



KOMPAS PROJECT:

An improved Newsroom Workflow and Integration





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1. INTRODUCTION

Kompas TV is an Indonesian television station network based in Jakarta, Indonesia. Kompas TV is a television content provider owned by Kompas Gramedia Group, the largest media conglomerate in Indonesia with an audited circulation of over 600,000 daily copies. Since its launch on September 2011 with the tag "Indonesian Inspiration", Kompas TV has been managed by Etere as its core element.

Kompas TV counts with an Etere-based tapeless workflow featuring a streamlined capture, edit, catalog and deliver of media content by enhancing them with speed and efficiency. The tapeless workflow system is able to interconnect under only one framework the various station departments including the Archive, Studios, Post-Production, Media Management, Traffic, Newsroom and Playout.

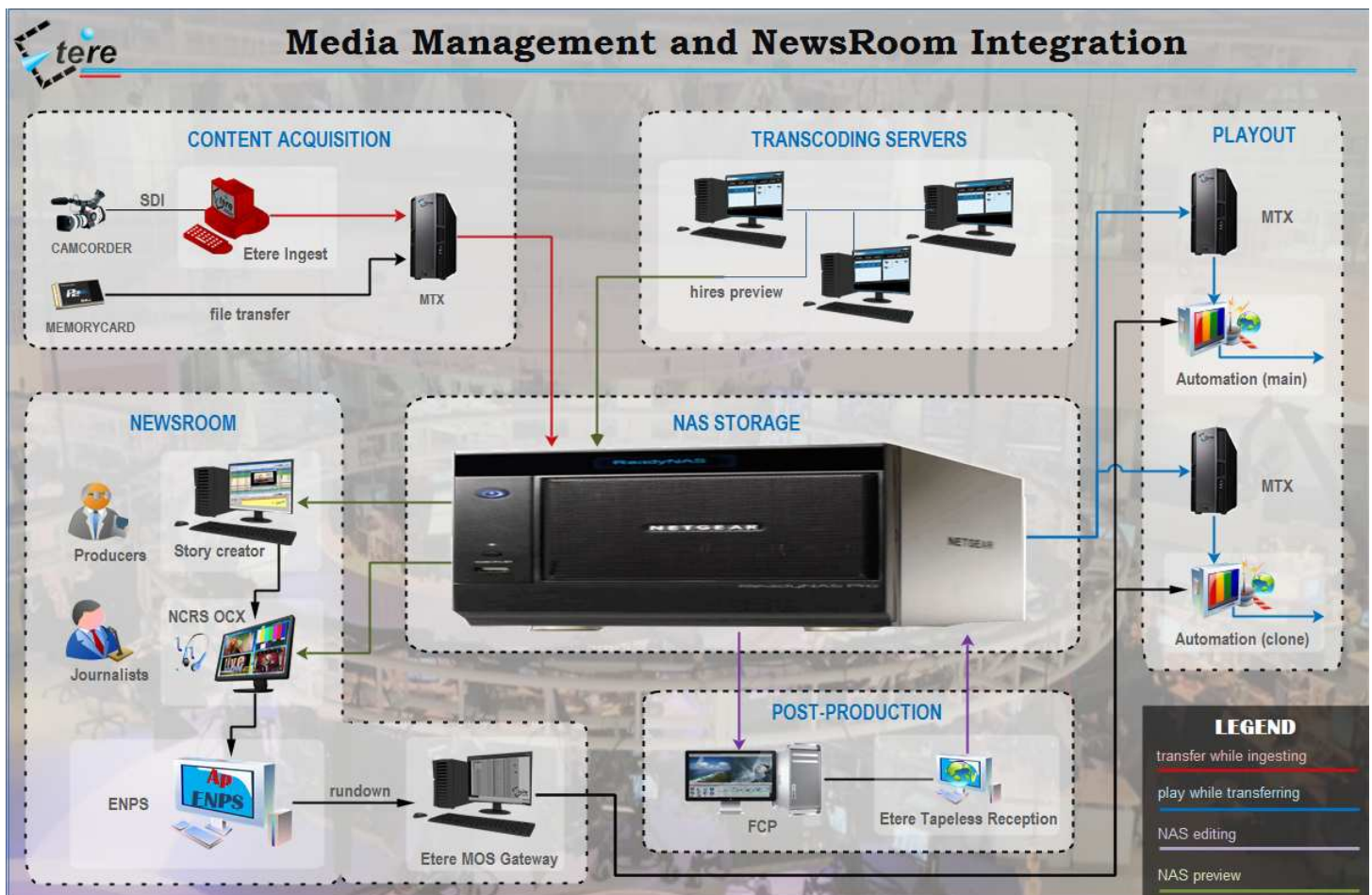
Nowadays, where News departments make emphasis on the most efficient way to manage their contents and execute the editorial process, Kompas TV requests a solution tightly connected to its content management system and its newsroom computer system capable of providing the most comfortable environment for working with news.

