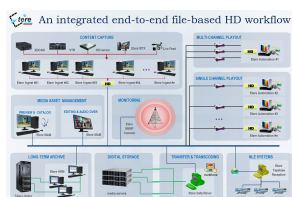
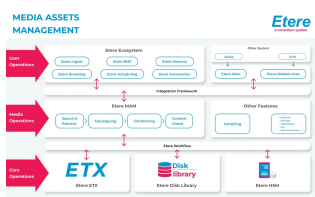


## MediaCorp: An End-to-End File Based HD Workflow 2.0

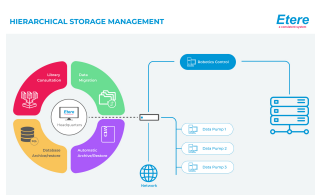
Etere's proposed solution aims to implement an "Integrated end-to-end file-based HD workflow", this solution will be based in the distributed architecture of Etere, a key characteristic that will permit not only to tightly integrate the hardware current available in the station but also to support future devices integration.



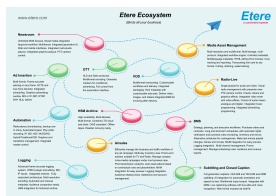
An Integrated End-to-end file-based HD Workflow



Media Asset Management diagram



HSM Diagram



Etere Ecosystem

For more information, please refer to the attachment.

Media Corporation of Singapore, better known as MediaCorp, is Singapore's leading media company with the most complete range of platforms, spanning television, radio, newspapers, magazines, movies, digital and out-of-home media. At present, MediaCorp runs 7 television channels and 14 radio channels, making it the largest media broadcaster and provider in Singapore, and the only terrestrial TV broadcaster in that city-state, and has over 50 products and brands in four languages (English, Mandarin, Malay and Tamil), reaching out to all adults in Singapore every week.

At present, Etere has a strong relationship with MediaCorp, based on years of management of the station channels payout by using an Etere system, a choice that has permitted MediaCorp to achieve an operative efficiency while meeting audience's quality expectations. This time, MediaCorp is planning to move its current system into an end-to-end file-based HD broadcast workflow featuring a Media Asset Management as the core element of the system, this system will be able to digitize video content from post-production facilities and capture it from a centralized module, delivering it subsequently for single and multi-channel payout.

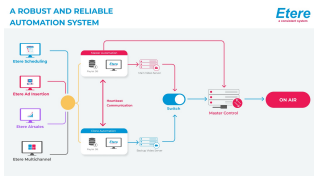
Etere will design an integrated media ingest, archive, management and distribution combining powerful modules with an easy to use interfaces. Etere's solution will permit to straightly connect content captured by Etere Ingest with Etere MAM to view and catalog video assets before delivering them via workflow, in either standard definition or high definition. Etere MAM (Media Asset Management) will be the core of the overall system, providing workflow management, production project management and content management features; thus ensuring a streamlined tapeless environment able to capture, edit, catalog and deliver HD contents, fast and efficiently.

This paper describes how Etere is able to provide not only a world-acknowledged system but a hard-earned expertise on the implementation and maintenance of media asset management systems able to bring access to any file, at anytime and most important, with a the maximum of speed, characteristics that will ensure the improvement of each single broadcasting area with a wide set of cutting edge applications that goes from an accurate contents management to an automatic delivery of contents.

### ETERE SOLUTION: OVERVIEW

Etere's proposed solution aims to implement an "Integrated end-to-end file-based HD workflow", this solution will be based in the distributed architecture of Etere, a key characteristic that will permit not only to tightly integrate the hardware current available in the station but also to support future devices integration. The diagram below illustrates how Etere can take control of the various operations that makes part of the entire station's workflow.

The solution proposed by Etere will provide the station with a rock-solid distributed system able to integrate into a single solution the key features of a Media Asset Management. Additionally, Etere's solution will permit to straightly connect ingest



Etere Playout Automation diagram

channels with Etere MAM to browse and edit media assets before their delivery.

Etere's solution consist of a system intended to be the core of the global system, providing media archive management and delivery services including instant access and delivery of media files.

Operations related to all contents present in the station are cemented on a file-based workflow framework featuring a wide range of function-specific workflows for ingest, production and playout with additional traffic capabilities.

