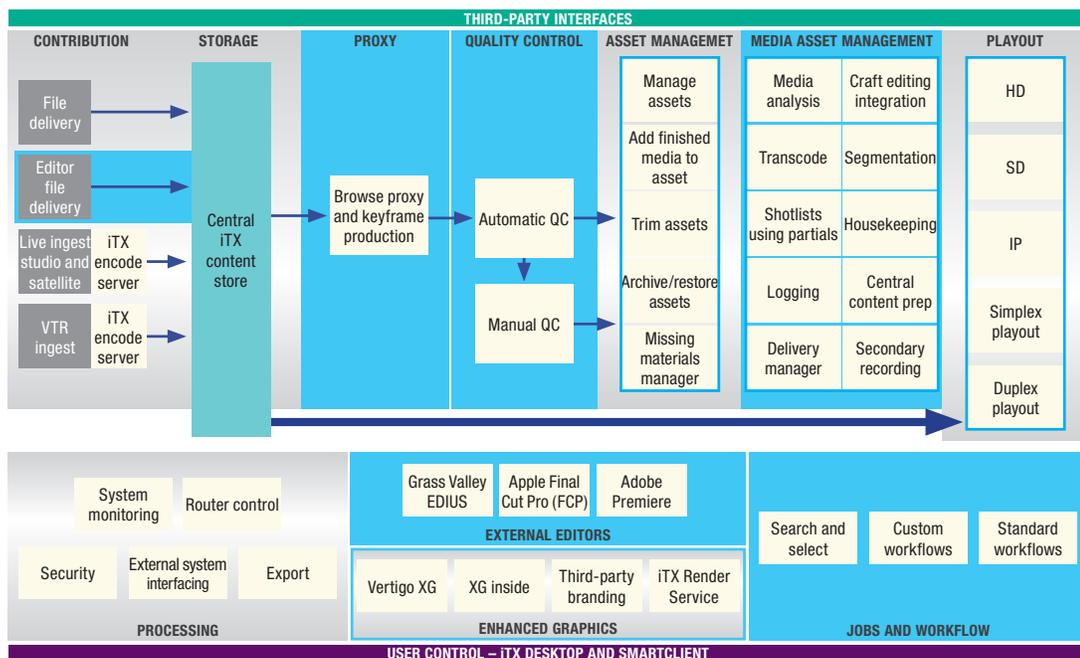


Integrated Playout and Media Asset Management

Content preparation workflows are included as standard in the iTX Integrated Playout Platform



