How does VSNExplorer MAM work?

04.2 Cataloging

Properly cataloging assets for future location and recovery is essential for a company that manages audiovisual content on a daily basis. This increases users' efficiency, as they no longer have to waste a second looking for the content they need at any given time and can thus make the most efficient use of every available resource.
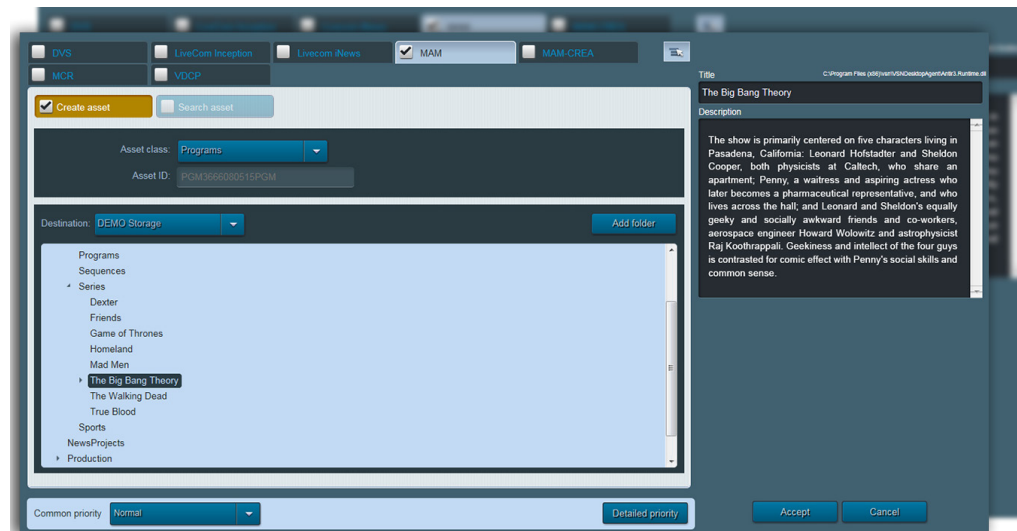
Process of asset creation in **VSNExplorer MAM**. The user selects the asset type, sets the target storage and creates folders to organize assets if necessary.

04 _ How does VSNExplorer MAM work?

04.2.1 Manual cataloging

VSNExplorer MAM features a complete set of fields to catalog each asset manually. If users want to, they can pre-catalog the clips in low resolution using VSNExplorer MAM's Logger tool while ingesting them, or afterwards.

The Logger tool is very versatile, with functions to quickly select markers and/or segments and add predefined metadata or free text. VSNExplorer has been fully integrated with Logger for the inclusion of metadata, keywords and brands or segments, making it easier to search not just media, but also the chosen segment in the asset timeline.

An example of using this tool would be performing a quality control (QC) if a video segment has to be removed or blurred.

Cataloging of subclips (clip segments) is done with a proxy player that exports the segments with frame or GOP accuracy, depending on the format and requirements. In addition, it can also catalog using multiple keyboard shortcuts to increase the users' speed.

On the other hand, when using the web video editor, **Wedit**, included in VSNExplorer MAM, users can create their own edit lists (EDL) by selecting the input/output points of various assets. With these EDLs, you can:

- Automatic consolidation
- New asset creation
- The transfer of the EDL to non-linear editing systems (NLE) for post-production including timeline metadata if necessary.

04_ How does VSNExplorer MAM work?