The modules that Etere will implement across the system are briefly described below

- Etere Ingest, the flexible solution for capturing contents from a wide range of sources
- Etere MTX, the most advanced, tightly integrated and cost-efficient driver to implement a video server based on the ultimate HD/SD Matrox digital video cards
- Etere MAM, the best solution for indexing and editing a huge amount of media assets, it provides tools for an easier metadata insertion and video cut and merge
- Etere HSM, an automatic tape-based storage system for long-term management archive
- Etere Media Manager, the enterprise workflow-based media manager that guarantees timing and effectiveness on media transfers between devices
- Etere Automation, a fault-tolerant system to automate the playout of scheduled contents
- Etere Tapeless Reception, a secure and robust threshold to the station's outside world, a web-based interface that will permit a tight integration with remote facilities, allowing them to deliver contents fast and digitally

An Etere-based central media management system is able to interface existing sub-systems and NLE systems while maintaining the consistence of its wide set of characteristics that makes of it the right solution for an enterprise management of digital content under a file-based workflow environment.

The station will be mainly provided with the following key features:

- A distributed architecture managed via workflow to avoid any single point of failure
- Seamless integration with existing and co-existing systems
- Safe and fully-tracked access to the content archive
- Enterprise management and transport of media between storage devices
- Transparent media transferring, the correct media format will be always delivered
- Quality control to ensure the reliability of archived assets over short and long terms
- High preservation and high availability of archived and catalogued media content
- Browsing features including preview, slow-motion, timecode, bookmarking and metadata
- Robust editing functions including video cut, merge, overlay and restore
- Best flexibility on digitizing media content from multiple sources
- Full integration support for NLE systems (Avid, FCP, etc), including content uploading/downloading
- Fast and efficient transferring connection between internal –and external– systems
- Reliable monitoring of the modules and equipment integrated within the global system

Furthermore, the implementation of an Etere system will allow Editing Systems to access the digital archive directly and efficiently through a proper production environment, making use of the highest security standards.

## ETERE SOLUTION: ARCHITECTURE

Etere is based on a distributed architecture which allows different modules to run on different workstations interconnected via a local area network. All system configuration parameters, security roles, user data, and pre-defined rules are stored in a reliable SQL database supporting backup and redundancy operations.

### 3.1 A Distributed System

ETERE is a distributed, modular and fully integrated broadcasting system composed by a set of applications specifically oriented to efficiently perform each complex phase of the broadcasting chain synchronously within the same database environment, being all managed by suitable user-defined workflows that ensure an efficient overall system controlling.

Etere's distributed architecture allows achieving a top-level availability of resources and reliability of operations across the entire broadcast workflow thanks to its redundant capabilities to improve the fault resilience on any hardware or software failure.

#### Multi-level Storage Hierarchy

Etere systems improves the media management by introducing a multi-level storage management consisting in the use of different storage levels based on the frequency of use of the files stored on them. For example, data files which are frequently used will be stored on video servers (i.e. online servers) whereas those which are not used for a certain period of time (e.g. typically a few months) will be eventually archived in tapes (or any other long-term storage mean) and then automatically restored -to video servers- every time they are required by the broadcast playlist.

Etere offers a hierarchical storage management of media content, it allows to organize in user-specific levels an unlimited number of content versions with different access times (e.g. video servers, near-line servers, archive servers), being all these levels available to the operator under a simple and user-friendly interface.

Moreover, media holders (i.e. asset forms) can be organized –along with their related information-under a hierarchical structure based on Parent-Children relationships, thus allowing, for example, to handle different versions of a same asset and all the assets derived from them.

#### User Access Levels

Etere provides stations with a 'Rights Management Tool' to control and track access to its various modules and functions, with it, stations will be able to freely assign (grant or deny) access to specific user groups (i.e. roles to which one or more users belongs to), thus allowing to set different mixtures of access levels for each group.

Etere allows managing different –and fully customizable- access levels for users which form part of the system, with Etere; it will be possible to configure specific access rights not only for different users, but also for different stations.

#### Rights-based Operations

All the functions provided by an Etere system (e.g. quality control, event scheduling, program playback, etc.) falls under different categories according to their nature (e.g. media manager, air sales, automation), the availability of these functions is determined by the 'Right Management Tool'.