Introduction

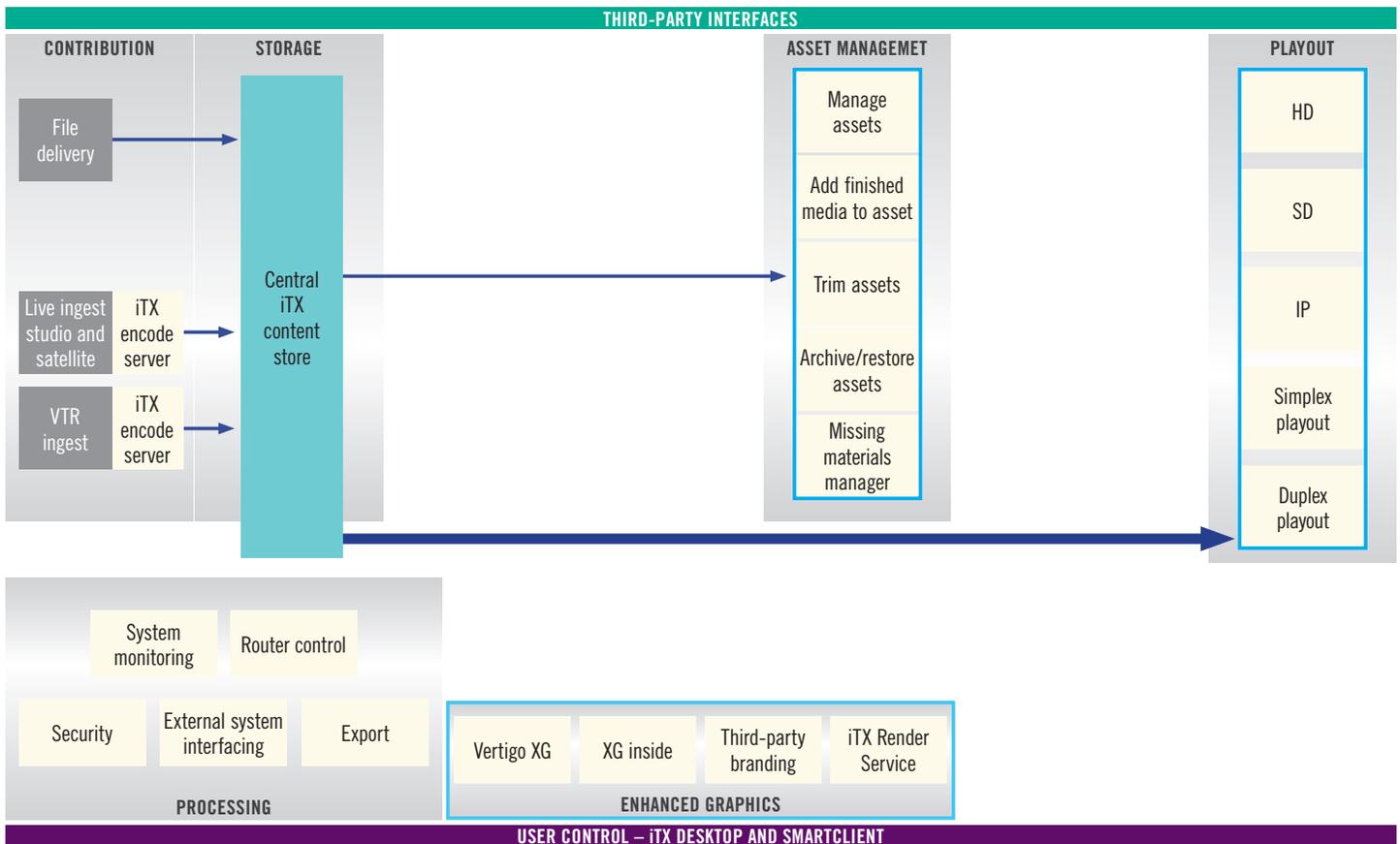
iTX from Grass Valley, a Belden Brand, is a robust integrated playout platform that handles a wide range of common tasks in a single, software-driven workflow, enabling an efficient and cost-effective way to professionally manage channel playout while remaining nimble for future expansion.

In addition to automation, channel branding and transmission control, broadcasters typically require content management tools in order to effectively store, search, edit and use the huge number of assets available to them. Finding the right content management tool for a given workflow can be tricky — it has to be easy to operate, robust enough to handle every potential need and easily operable from within the same workflow the broadcaster is using for playout.

The iTX media asset management (MAM) system is fully integrated into iTX — with iTX, there’s no need to shop for a separate system. The fully integrated MAM system simplifies the process of launching new channels, reducing overall costs and time to air.

The iTX MAM handles all the content management functions typically required in a standard broadcast workflow. With over 1500 channels currently being managed by iTX worldwide, the system is well tested, and this experience has produced a series of “standard” content management workflows designed to handle real-world operational challenges. This paper explores and describes these standard workflows and offers further insights into the advantages of this fully integrated asset management solution.

iTX Playout media flow diagram



What’s different about the iTX MAM solution?

iTX MAM is fully integrated with the iTX integrated payout platform and is available with any standard iTX installation. This powerful content management system easily enables the key operational functions of traffic, scheduling, payout and asset management to work perfectly together the instant the system is up and running.

The system allows broadcasters to easily share a database of assets across multiple locations, add Metadata and create, delete, rename or trim clips from anywhere. Key benefits of the system include:

- A single database is used for Payout and MAM
- iTX and its MAM component can be deployed quickly utilizing its cache of Standard Activities to handle a long list of typical content-related functions. These can be fine-tuned later, in situ, as broadcasters develop more complex needs or manage new types of content
- During installation, broadcasters simply select the standard activities they’ll be using as part of their workflow and configure each as appropriate
- A convenient, open standards-based web interface, SmartClient, which enables control from any browser at any time
- Standards-based APIs enable broadcasters to use ordinary web services, and basic IT skills, to build “helper” applications to extend the functionality of the system
- Extensive third-party integration enables iTX MAM to easily form a central part of a broadcast workflow solution