System administrators can customize keywords to meet the needs of users and categories while maintaining the quality of the cataloging system and being compatible with any existing thesaurus. This allows the import of large amounts of keywords that enhance the auto-fill and search suggestions functionalities.
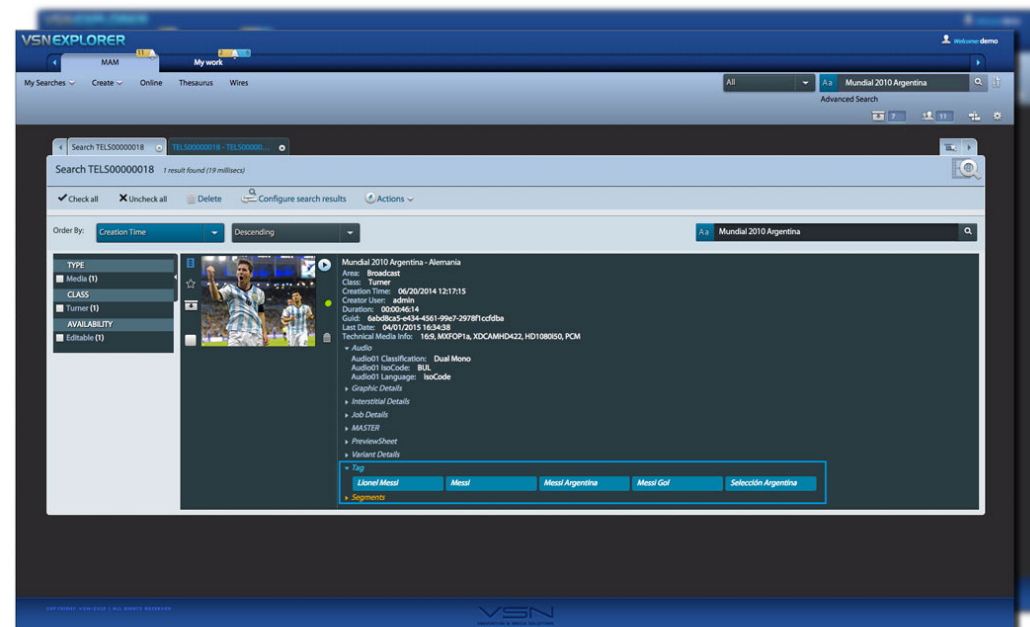
This screen shows the tag assignment (metadata) in **VSNExplorer MAM** for later identification

04 _ How does VSNExplorer MAM work?

04.2.2 Automatic cataloging

Besides manual cataloging, **VSNExplorer MAM** has tools for automatic metadata extraction through Artificial Intelligence that analyze both the information about the file itself and the content of the asset, even distributed by segments with mark-in and mark-out. Thanks to the integration with the public Artificial Intelligence (AI) engines of companies like IBM Watson, Google and Microsoft Azure, users have all the information extracted by these systems directly in the VSNExplorer MAM cataloging view in virtually real time, speeding up access by other departments and enhancing collaborative work among users.

The use of Artificial Intelligence systems not only reduces the time needed to catalog files, but the extracted information itself will be greater and more accurate thanks to the extensive analysis functions of these tools: facial recognition, identification of objects, places, music, voice, audio effects; detection of actions, correlation with relevant verbs and terms; detection of entities, political parties, logos, brands; sentiment analysis (positive or negative) and detection of emotions in the media; optical character recognition (OCR); or transcription and automatic translation of text and audio, among others.

Furthermore, users can also choose to install their own private AI engine and train the system to detect information tailored to their needs.

For example, when detecting an unknown person with facial recognition and object identification functions, the user can update the information and identify them with a name or description that the system will record and use each time that same person or mark appears again in a video file.

04_ How does VSNExplorer MAM work?

04.2.3 Parametric metadata model

A key element for MAM solutions is the parameterizable data model for the cataloging area and for the workflow definition area. By using this data model, there are more cataloging possibilities and the workflow can be automated by using specific parameters.

The new generation of MAM-Archive solutions reinforces the **VSNSpider** platform allowing for maximum interoperability between different third-party systems such as Traffic, Contribution, Distribution, News Production and other software.

When defining workflows for all content types, the integration of VSNExplorer MAM with the powerful Business Process Management module, VSNExplorer BPM, allows for the automation of workflows for each content type and user in a flexible and customizable way.