Thanks to this tool, stations will be allowed to reflect into the Etere system the actual way in which rights are managed within the station facility, for example, scheduling operators will be allowed to use only those modules to which they are authorized to use, including (or excluding) some sensitive functions intended to be managed by system administrators.

### 4. ETERE SOLUTION: MEDIA FUNCTIONALITIES

Etere's solution features an integrated and professional approach based on a workflow management to optimize the station's entire broadcasting system, reduce operating costs and facilitate overall process control. Etere Workflow permits modules to for example, seek confirmation for sensitive process, follow specific rules, enhance the efficiency and reliability of process, and manage multiple workflows to perform different tasks simultaneously and independently.

#### 4.1 Multiple Storage Management

Etere reduce the complexity of managing storage devices by arranging physical storage devices present across the system into metadevices (logical devices), the use of metadevices improve the overall media management by offering the following features:

- Automated management via workflow of logical devices including archiving, restoring, transcoding, etc,
- Monitored storage space owing to the set of restrictions,
- Increased storage and better performance since metadevices acts as a virtual device representing several logical disks or disk systems:
- Distributed storage according to specific requirements without the need of creating partitions, just associate individual disk volumes to different:

#### 4.2 Custom Design Workflow

All workflows can be customized to fit the real needs of the station and thus give complete control

over the overall system management which offers:

- Clear definition of each complex step of the broadcasting process,
- Visual representation of each step mapped out on a PC not in a paper document,
- Set of instructions and authorizations that must be followed in order to move forward,
- Complete log of all steps carried out, operations denied etc.

A comprehensive and user-friendly workspace allows creating suitable workflows based on custom actions just by dragging and dropping the necessary elements into it:

#### 4.3 Integration between workflows

Etere allows calling workflows from others just by inserting an action that can perform a specific task (i.e.: attach, attach and start, start, abort, reset, restart, detach, etc) on a certain workflow:

As shown above, for example, if 'workflow A' calls 'workflow B' and the 'workflow B' calls 'workflow C', the 'workflow C' will not be able to call the 'Workflow A'.

#### 4.4 File-based Processing

Etere provides a wide range of templates for creating workflow actions regarding the most common file-based media operations, allowing to customize them and also use completely user-defined actions:

##### 4.4.1 Quality Check

An Etere quality check workflow is able to automatically ask operators to assign a quality value to a certain asset(s) after browsing its video content:

##### 4.4.2 Content Check

Etere counts with a workflow action called content check, that once inserted into a workflow and attached to an asset, searches on its related proxy video file for defective video issues to subsequently mark (into their EDL list) all encountered defective segments including black scenes, scene changes and freeze video:

##### 4.4.3 Archiving

Etere allows you to design a workflow for archiving your assets on LTO tapes, including a quality and content check, a proxy copy generation and a final email indicating the result of the process:

##### 4.4.4 Restore

Create a workflow to automatically restore any scheduled asset for its playout by searching for them amongst a group of devices arranged on basis of their priority:

##### 4.4.5 Transcoding

Etere's integration with Rhozet's Carbon Coder software handles a wide array of critical operations including format conversions, workflow operations that can be launched for example, immediately after a content capture:

#### **Checksum MD5 Verification**

Etere offers an enterprise control of video files integrity; it keeps a log of the hash md5 of video files such in a way that it is possible to verify at any time if they have been modified after their approval. All video files registered on the Etere's database can be verified through an md5 checksum, this control is performed via workflow, each time that a video file is moved from one device to another, its initial hash md5 is calculated to allow a future checking.

The workflow editor allows creating custom Checksum workflows to either generate or check the MD5 hash of a video file.

#### **4.4.7 Video Cut**

Etere offers 'Cut actions' that permits to take only a portion of a certain video file, using a given timecode SOM and EOM. Defining and using a Memory Cut operation is as easy as shown below:

#### **4.4.8 Loudness Control**

Etere provides a file-based loudness control, allowing stations not only to check the loudness level of media contents but also to normalize them to meet specific limitations. Loudness control workflows can be launched automatically for specific assets, for example, after their ingestion or tapeless reception (i.e. web upload):

#### **4.4.9 Antivirus Scan**

Etere includes, as a part of its enterprise media management, the capability of integrating antivirus protection within workflows, allowing stations to improve their media workflows (e.g.: post-upload workflows) by giving them the capability of automatically scanning transferred files for virus and thus end their work with a flourish.