iTX Payout and MAM media flow diagram

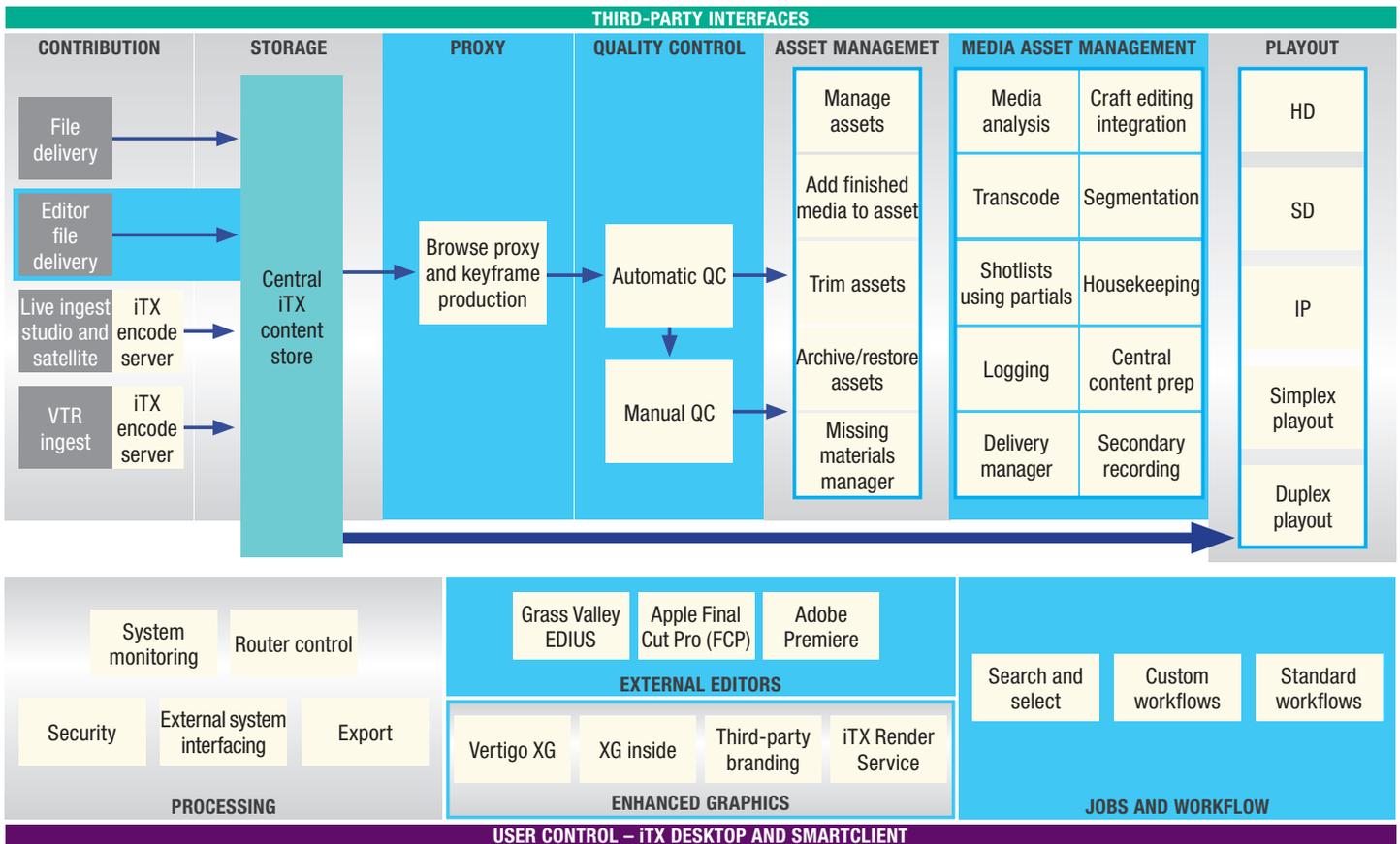


Diagram illustrates the “actions” that can be performed on media, e.g., Proxy, QC, Asset Management and Media Asset Management. Each class has boxes showing the actions where the actions can all be linked together using workflows.

iTX MAM Standard Activities

iTX MAM has been designed to meet the majority of requirements for television stations around the world. Through years of analysis and testing, Grass Valley has determined an extensive list of use cases, or Standard Activities that most stations would use on a regular basis in order to effectively manage content as part of the production and playout workflows.

1. Proxy and Keyframe Production

iTX can create proxies of hi-res media to be used for viewing and logging media on desktops and smart-clients or for providing to third parties such as subtitling houses.

By using appropriate file formats, proxies can be produced and viewed while the production file is still on-going — ideal, for example, for building highlights packages for distribution to multiple platforms during an event. Once the hi-res files have been completely recorded, time-based keyframes are produced enabling users to quickly search media.

This key workflow tool enables a single production team to handle a live broadcast while also producing highlights packages (traditionally handled by a separate team) simultaneously.