Additionally, both tools are controlled from the same graphical user interface, easing the users' learning curve. VSN's engineers can help your company establish new workflows or define

metadata sets for the existing ones, thus assisting in the automation of processes that are carried out manually on a daily basis.

04 _ How does VSNExplorer MAM work?

04.3 Search and Recovery

In content management environments, times are getting shorter and users cannot waste a single second to reach their audiences as soon as possible. That is why it is critical to have features that allow the user to search and retrieve the contents with no setbacks.

VSNExplorer MAM has a predictive search engine that eases the search, in addition to supporting semantic searches, case sensitive / insensitive and filters like faceting. Also, thanks to Artificial Intelligence tools for metadata extraction, the content search becomes much more precise,

obtaining not only complete video files as a result, but also specific segments that meet the search parameters and can be dragged directly over the timeline in the web video editor, Wedit, for its editing, consolidation and transfer to the playout system.

Moreover, users can search specific content with frame accuracy directly in the video player of the platform and even browse the content second to second, thanks to the zoom functionality.

04_ How does VSNExplorer MAM work?
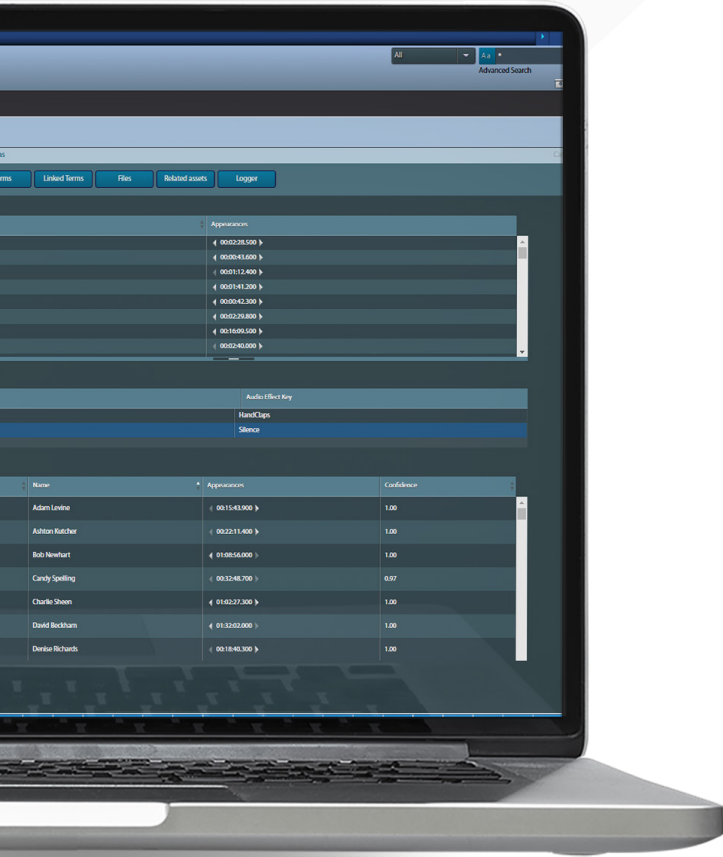
04.4 Archiving

Important content must be safely archived in an advanced environment to protect it and keep it in perfect condition until it is needed again. Thanks to VSNExplorer, users can archive materials, organize them by categories and catalog them with keywords, free text and multiple fields of specific and even customized technical metadata.

VSNExplorer MAM can generate a low resolution copy of the contents, which is permanently available and allows the selected material to be retrieved from the file without downloading the whole clip (partial recovery).

In addition, it can also interact with the different HSM solutions on the market such as Xendata, SGL, Active Circle, Front Porch Digital, Black Pearl, Qstar and DAC Alto among others.

Archiving can be done on LTO robots (controlled by HSM systems), Blu-Ray, SONY ODS, hard disk drives (both nearline and online) and even cloud storage.

04 _ How does VSNExplorer MAM work?