As shown in the figure above, the automatic virus scan capability can be easily integrated within any workflow at any stage just by inserting an action block configured to perform the virus checking; stations can insert them, for example, within the default workflow to be launched after an EtereWeb upload.

#### **4.5 Subtitles Management**

Etere includes, as a part of its enterprise media management, the capability of managing subtitles, subtitles can be generated whether using the WMP synchronized lyrics tool or any other external tool, in all cases Etere will import them automatically:

Once imported, subtitles are stored in a repository, ready to be moved to the subtitle engine when either the broadcast playlist will require it or a proxy preview will be performed (e.g. for quality check purposes):

Additionally, multiple language subtitle files are supported, allowing stations to specify so many subtitling languages as needed (including their storage paths):

#### **4.6 SMPTE Metadata**

SMPTE (Society of Motion Picture and Television Engineers) Metadata is a key part of the media management, that's why Etere provides a dedicated module for defining eventually useful metadata (e.g.: 'technical comments', 'descriptive names', 'intellectual rights') and store them into a robust SMPTE dictionary:

In Etere, all assets contain user-defined SMPTE metadata fields, these fields can be either manually compiled or automatically compiled (retrieved from specific asset properties):

SMPTE metadata can be used also for cataloguing media content, allowing operators to quickly add specific information to a video segment.

#### **4.7 NLE Integration**

Etere's NLE integration will allow stations to achieve a tight integration with NLE systems, without using insecure "hot folders" or "ftp open sites" but including full



tracked uploads (i.e. digital receipt of files) and immediate workflow triggering. EtereWeb is best solution for integrating NLE systems (e.g. Avid, FCP) with the station's broadcast workflow; it provides non-linear editors with an authentication web portal for managing media contents through a user-friendly interface: The EtereWeb web service supports all major browsers including Microsoft Internet Explorer, Mozilla Firefox and Apple Safari; thus ensuring the reliability and quality of the service

#### **4.7.1 Authenticated access and rights**

autorizzazione di accesso ( a dire la verità manca un pò tutto sulle permission)  
 \*logs monitoring

#### **4.7.2 Search, retrieval and preview**

Quick and robust search engine allows to ...  
 Moreover, assets can be previewed during the search to...

#### **4.7.3 Selective upload interface**

A selective UI gives the possibility of uploading media files using two different upload interfaces  
 \*java applets or active-x controls

#### **4.7.4 Pre and Post upload workflow triggering**

transcoding automatico prima dellupload.

#### **4.7.6 Multiple file upload**

EtereWeb supports not only uploading multiple files with a simple drag&drop action, but also manage them as a single metafile. This feature allows NLE systems to, for example, upload into the station's server all the files which make part of a project (e.g. production of promos, conforming of separate scenes, editing of source material, etc.) and deliver them to the related department with a single click and with the reliability of a workflow management:

#### **4.7.5 Workflow integration with NLE systems**

supporto dei sistemi centralizzati che sono interfacciati via WF (Avid Transfer manager, Final cut pro server). \*file-based workflow for file transfers

### **5. ETERE SOLUTION: COMPONENTS**

ETERE is an integrated broadcasting solution that implements a modular system formed by a set of modules specifically oriented to cover each complex phase of a broadcasting system, focusing to efficiently carry out specific operations such as media ingest, archiving, transferring, browsing, etc.

All these operations are synchronously performed within the same database environment and managed by suitable user-defined workflows that ensure an efficient overall system control; these are some of the main features that make of ETERE a solution that can easily fit any media management workflow.

All modules that make part of the Etere's proposed solution will be treated throughout this chapter, explaining how its distributed architecture and integrated complementation are key parts of the success of the global system where a top-level performance and reliability is reached.

#### **5.1 ETERE MAM: Browsing and Editing**

Etere MAM will allow operators to store information, search media EDL, and transfer EDL-based media to the playout server and the editing systems.

Etere enables comprehensive search and browse and cataloguing of rich media, its very intuitive interface establishes a bridge between the ingest department and the production department, allowing contents to be browsed simultaneously from various workstations thus enabling low-res proxy browsing over the network.