Etere answers to this request with an improved and evolutionary workflow cemented on a distributed system able to centralize the decision-making, content creation and monitoring of the news broadcast over one integrated system, thus, maintaining the consistency between the newsroom, the production and the playout departments.

This paper describes a solution able to closely interact with the station's Newsroom computer and post-production systems, allowing ingesting and transferring content contemporaneously, editing growing files directly on the central shared storage and playing content simultaneously to its transferring, all this, thanks to the "streaming" technology provided by the Etere's MTX servers.

2. SOLUTION OVERVIEW

Etere's proposed solution aims to improve the Newsroom workflow and its integration with the newsroom computer systems available in the station. The diagram below illustrates how Etere can take control of the various operations forming part of the station's news management workflow:



As shown in the figure above, media content will be managed without data movers or delays. The proposed News Workflow will mainly consist of the following steps:

1. **Ingest:** The file is transferred in NAS server while it's being ingested via SDI in MTX,
2. **Story:** ENPS creates an object (story) specifying the NLE tapeless sender,
3. **Editing:** The file is directly edited in the NAS server (a link is given for the scheduled story),
4. **Transcoding:** The file is transcoded on XDCAM-HD MXF for hires preview,
5. **Playout:** The file is streaming played on the MTX while it's being transferred from NAS.



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 system empowered with a tight integration of NLE and Newsroom Computer systems, allowing to quickly and efficiently perform last minute rundown changes. Etere's solution provides media archive management services including the following features:

- A distributed architecture managed via workflow to avoid any single point of failure,
- Instant access to contents, the correct media format will be always delivered,
- Browsing features including preview, slow-motion, timecode, bookmarking and metadata,
- Robust editing functions including video cut, merge, overlay and restore,
- Quality preservation and high availability of archived and catalogued media content,
- Tight integration with Newsroom systems such as ENPS,
- Full integration support for NLE stations, including content uploading/downloading.

Here below is a brief description of the modules to be implemented by Etere across the system

- **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 Ingest**, the flexible solution for capturing contents from a wide range of sources including SDI channels.
- **Etere Story Creator**, the more efficient tool for rough-cutting contents and conforming them into a single virtual or physical asset.
- **Etere MOS Gateway**, the module for receiving rundowns from ENPS and creating the objects related to the received stories.
- **Etere Cartwall**, the playout interface formed by a palette of well-arranged buttons which allow to quickly and directly transmit events without delays and pre-scheduling.
- **Etere Automation**, the system that automates the playout of rundowns, providing a main/backup functioning for fault-tolerance capabilities.



3. DETAILED SOLUTION

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 perform specific operations such as media ingest, archiving, transferring, browsing and delivery under an integrated environment.

The central part of the proposed solution is focused on the storage management devices, a cost-efficient NAS drive will be used as a central shared storage able to guarantee the bandwidth for contemporaneous access (i.e. editing, transfer, browsing, playback) whereas a MTX server will be used for an “streaming” ingest and playout. It will be possible to transfer contents while recording (for editing) and play contents while transferring (for playout).

Each time a media ingest is launched on a MTX capture server, a workflow will immediately start transferring in streaming mode (i.e. while ingesting) it to the NAS drive from where it will be available for browsing and editing, once the media editing is completed, it will be transferred to the MTX transmission server from where it will be played in streaming mode (i.e. while transferring).

MTX servers require a minimum time to write the destination content headers before starting a streaming operation, therefore, it will be required to delay the start of the transfer/playback of at least one second to avoid problems (the suggested time is 60 seconds).