04.4 Archiving

Moreover, its VSNStorage Manager module carries out an exhaustive follow-up of the assets, managing the different storage units where they are contained (NAS, ODA, SAN, playout servers, HSM, CDN or Cloud). Specifically, it is the VSN version of the so-called "Media Bus" (defined by AMWA and EBU, standardized in the FIMS model). It provides management and control of all content and associated transactions and devices where this content is stored, including cloud storage units.

" **Concerning functionalities, it stores the catalog information of every unit, like their features and protocols, such as the allowed codec and wrapper types (the so-called flavours) and the user credentials. This way, the content management processes and file transfer between nodes are more efficient and transparent for users.** "

It also controls the HSM (Hierarchical Storage Management) module to allow administrators to set up which physical storage is considered nearline or offline. You can also specify send/receive rules to and from the archive (such as usage rights or video encoding profiles) and even pre-archive QC flows, both manual (archive operator) and automated. The solution is also integrated with IP network optimization/acceleration modules, such as the VSN UMP protocol itself.

05 _ VSNExplorer MAM: Advantages

Open Architecture (API)

The content management system is the heart of any installation. That is why it is essential for it to be open to allow integration with both existing and future hardware and software.

VSNExplorer runs on **VSNSpider**, a service-oriented workflow orchestration (SOA) platform developed by VSN that allows for easy integration of third-party solutions with the system, thus providing a maximum degree of flexibility. It also includes Single-Sign-On (SSO) authentication scheme via SAML protocol, so that users only need to sign up once to access all the systems.

Scalable

When choosing a MAM system it is necessary to ensure that it can be expanded or adapted in the future, as the company's needs can change or increase. Otherwise, there is always the risk of having to replace the system in a short time.

VSNExplorer MAM is fully scalable both in software, offering all its functionalities in cloud-based pay-per-use (SaaS) mode to achieve greater speed, flexibility and lower cost when needed; and in hardware, ensuring the system can be expanded according to the needs of your company, starting with even the simplest configuration.

Multisite and Multiplatform

The **VSNExplorer** interface is **100% web-based** and all data transmission is encrypted (https). It is also designed to be compatible with multiple browsers and operating systems. This feature allows users to work remotely on the system through the Internet or private networks in different locations.

05 _ VSNExplorer MAM: Advantages

Cloud Ready

The web interface and VSN's own IP network transfer acceleration protocol, UMP, enables the entire system (Cloud MAM) or a part of it (Hybrid Cloud) to be installed on cloud platforms such as Windows Azure, Amazon or Private Cloud, following a pay-per-use (SaaS) model with fixed monthly costs and no maintenance costs.

Thanks to this, there is no need for hardware and software maintenance and there is a drastic reduction in the delivery (time-to-market) of the contents. This feature also allows for simple management and access to the contents, allowing users to send them directly to the broadcast server or archive or make contributions from delegations.

Adaptive Player

The adaptive player of **VSNExplorer MAM** allows users to locate specific scenes of a video with frame accuracy and in a matter of seconds, thanks to its zoom feature. Moreover, the player is floating and resizable, which allows for a greater personalization according to the needs of each user. It has numerous keyboard shortcuts to facilitate video browsing, and it also remembers the last configuration set by each user (opened tabs, **Wedit** projects loaded, size of the player, etc.) to fully adapt to their preferred way to work.

Social Media

VSNExplorer MAM integrates with major social networks such as Facebook, YouTube and Twitter to publish content directly as soon as it has been edited and is ready for distribution. The system is also able to add all the necessary metadata and convert the files to MP4 to reduce their size and make them more manageable for these social channels.

05 _ VSNExplorer MAM: Advantages

Security

VSNExplorer includes a complete permission program to manage the system that can be integrated with the domain (AD, LDAP), allowing centralized user management in accordance with industry standards. As media is the most precious asset of any Broadcast company, every access to the system uses advanced https security protocols. For further safety, file transfer is encrypted (AES-256 bits) and accelerated thanks to VSN's UMP protocol.

