



# Softel file-based subtitling and closed captioning with XOR broadcast servers

XOR Media and Softel have collaborated to produce an operationally efficient means to ingest, process, and deliver subtitles in XOR Media file-based broadcast server products.

### Challenge

- Reduce the complexity and resources required to manage subtitling services in a multi-platform, multi-channel broadcast facility.

### Solution

- Deploy Softel's Swift™ vTX software to encode subtitles to video stored in an XOR Universal MediaLibrary or in XOR video broadcast servers.

### Benefits

- An automated, high quality, and cost effective subtitling system for broadcast networks.

*Note: In this application note, the term "subtitles" means both closed captions and subtitles.*

### Synopsis

This application note describes how Softel and XOR Media have tightly combined their solutions to deliver subtitle and closed caption processes that seamlessly integrate to deliver reduced complexity and enhanced productivity.

### Introduction

File-based workflows are revolutionising the way in which multi-channel, multiplatform video broadcasters manage their digital media assets. In many markets, there is a business requirement to subtitle video content, either for the hearing impaired or to maximise viewer engagement through the provision of translated subtitles. XOR Media and Softel have collaborated to produce an operationally efficient means to ingest, process, and deliver subtitles in XOR Media file-based broadcast server products.



### Why caption content?

For many viewers, the ability to see subtitles displayed alongside their favourite TV shows or films is not only desirable but is often essential to their ability to follow and enjoy the program.

Subtitles offer significant assistance to hearing impaired viewers, whilst translated subtitles allow viewers to enjoy the original program soundtrack with the additional display of localised captions.

Broadcasters face increasing regulation to provide hard of hearing captioning, and localised subtitling allows content to be distributed to a wide geographic or segmented audience thus maximising revenue from subscribers and advertisers.

Subtitle services are broadcast in a number of different formats and presentation styles:



- Closed subtitles are enabled by the viewer
- Examples include Teletext subtitles, US L21 and ARIB Closed captions, and DVB Digital TV subtitles



- Open subtitles are keyed over the video for all viewers to see
- Often used for program localization TV subtitles



- News and Documentaries are sometimes subtitled in so called 'mix mode'
- Open translation of passages of foreign dialogue and closed captioning for the hearing impaired TV subtitles



- Selectable subtitling carried as part of digital TV broadcasts
- Supports both localization and hearing impaired captioning
- Often carries a choice of language subtitle streams TV subtitles

### Challenge

The growth of multi-channel, multi-platform broadcasting makes it necessary to streamline content management and transmission processes in order that operational costs remain viable. File-based media management brings efficiencies such as workflow automation and the deployment of standard IT system components.

The creation and transmission of subtitles can also benefit from file-based processes and the challenge is to seek out simplification and automation wherever possible in each phase of the subtitle workflow:



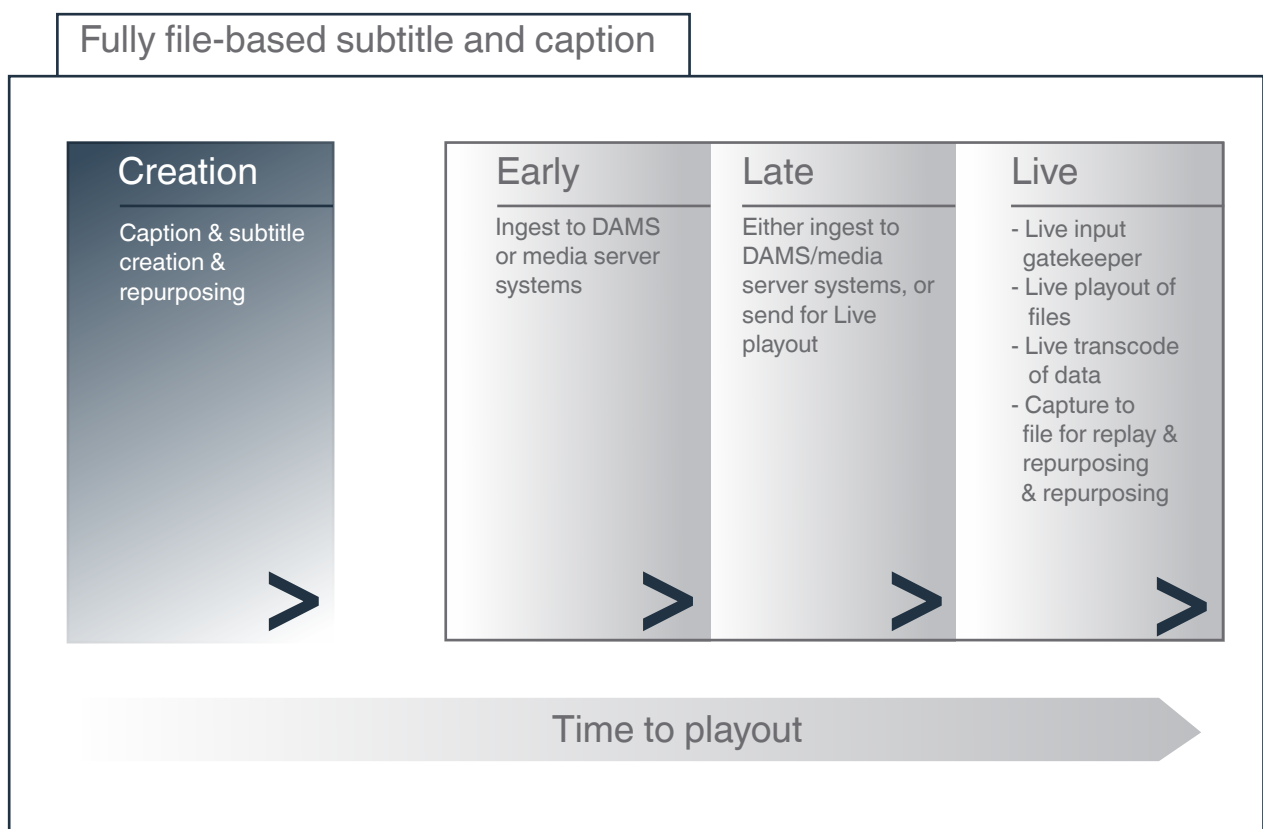
**Solution**

XOR and Softel have developed a fully featured media platform which addresses the challenges of integrating subtitle content management and transmission into an end-to-end file-based broadcast ecosystem.

Traditionally, in a broadcast facility, subtitles are broadcast at ‘time-of-air’ using dedicated hardware which tracks channel automation events and which loads and encodes (‘binds’) subtitles into the video as each program is broadcast.

XOR storage and servers serve as the robust IT platform for Softel software. XOR Media has been serving the industry for over 10 years with reliable hardware optimized for broadcast operations. With the XOR Universal MediaLibrary storage system and the standalone video server MediaServer 1200, XOR Media supports fully file-based broadcast workflows.

By integrating with the XOR Universal MediaLibrary and MediaServer 1200, Softel’s software subtitle encoding tools allow the binding of subtitles to video media assets earlier in the broadcast staging workflow.



There are a number of operational process features and benefits to be gained by early binding subtitles to video assets:

<p style="text-align: center;"><b>Subtitle Ingest</b></p> <ul style="list-style-type: none"> <li>Automated subtitle encoding into video files</li> <li>Open &amp; Closed subtitle formats</li> <li>Full integration with XOR Media UML storage</li> <li>Option to extract existing subtitles for repurposing from ingested video files</li> </ul>	<p style="text-align: center;"><b>Subtitle Asset Management</b></p> <ul style="list-style-type: none"> <li>Encoding of both early and late arriving content</li> <li>Suited to all forms of programming including news and advertisements</li> <li>Ability to perform either automated or manual QC checks on subtitled assets</li> <li>Video archives will include rebound subtitles</li> </ul>	<p style="text-align: center;"><b>Subtitle Transmission</b></p> <ul style="list-style-type: none"> <li>Subtitles encoded by XOR broadcast server into SD and HD SDI video outputs</li> <li>Full support for global subtitle transmission formats</li> <li>Ability to tunnel DVB subtitles into the SDI video output for downstream processing</li> </ul>
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**Solution Product Description**

- The XOR Universal MediaLibrary is a high-availability storage solution that offers high performance, high capacity, scalability, and flexible NAS connectivity for enterprise and multimedia data storage. It accommodates a massive 216TB in a 5RU storage matrix, scalable horizontally and vertically in a grid architecture.
- The XOR MediaServer 1200 is a standalone, broadcast-quality video server for multi-standard, multi-channel, and multi-format operations. It has a generous built-in storage capacity of up to 16TB for HDD and 4TB for SSD options.
- Softel’s file-based subtitle and closed caption transcoding software – Swift vTX – delivers this solution by encoding or ‘binding’ subtitles to video files. These video assets may be stored either in XOR UML storage or in XOR broadcast video servers.

Swift vTX runs on standard Windows servers and provides a managed job queue for subtitle tasks. The Swift vTX server is built to meet the requirements of each installation from a selection of building blocks:

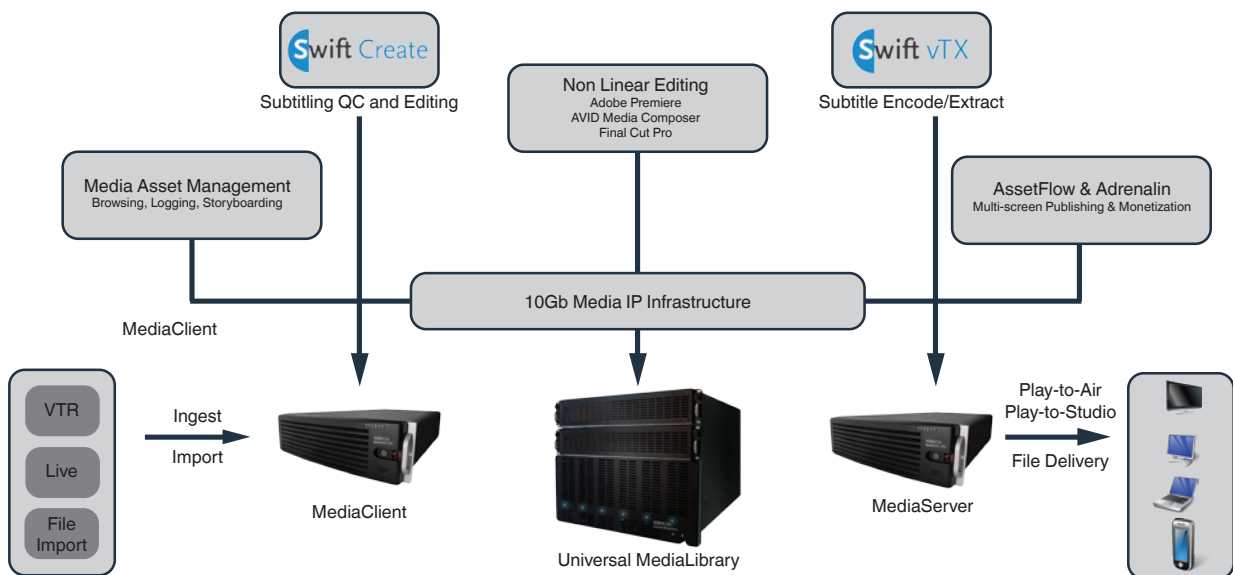
**Swift Create and Swift vTX key features**

Subtitle and closed caption file support	Swift vTX imports subtitle files in all standard worldwide formats including STL, CAP, Softel XIF, PAC, & 890	Video file formats	All commonly deployed XOR Media media file formats and wrappers including MXF, Quicktime and native video file formats.
Subtitle transmission format support	All standard subtitle formats including Open, Teletext (SD & HD), US line 21, & tunnelled subtitles. DVB bitmap subtitles	Quality Control	Options for both manual or automated QC checks on encoded subtitles.

Subtitle tasks may be submitted to the Swift vTX task queue in a number of ways – (a) manually, (b) through simple drop folders, or (c) through an API under the control of 3rd party media asset management systems.

**Integrated XOR Media and Softel media & subtitle editing, encoding, storage and play-out**

The diagram below shows a typical media production and broadcast workflow where Softel’s Swift Create subtitling workstation may be used to prepare and repurpose subtitle files for media created on the NLE products. As completed media files are stored in the XOR Media UML storage, Softel’s Swift vTX software encoder binds the subtitle content into the media file ready for play-out on the XOR MediaServer platform.



**Conclusion**

Through close collaboration XOR Media and Softel offer a complete subtitle encoding and playout solution suitable for use by multi-platform broadcasters looking to simplify their workflow, lower resource dependency and reduce operational and supervisory costs.

**About Softel and the Swift Family**

The Softel Swift family of products provides end to end subtitle processing, including creation, encoding, transcoding, repurposing, insertion and transmission of subtitles and closed captions.

Swift Create is a subtitling software and workstation that allows the preparation and repurposing of subtitles and closed captions. Swift Create supports all formats of Open, Closed and DVD/Blu-Ray subtitles and closed captions and has the ability to convert from one format to another while repurposing content to optimize productivity.

Softel Swift vTX enables broadcasters to repurpose content regardless of file format. It allows them to switch between SD and HD formats easily to facilitate multi-platform and worldwide distribution. Swift vTX supports a large array of files, wrappers and playout formats, facilitating the integration of subtitled content across a wide range of media servers and editing solutions.

**The Swift family of Solutions**

Manage	Create	Describe	Insert	Transmit
<ul style="list-style-type: none"> <li>- Quality Control</li> <li>- Task management</li> <li>- Bind-point control</li> </ul>	Caption/Subtitle file -Creation -Edit -Import -Export -Repurpose Browse-clip digitizing for non-linear creation/ re-purposing	Audio/Video description -Script -Record -Track preparation -Linearizer	File based -Encode -Transcode -Extract -Repurpose  Open subtitle generation	Multi-format time-of-air transcode and transmission  Live subtitle input & capture

**About XOR Media**

XOR Media develops high-performance, open, IT storage, specialized for media applications and private cloud data centers. Formerly SeaChange Broadcast, XOR Media offers a product line that includes open, cloud-capable, and media-optimized technologies used by hundreds of broadcasters and content providers around the world: ingest and playout codecs MediaClient and MediaServer; and the prizewinning, clustered and scalable Universal MediaLibrary storage. XOR Media operates globally with over 200 employees and manages 15,000 channels on air. [www.xor-media.com](http://www.xor-media.com).



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