Etere also allows restoring only a part of video files by creating either high or low resolution video files including specific segments described on the source video EDL, it is important to note that as usual on Etere's operations, the conforming of

video files is fully performed via workflow:

Etere MAM permits to join cut segments from different sources, to create a single final video file containing all scenes selected by the operator:

Use this function to for example perform the dubbing of video contents by overlaying an audio track over a video(s):

The image above illustrates the user-friendly interface on which operators creates new video sequences of MAM captions which includes all relevant metadata associated to the inserted scenes.

### **5.2 ETERE INGEST: Enterprise Capturing System**

Etere ingest is a versatile set of modular applications that significantly improves the digitization process inside a broadcasting system, this software covers any particular requirement of the entire process such as automatic and scheduled ingest:

Etere Ingest supports multiple parallel ingest streams, managed automatically either on a single workstation or across various workstations, allowing also to schedule the video files to be ingested:

#### **Planning View**

Once ingested, video files are transcoded into the specific format of the destination device on which they will be stored, in the same way, video files are transcoded each time they are moved from one device to another (e.g.: archiving, playout, etc.):

The image below illustrates how Etere allows setting the workflow to be launched at the start and end of an ingest process to for example, create a low resolution version or normalize the audio of captured contents:

### **5.3 ETERE MTX: Digital Capture using Matrox Video Cards**

Etere MTX is the application offered by Etere to drive the most popular HD/SD Matrox digital video editing platforms, it combines the professional effects technology of a wide range of industry standard codecs with an Etere system, allowing to capture in both high and standard definition formats over digital inputs.

The multi-format ingest allows to use any codec and wrapper on the market, whereas for playout it can mix in real-time all types of footage on a timeline with more layers and/or effects, as well as parallel multi-format ingestions, all these under a user-friendly interface. Besides the common preset and preview bars, available on a friendly touch-screen graphic interface, MTX includes most graphics and audio functions such as:

- 8 logo layers with unlimited sizes
- 1 Crawl /CG
- Audio shuffling
- Audio control
- Dolby E Pass-through
- Video transitions

Etere's solution implementation requires only a card with 1 input and 2 outputs to deliver the full MC functionalities, with a really cost effective system, and the possibility of working in SD and HD without any additional cost. Furthermore, due the reduced cost each broadcaster can have a fully redundant master control based on a main/clone approach that makes backup resources work at the same time in a full fault tolerant chain.

Etere software panel can be installed in multiple PC's, being commonly used on the 2nd monitor of Executive Editor, thus allowing to control multiple channels from one single panel, a truly cost effective multi-channel solution. The future is IT-based, it is better, faster, and provides more functions at lower prices; the Etere's approach will push everyone to develop a comparable function system. MTX substantially reduces capital expenditure and operating costs for television facilities

since it replaces proprietary broadcast playout and processing hardware with standard IT servers and Etere software. Cost savings are achieved through reduced purchase costs, faster revenue generation, improved system scalability, and more efficient workflows.

The use of an arrangement-convenient IT hardware will also result in a significant reduction of space and power requirements, as well as in a simplified maintenance. Thanks to the IT-based architecture of MTX, facilities can easily increase channel counts without traditional scaling constraints, its simplified system design will allow a much faster deployment of new facilities, additional channels and services, that is, MTX can be seriously considered as a system for lifetime.

MTX can be used for more than 10 years with no changes, the free upgrade policy of Etere allows broadcasters to use the same system for 21 years, thus saving their investments by making of MTX their FINAL solution to playout. The highly integrated, end-to-end workflow streamlines all the core processes, MTX forms part of global Etere MAM solutions, thus allowing it to use the same metadata and interface available for ingest, content management, transmission control, traffic, archiving, and monitoring.

MTX is based on 21 years of expertise in deploying high-end solutions for broadcast, time in which Etere solutions had become fully customizable enough to adopt any workflow and improve it with the legendary robustness of Etere. MTX offers uncompromised playout performance, ideally suited to the requirements of primetime television channels.

The system delivers superb picture quality due to the reduced number of broadcast devices in the chain, combined with native Digital signal processing. The station will be benefited with a lower cost, a complete support and most important, an unbeatable relation between quality and price.

#### 5.4 ETERE MEDIA MANAGER: A Digital Archiving and Delivery

The Media Management solution proposed to encompass station's content transfer and archiving goes beyond of a simple copy concept by moving video files based on custom policies, transcoding video files when required and offering a full track of all operations.