2. Automatic QC

iTX is pre-configured for full integration with Baton automated file-based QC platform from Interra Systems. iTX logs the events reported by Baton and can perform a range of different actions based on the report.

3. Manual QC

iTX can provide an enhanced desktop that can be used for manual QC of material. Using an SDI output, utilizing the same card as iTX playout, operators can easily view live content to ensure legal compliance (i.e., profanity and/or nudity) or, for example, to ensure proper timing of subtitles and graphics.

4. Media Analysis

iTX can perform a thorough, two-stage media analysis on files in order to automatically extract key bits of metadata. Valuable information, such as AFD codes, Dolby E information and more is automatically gathered, greatly enhancing the utility of cataloged information by facilitating more efficient search down the road.

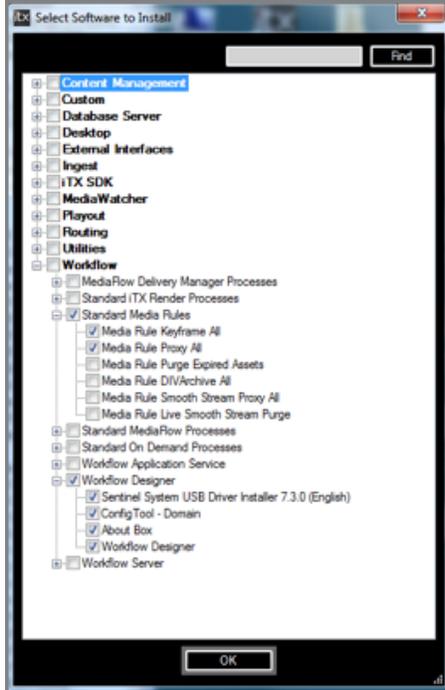
5. Transcoding

iTX controls third-party devices, such as Telestream Vantage, or other transcoding applications, to transcode files and efficiently introduce “House Format” files into a workflow.

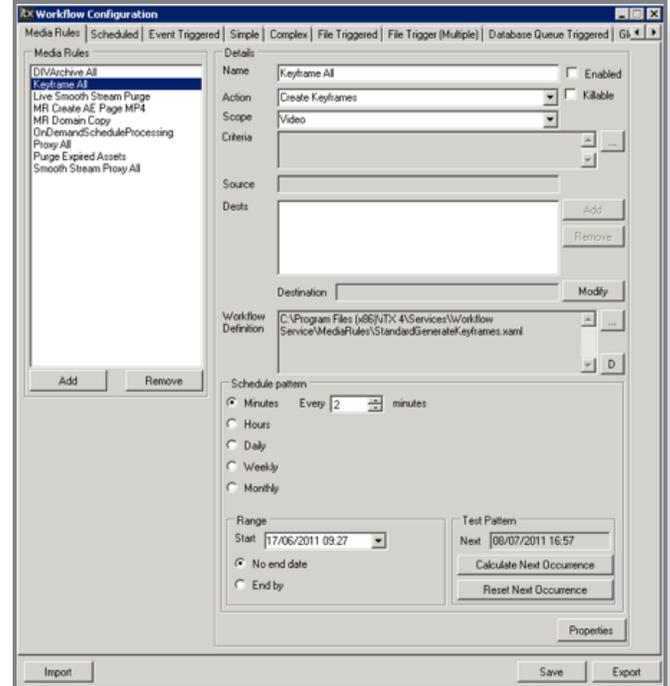
6. Shotlist Using Partial

Using iTX, broadcasters produce a shot list that is then available as an Edit Decision List (EDL), or as actual mediato Grass Valley EDIUS craft editors, third-party systems or other craft editors.

The shotlists can even contain partial files and iTX will only extract the required segment of the file. This useful utility enables more efficient production in many applications such as when highlights programs are created using footage from multiple events.



Selecting the “Standard Media Rules” -> “Keyframe All” and “Proxy All” from the installer.



Configuring the “Keyframe All” Activity using the configuration screen — this activity would typically be undertaken during commissioning of a system.

7. Logging

iTX contains a sophisticated logging system that enables a user, or third-party application like Interra Baton, to record (log) events against media. Using a standard web browser interface, events are easily viewed and marked for later activities, such as cuts to be used in highlights or content that needs to be edited or dubbed over.

8. Craft Editing Integration

iTX interfaces with craft editors, such as Grass Valley EDIUS, Apple Final Cut Pro and Adobe Premiere, to provide EDLs (Edit Decision Lists) and media to these editing applications or to easily accept media and metadata from them.