Advancer Search Functions

It is essential for a Broadcast company to be able to quickly and conveniently locate all of their media assets. That is why **VSNExplorer** includes a powerful predictive indexing engine and simple and advanced search tools based on the media's extracted metadata, either manually or automatically via the integrated AI tools. **VSNExplorer MAM** also features the possibility of saving and sharing searches by user and group results (quick filtering options or facets). Every feature is fully customizable to provide maximum user comfort.

Customizable Data Model

The system's versatility when defining data models allows for the use of standard metadata sets (EBU, SMPTE) or the customization and definition of metadata sets perfectly adapted to the content types and needs of the client. The potential is very high and allows to customize the searches and search criteria discussed above, as well as to instruct the system to classify any type of multimedia content.

05 _ VSNExplorer MAM: Advantages

Asset Logic

The basic unit for **VSNExplorer MAM** is called asset. An asset is a "container" that stores different representations of a content (high resolution media files, proxies or low resolution files, thumbnails, metadata descriptions, documents, etc). Each class (type of asset) can have a different set of metadata to describe it. The actions and flows available for each of them are also customizable.

An asset can contain one or more high definition versions and a proxy that allows viewing and editing on different devices with a web interface.

This eases file distribution as well as transcoding automation into different formats and versions depending on the client's previously defined workflows.

That is why media is not just a file in VSNExplorer. The media is an asset, an "asset" that includes a content or several types of files with different representations (thumbnails, low resolution, associated documents, etc.), as well as their customized metadata. Assets in VSNExplorer can have specific actions or processes assigned to

them, with restrictions on their execution based on user permissions and metadata criteria. Furthermore, they can be related to each other in many different ways, following different hierarchies or associated logics. This allows users to visualize and navigate between these relationships graphically from the interface itself.

06 _ Advanced features of VSNExplorer MAM

Integration with AI tools

VSNExplorer MAM has been integrated with Artificial Intelligence systems such as IBM Watson engines, Google Cloud, Microsoft Azure or private engines, allowing for an improved MAM solution in Cloud. These integrations provide for automatic metadata extraction; advanced content searches; automatic translation, transcription and subtitling; and even easier content moderation (e.g. through automatic detection of adult content or content identification via digital fingerprints) and complementary information search, among other applications.

Some of the most interesting features that this integration enables are image processing, facial recognition, speech-to-text and automatic translation, object and audio effect detection, media sentiment analysis and contextual information extraction.

It is possible to start speech-to-text processes in multiple languages, allowing the user to launch text searches in the audio layer.

The system also offers text distribution along with video segments with pre-marked input and output times, thus allowing automatic generation of subtitles in various languages. All this is also indexed in the system so that it can be easily searched and retrieved.

06 _ Advanced features of VSNExplorer MAM

Integrated video web editor, Wedit

Fingerprinting

VSNExplorer MAM includes the web video editor Wedit to enhance collaborative work in Broadcast environments and increase efficiency in the development of time-sensitive tasks, such as news production.

Developed in **HTML5**, Wedit is a quick and easy tool that allows journalists and editors to prepare videos for broadcast from a single interface. It includes features such as low resolution editing and voiceover recording over the timeline. This editor allows you to work with materials located in deep, near-line, online and cloud storages, as well as consolidating the final editing in any format and codec, even by selecting the preferred transcoding engine to perform this task. Also you can download the EDL file to finish the video editing with a non-linear editor (Avid Media Composer, Final Cut Pro, Adobe Premiere, Vegas, etc).

VSNExplorer can include audio fingerprinting to facilitate content and broadcasting control. Contents can be recognized from their audio for broadcast control and to ensure that only the intended materials are shown.

Each material has a unique identity based on its content, it is called fingerprint. The system cross-checks the broadcast contents with the user's own content library to ensure that the intended materials have been aired when and as desired, keeping a record of the showings of each content. Also, this system gives the user full control over the rights of their media and its use by third parties.