Video contents will be transferred between the various departments (e.g.: near-line storage, archive, post-production, playout, browsing, and even non-Etere systems) by Etere Media Manager; this migration process also includes rewrapping and transcoding capabilities.

Etere's approach is oriented to "virtualize" the entire media management process, improving it with flexibility, customization and most important cost-effectiveness.

Etere manages (logical) metadevices instead of (physical) devices, this approach results in a wide range of possibilities for the media management, for example, it is possible to control with one click the available space of all metadevices:

Etere Data Mover is the application used to perform the physical storage and retrieval of video files, a typical Data Mover operation would be to move a video clip from a video server to an archive based on custom actions which are defined and executed via workflow.

Additionally, Etere Data Mover is capable to provide both, distributed processing for using an independent agent per data transfer and parallel processing for simultaneously performing different instances of one data transfer; these features will allow stations to exploit high computing resources to use a single workstation to perform multiple transfers, thus enhancing the flexibility, scalability and fault-tolerance of the entire Etere system.

#### 5.5 ETERE HSM: A Tape Based Archiving

LTO tape libraries present in the station will be managed by Etere HSM, the cost-effective solution to radically streamline the management of expensive tape



libraries; allowing stations to optimize the migration of contents including high and low versions as well as associated metadata.

Etere HSM improves the management of libraries by controlling their mechanical movements through the HSM Robotics Control and HSM Data Pump applications, which are able to run several data pumps on different machines to boost their throughput, while offering access to real-time logs, reports and statistics.

Etere HSM distinguish four different archiving levels into a broadcasting workflow, these levels required distinct access times which vary from 0 minutes (video server) to 15 minutes (standard video tapes).

All these levels are managed “virtually”, that is, you can use logical devices (metadevices) based on physical devices to free design your storage layout, enriching in this way the entire system with the benefits derived from the use of metadevices:

- Carry out loan-balanced movements on an intelligent multi-volume scenario,
- Extend your storage space by joining physical devices into one metadevice, without altering the archiving workflow,
- Categorize your storage devices by dividing them into metadevices with no partitioning required,
- Space limits and storage distribution are defined by the user and not by devices itself,
- Classify metadevices in media pools in order to automate their management,
- Background defragmentation and online/offline tape management,
- Scheduled archiving of devices, media contents and entire databases.

Etere HSM forms a tandem with Etere Data Mover to be the only solution in the market with an embedded multi-level and multi-rule cache that offers an intelligent management which ensures the best performances with low investments. Owing to Etere’s comprehensive character, these applications are perfectly integrated with other modules (e.g.: Ingest, EtereWeb, etc.) to allow all these modules to use shared resources and have unlimited communication.

### 5.6 ETERE SNMP: A Complete System Monitoring

The Etere SNMP Console is the solution that allows to monitor any Etere module which collects and stores its management information (errors, warnings, etc.) through the locally installed Etere SNMP Agent which sends messages containing this information to a remote Etere SNMP Console which in this way monitors all the Etere’s modules; through this console the operator can decide about the receiving policies (content, validity, filters, etc.).

The Etere SNMP Console is a key part of the broadcasting process because it permits to have a complete report of the way the Etere modules are working, allowing to catch errors, store them in a database for a further analysis and also forward them to an another console (forward the message to the pertinent operator who is intended to solve it) and thus saving time and resources on real-time which are invaluable assets in the broadcasting business.

In order to improve monitoring of modules and devices, all Etere components are automatically subscribed to the Etere SNMP Service, so it will monitor the periodic heartbeats sent via SNMP by the components.