9. Segmentation

iTX conveniently segments programs for channels that require insertion of interstitial material. This segmentation is flexible and can be configured for “hard” segmenting, in which the file is physically split, or “soft” segmenting, in which the file is logically split and marked or recorded onto iTX and passed to the traffic system for segmentation.

10. Housekeeping

Broadcasters can use iTX to manage content in storage. Material can be deleted moved to an external archive or simply deleted from local disk storage.

11. Central Content Preparation

iTX can be configured to operate with a central “master” with distributed “slave” systems. Sometimes referred to as “hub and spoke” systems, these systems, often used for disaster recovery, easily enable the preparation of media on the central system (“master”) and distributed by iTX, as required, to some or all of the additional systems (“slaves”).

12. Delivery Manager

Delivery Manager is designed to ingest media files from external file storage or delivery systems, including FTP servers and archives. During file import, associated, custom metadata is added to assets in the system database. With appropriate configuration, delivery manager will also search for files on external systems or copy files to an archive. Delivery Manager is currently equipped with drivers for the following file storage and delivery systems:

- CIFS
- FTP
- DIVArchive
- Masstech MassStore
- Pitch Blue
- Pathfire

13. Secondary Recording

Enables schedules to be recorded to files in parallel with baseband playout. Scheduled events supported include video clips, transitions, logos and SCTE triggers. Secondary record lends itself to the production of on-demand masters from schedules.

Use Case / Scenario

Here’s an example of how the benefits of iTX MAM are effectively applied in a real-world scenario.

Situation:

A producer taking content from a live feed at an FA Cup soccer game needs to create four separate deliverables during the game:

1. Highlights program for broadcast on linear TV channel later that evening
2. Highlights program for distribution on Catch-Up platform, including branding and bumpers
3. One minute promotional clip to advertise the highlights program to be shown on linear TV
4. Individual shot selections of all significant events in the game for distribution to a mobile platform to support applications that allow users to view highlights of the game in near real time

Highlights Program Producer Working with Craft Editor

Content is playing out live while the match is underway (and being recorded). The producer has to select shots from the match to create the four assets described above.

The producer, working with the editor, is notified content is available.

- Producer creates shot-list from the game to form basis of highlights program
- Junior Producer logs goals, near-misses and other significant incidents from the game
- Edit Decision List (EDL) is produced and the Craft Editor informed that the shot-list for the promo clip is ready for craft editing
- Logging output is used to create short clips to be published to a mobile service

Producer uses smart client (and possibly the logging metadata) to create a rough-cut highlights package from the games that will be shown on a later program.

- Craft Editor uses industry standard tools such as EDIUS, Final Cut Pro or Adobe Premiere, using interchange plugins integrated with iTX
- Once the Producer has finished with the rough-cuts the Craft Editor can seamlessly pick them up from iTX, do the editing and publish back to iTX
- Once Producer has approved the asset can be marked as “suitable for production”

All of the above activities are performed on the fly — while the live event is still taking place. The Production team can create all the deliverables on site because the flow from ingest to shot selection through craft editing is all accessible while files are still growing.

The activities below are easily accomplished in iTX MAM to support the needs in this scenario.

- Linear Broadcast
 - Already supported worldwide by iTX for over 1500 channels
- IP Broadcast
 - Using iTX IP Simulcast feature, provides MPEG-4 encoded content for streaming delivery to unicast or multicast clients as part of an IP-based solution
- Catch-Up Publishing
 - Add bumpers and branding to the highlights program before making content available to third-party transcode
- Web publishing VOD
 - Add SCTE-104 triggers to the program before making available to third-party transcoder and web platform
- Archiving
 - Store program on archiving system (DIVA integration)
- Mobile “goals” service
 - Use logging clips (goals, near-misses, red cards etc.), add branding (logo in top corner) and create “master copies” for delivery to a media platform which can transcode and deliver to mobile platforms

Conclusion

Using iTX, with integrated MAM capabilities, is the convenient way to get full-functioning MAM as part of an integrated playout workflow.

- iTX MAM is fully integrated and included with every iTX installation
- Using pre-installed Standard Activities, iTX MAM has no learning curve
- iTX MAM is easily adjusted over time as additional workflows require support
- iTX MAM is conveniently operated remotely, from anywhere, using Smart Client, available via any web browser
- iTX MAM is pre-integrated with many popular, third-party specialty vendors including Automatic QC and transcoding
- iTX uses open standards and published APIs, eliminating concerns over proprietary protocols
- iTX supports SDI playout

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