06 _ Advanced features of VSNExplorer MAM

VSN NewsConnect

VSN NewsConnect is the first web plugin created within a MAM system that allows for maximum customization in news and live event production environments. Essentially, this web plugin is an additional functionality of the **VSNExplorer** platform that allows interconnecting through the MOS standard the vast majority of NRCS systems (Ross Video's Inception, Octopus, AP News' ENPS, S-News' A-News, Avid's iNews, etc.), CGs, NLEs, studio playouts and video servers within a single workspace that is both intuitive and centralized.

In this way, all third-party systems and software are accessible from a single interface, creating a much more efficient and uninterrupted workflow and avoiding switching between tabs and pages to operate different systems.

One of the many benefits of transitioning from a working environment with multiple interfaces to a single interface is the reduction of time spent creating stories or news and simplifying this process. Thanks to VSN NewsConnect, journalists and editors have quick and easy access to all the tools that allow them to write news, locate the necessary video files, edit them (including voiceover and graphics), preview the final piece in real time and send it to broadcast or published through traditional television, non-linear platforms (OTT, VoD, WebTV), websites or social networks. And the user can do all this from anywhere, just by having an internet connection.

06 _ Advanced features of VSNExplorer MAM

VSN NewsConnect is an agnostic plugin, it can work with any specific brand or supplier. VSN NewsConnect is a plugin friendly to any specific brand or supplier. Furthermore, the compatibility via the MOS protocol offers users maximum interoperability, allowing them to have the flexibility and freedom to decide how they want to create their live news and events production environments.

06 _ Advanced features of VSNExplorer MAM

Media Exchange Solution

The **VSN Media Exchange solution** has been designed for work environments in which media content of every kind needs to be exchanged, managed and made available to users in more than one location. It acts as a cloud content hub and can also be installed locally. This solution substantially improves content visibility and enables fast, simple, inexpensive and secure resource sharing. In addition, it brings improvements concerning equipment productivity and greater cost savings.

The Media Exchange solution is flexible and highly customizable, allowing for easy adaptation to the specific requirements of any organization or application. For example, users, companies or affiliates may subscribe to a certain type of media content or files. That is how it is possible to automate the circulation of files and optimize their transfer according to the subscription profile and interests of each user.

Likewise, the dashboards and reports offered by this solution allow for an exhaustive analysis of the activity of each user and/or entity, as well as content predictions that allow organizations to plan their content production needs in advance.

07 _ Final Considerations

In the current technological context, the multi-screen concept has established itself as one of the trends that are here to stay. Faced with format and platform multiplicity, audiovisual companies need to efficiently and productively manage their media content more than ever in order to distribute it on time where consumers demand it .

In turn, these developments have made it increasingly easy to access content at any time and from anywhere, which has led to a significant increase in viewer demand for original, customized and quality content.

Therefore, having a powerful and robust **Media Asset Management (MAM)** system has become vital in order to survive with certainty in this new context. On top of this, the traditional MAM functions have been extended in response to this greater market demand and the emergence of the cloud as a viable resource in workflows.

This means that, along with proper administration of the archive, media management systems must now perform a large number of increasingly relevant activities: transcoding, content distribution, publication on social media, collaborative work between different users and locations, etc.

The MAM's functions occupy an increasingly important place in the value chain and are therefore a critical element for an audiovisual company. The MAM is no longer just a file management system, but its importance goes much further and is at the very heart of a Broadcast and Media & Entertainment company.

07 _ Final Considerations

VSN is aware of this need and has developed a MAM perfectly adapted to the new challenges that companies face in this new reality. A cloud-ready MAM with Web interface accessible from anywhere, a fast and secure file transfer system, with advanced ingest, metadata, cataloging, search and archiving functions that can be integrated with third-party solutions and the industry's major editors and NRCS systems, multisite and multiplatform for a quick distribution of contents and scalable to grow as fast as the user's needs.

VSN

INNOVATION & MEDIA SOLUTIONS

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