All throughout this chapter there will be explained the various features provided to Kompas TV for managing the acquisition, editing and transmission of current news:

- 1. Media acquisition**
- 2. Craft editing**
- 3. Tapeless objects**
- 4. Cartwall playout**



3.1 MEDIA ACQUISITION

Media content is mainly acquired from file-based sources as digital content (e.g. P2), media content will be ingested using the “XDCAM-HD MXF” format through any of the following methods:

- SDI capture: A local MTX server will capture content from a SDI input source. Preview and browsing will be immediately available since a MPEG-2 proxy file will be generated in the local MTX server.
- File transfer: Contents will be moved from a digital storage device (e.g. P2 memory cards) to the local MTX server. In this case, preview and browsing will be supported using a VLC-like module.

In case of “SDI capture”, content will be stored on a local MTX server in order to avoid bandwidth issues, as soon as the ingest operation starts the content will be transferred in “streaming mode” to the NAS server in to make it immediately available for browsing and editing.

Once content has been ingested into the central NAS drive a hires preview is generated by the transcoder servers to make contents will be available from either, the Etere Media Library, Etere Story Editor, Tapeless Reception and ENPS.

3.2 CRAFT EDITING

Etere Story Creator is an intuitive news editing tool tightly connected to the media asset management system, it will permit producers and journalists to rough cut content and either directly conform it or send it to a NLE system for final conforming.

Etere Story Creator is the tool that drastically improves the News editing workflow; it **avoids conforming a story as a physical file** since it is able to **save them as a virtual asset** (logical list of asset segments) ready to be played by the automation without conforming.

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The features provided by Etere Story Creator for improving the system can be summarized into the following points:

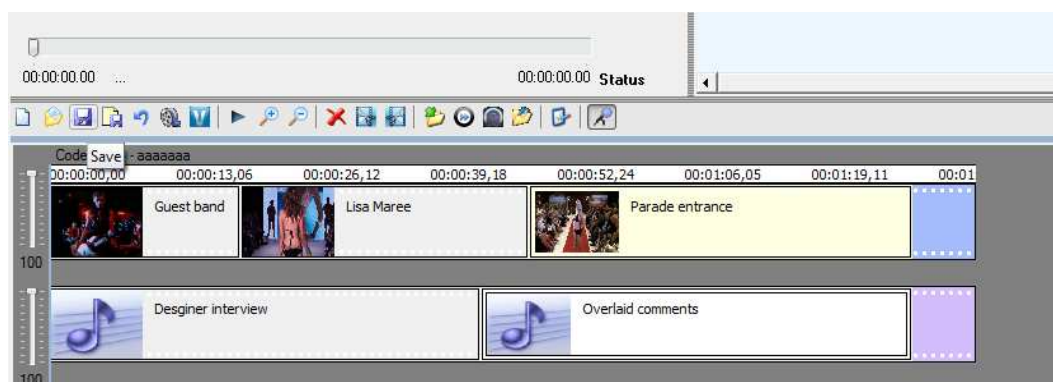
1. Stories can be **formed by entire assets** (or asset segments):