The monitoring system (i.e.: Etere SNMP Console) detects missing heartbeats and sends both a visual-alarm and an e-mail notification to the operations department. Owing to the use of this feature, the general health of the Etere system can be further examined to isolate raised faults:

### 5.7 ETERE AUTOMATION: Payout System

Etere Automation is the powerful, reliable and modular payout system able to enhance the station potential in terms of functions and workflow design, it is based on a unique approach which combines in a single product real-time device control and media asset management, offering a powerful mix of solutions and capabilities under a graphical user-friendly interface displaying for each event its source, type, description, properties, live status, secondary events, time code, GPI status, scheduled and real times, etc.:

### 5.7.1 Secondary Events Management

Etere Automation manages all the secondary events intended to be transmitted by dedicated devices (e.g.: Logo Generators, Crawl Generators, Subtitlers, etc.) with a simple graphical tool, allowing previewing secondary events in low res before their playout through a browsing application:

### 5.7.2 Live Events Management

Etere Automation offers complete support for live events present on the daily schedule, being possible to manage various different live inputs that can be switched at any time, few minutes before the event broadcasting or even during its transmission:

Additionally, Etere allows managing one video router per automation, being possible to create links between routers so when a channel is switched in the Main Router; the equivalent channel is also switched in the Backup Router:

### 5.7.3 As-Run Logging

Moreover, the ability to export As-Run logs containing the schedule “actually” transmitted allows an easy reconciliation between planned and real playout, being possible to send to multiple (UNC and FTP) destinations a frame-accurate log in any of the available formats:

## 5.8 ETEREWEB: Post-Production Integration

EtereWeb is the web service seamlessly integrated with the playout and media management system to permit arriving contents to be managed digitally, resulting into a faster and more efficient delivery process which also includes digital signing features for any delivered content. EtereWeb integrates the latest streaming technologies for video distribution and a comprehensive rights management system that gives to authorized users the possibility to access via web to a user-friendly interface:

Etere Tapeless Reception is an extension of EtereWeb designed with the purpose of offering an efficient solution for multimedia content transfer between external agencies and stations, it integrates the latest streaming technologies for video distribution and a comprehensive rights management system that gives to authorized users the possibility to access via web to a user-friendly interface.

Etere Tapeless Reception takes full advantage of a tapeless environment to eliminate the need of creating physical copies, entrusting valuable material to private couriers, risking of excessive waiting times; thus by enabling contents to be sent digitally (i.e. without using magnetic tapes) via internet, bringing a shorter delivery time than this required by a common consignment of magnetic tapes.

Moreover, EtereWeb works perfectly behind routers so remote access and ftp transfers are drastically improved. NLE systems can deliver contents via Etere Web as a digital equivalent of physical reception, where selected people can deliver video and metadata to the station, but owing to its digital nature, operations are perfectly organized, performed and logged, avoiding loss of any content information.

## 6. BENEFITS

This paper has described how the development and deployment of a comprehensive and integrated end-to-end tapeless workflow for high-definition broadcast, the proposed system is able to provide the station with a large number of operational benefits and advantages derived from the smart use of ultimate media management technology; Etere will entirely manage the digital contents of the station, from acquisition to delivery, providing the following key benefits:

- Reliability, workflow-based operations from ingest to delivery that permits to monitor the individual system functioning while increasing productivity
- Flexibility, on the implementation of capturing channels from which media content will be acquired
- Scalability, for increasing the number of system elements without altering the workflow complexity, thus minimizing operational overheads and reducing overall

costs

- Centralization, media will be available with the maximum of efficiency from a central storage server for all the –authenticated- departments of the station
- Efficiency, reduced need for repetitive manual operations, allowing to define them in advance and then include them in the ingest workflow, thus increasing productivity
- Accuracy, during the whole media management process, reducing the risk of mistakes when retrieving data since all archived contents are continuously checked
- Integration, Non-linear editing systems will be able to access the digital archive directly and efficiently through a proper production environment, making use of the highest security standards
- Preservation, an intelligent management of content archived in tape libraries will allow transparently searching and retrieving long-term media on-demand

## 7. About Etere

Etere is an international leader in the media market. Etere develops and distributes a wide range of high technology software for broadcasting and media businesses. With more than 20 years of experience, Etere provides powerful, flexible, cost-effective, high-performance, end-to-end media solutions. Etere is the only company worldwide that can offer you a solution to all your media needs in one single package.

Etere is the only solution 100% workflow based for all broadcast and media environments. It's a common framework where there is real-time sharing of all the data among several applications to manage all media business requirements. The workflow approach allows a fully customized design with edge performances.

From its headquarters in Tolentino, Italy, Etere guarantees the best after-sales support service on the market with engineers ready to give professional assistance 24 hours a day, 7 days a week. The service includes voice, email, VPN and VoIP with unlimited calls and connection time, and a pro-active system to help diagnose problems before they appear.