2. Audio can be added either by selecting a **recorded file** or recording a **new file**:

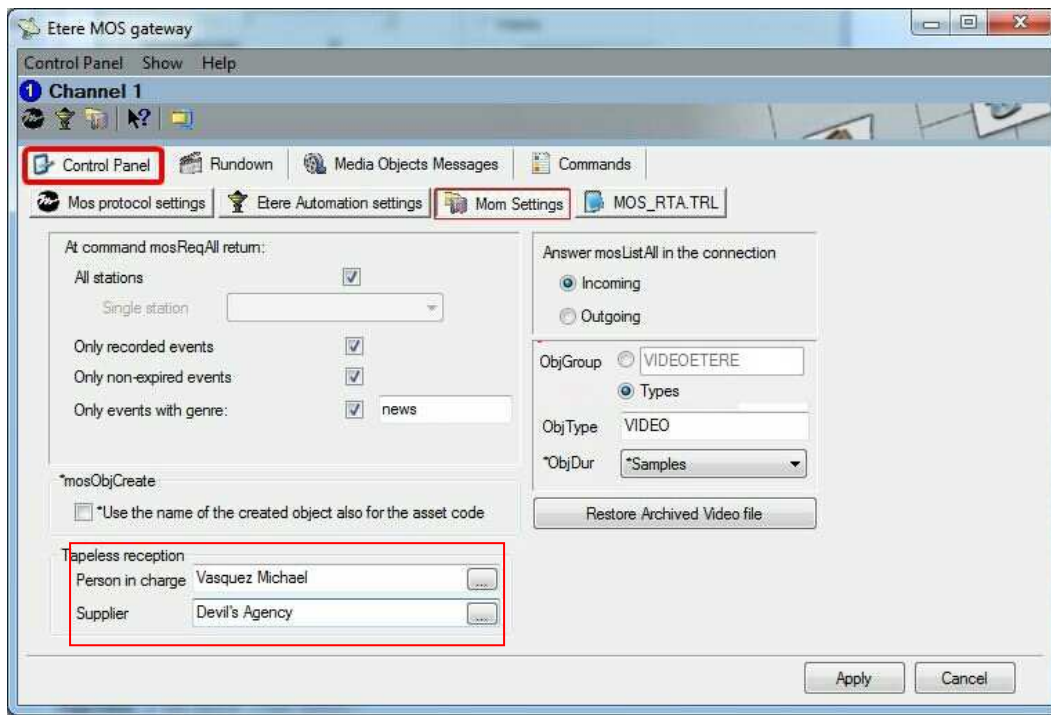


3. Finally, stories can be saved as **virtual assets** playable by News payout (e.g. automation):



3.3 TAPELESS OBJECTS

When the Newsroom Computer System (i.e. ENPS) inserts a story into the rundown, Etere MOS Gateway creates a placeholder object specifying the tapeless sender (i.e. NLE editor):



Once the required content is processed by the FCP editors, it will be delivered to the NAS drive through an always-connected tapeless reception service, then, a post-reception workflow is automatically launched to transfer the conformed file to the playout server.

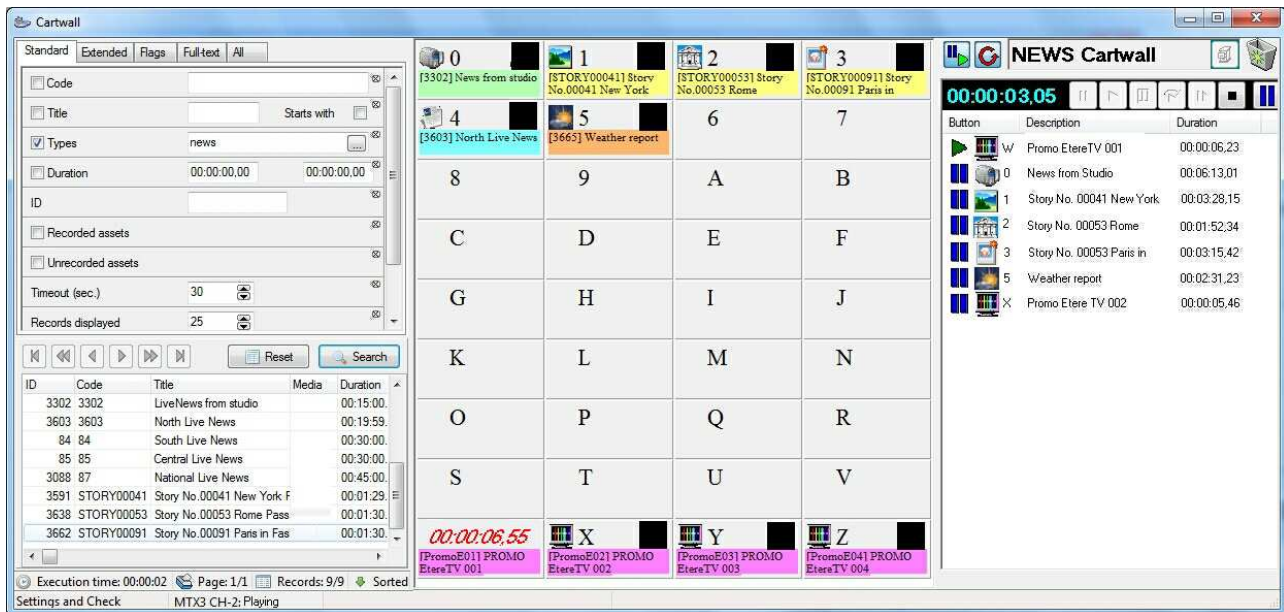


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3.4 CARTWALL PLAYOUT

The transmission of News will be greatly simplified thanks to the use of Etere Cartwall, a useful playout interface composed by a palette of buttons clearly arranged to allow a quick-playing of events, thus allowing a direct transmission without delays:

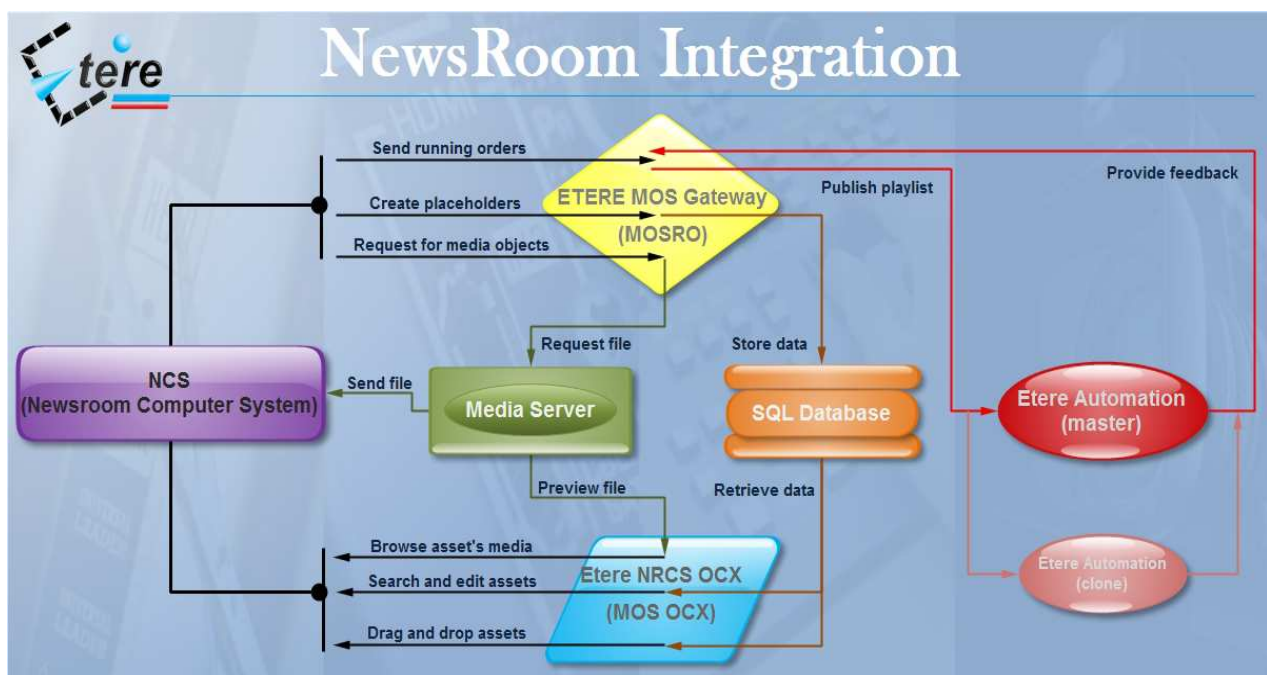


4. NCS INTEGRATION

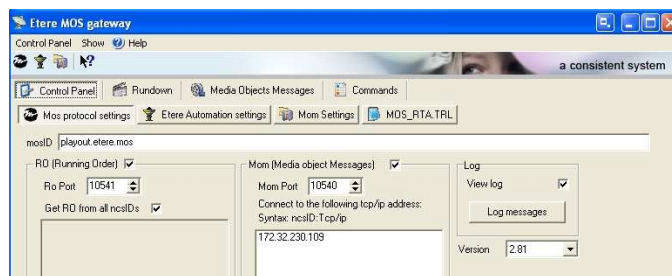
Etere offers an integrated solution for a complete news management, it will permit Newsroom systems to be integrated with the existing functions of Etere (i.e. ingest, media asset management, browsing, automation, as run log), allowing contents to be easily managed features include:

- Uses MOS protocol communications between the newsroom system and the other systems,
- Provides integration for MOS-Compliant newsroom systems such as ENPS, Annova OpenMedia and Transtel RunDesk,
- Passes lists of rundowns, and script text in rundowns between the newsroom computer system and Etere,
- Allows searching for media stored on the media servers from the newsroom computer system,
- Restore required media automatically using user-defined workflows,
- Enables clip preview and editing via an user-friendly ActiveX browser,
- Communicates with the newsroom computer system via heartbeat commands.

A 'Rundown Reception' function is provided to receive the Run-Down from ENPS, transforms it in a language comprehensible to Etere and sends it to Etere Automation, responsible for the on-air. The diagram below illustrates the Etere's integrated two-way interface to newsrooms systems:



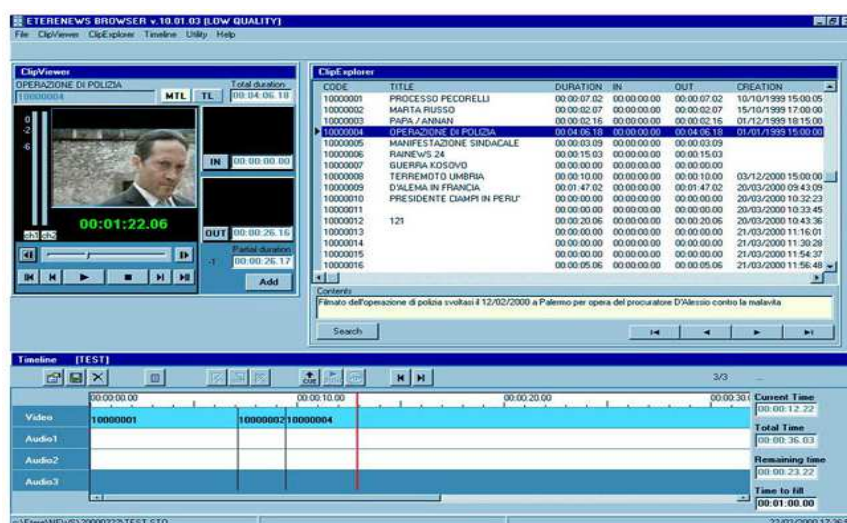
- **Etere MOS Gateway**, based on MOS protocol, it receives running orders information from Newsroom and request the playback of linked media objects, allowing also Newsroom systems to create placeholders for content that will be created later.



- **Etere NCRS OCX**, based on ActiveX controls, it allows searching, browsing and editing Etere asset's media, as well as automatically storing objects of Newsroom systems into the Etere SQL database.

4.1 ENPS compatibility

Etere MOS Gateway allows using ENPS client for creating objects in the Etere database, these objects are used for creating Running-Orders that will become part of Etere/ENPS databases, Etere MOS Gateway receives information from ENPS, and transforms this information into a format comprehensible to Etere Automation such in a way that the latter one will be able to send this information on-air:



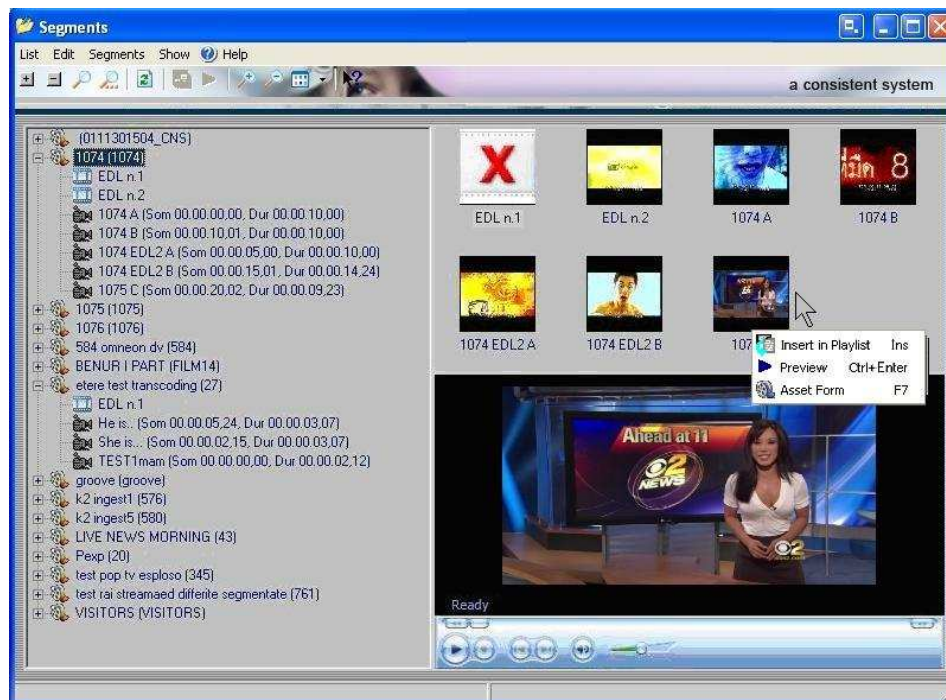
Etere MOS Gateway counts with the following ENPS specific integration functions:



- Etere allows ENPS to dynamically build and control a playlist within the media server, changes to the **Running Order** in ENPS result in immediate changes to the sequence of media objects queued for playout by the media server,
- Etere sends **real-time status information** during playback and other functions which are displayed through ENPS writers and producers in real-time, including a minimum set of standard status messages which enable color coding and the automated movement of the ENPS timing bar,
- Etere provides **thumbnail images** and **proxy video** which are closely integrated within the ENPS Story display and editing windows,
- ENPS users **can create and name placeholders** within the Etere server into which media can later be ingested or recorded. Etere then updates ENPS with duration and other information as the placeholder is replaced with the actual media,
- ENPS users can create and name placeholders within this Etere's media server into which **edited content from an NLE** can be saved,
- Etere enables ENPS users to directly **assign media play-out channels** from the ENPS Running Order,
- Etere uses the full body of text within ENPS documents, including all **media pointers and custom metadata**. Etere also dynamically tracks the **sequence of Stories** and Assignments within active ENPS Running Orders and Assignment grids,
- Etere works with ENPS to **transfer media between machines and locations** using instruction and metadata from ENPS. When stories containing media are moved from one ENPS location in ENPS to another Etere offers the option to automatically transfer the media contained in the stories without further user interaction,
- Etere builds on **MOS Redirection** and can work with ENPS to exchange media files in a variety of formats, working with a variety of other media servers.

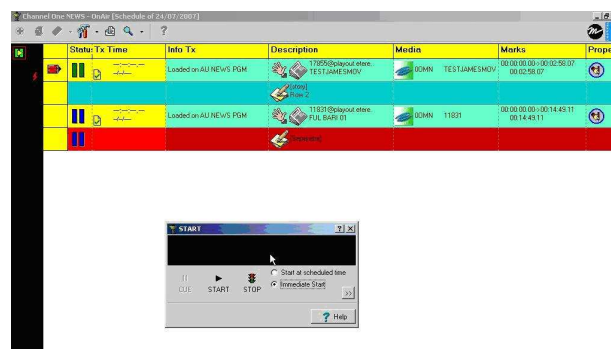
4.2 Segments management

Etere Most Gateway provides operators with a module that permits to search all assets with a hi-res media with at least one visible segment, and insert them in the playlist with just one click, being also possible to preview segments before inserting them:



4.3 Automation Integration

Etere Automation supports functioning in “MOS-mode” to load and send on-air the playlist corresponding to the rundowns received from a MOS-based system, displaying for each object its related information and story name. Etere Automation is able to work in a main/clone mode to ensure the fault-tolerance of the system. With Etere Automation, the operator will only have to initialize the events' cueing process and then start the transmission:





5. BENEFITS

This paper has described the implementation of an “improved Newsroom workflow and integration” for the current Kompas TV’s system. The described solution aims to streamline the station from the acquisition to the delivery of news, this, by providing it with a large number of operational benefits and advantages derived from the efficient use of ultimate media management technology.

The many key benefits that Etere will provide to the station have been condensed in the following points:

- **Workflow reliability**, workflow-based operations from ingest to delivery that permits to increase productivity and monitor the functioning of system components,
- **NCRS integration**, enhanced compliance with ENPS, one of the industry standards, to ensure a flexible yet powerful integration of the newsroom and the automation systems,
- **Scalability support**, capability to increase the number of ingest/playout channels without altering the system workflow complexity and minimizing operational overheads,
- **Editing features**, the newsroom department will be able to browse, craft and edit content including cut, merge, overlay and conforming functions,
- **Centralized media**, media assets stored on a centralized NAS server will be available for producers, reporters and editors, with the maximum of efficiency and speed,
- **Capturing flexibility**, possibility of deciding between capturing contents either via SDI or through file transfers,
- **NLE integration**, Non-linear editing systems can deliver edited digital content to the central archive through a proper production environment based on a tapeless web service.



6. 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.

Etere: a consistent system

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