

## Application Note



### Subtitle transmission delay on re-encoded transport streams

#### Synopsis

This application note describes how broadcasters can preserve subtitle data and ensure accuracy of timing when re-encoding transport streams.

#### Introduction

Broadcasters and network operators often transmit content received on another transport stream that needs to be repurposed. For example taking an MPEG-2 stream from a satellite feed and re-encoding in MPEG-4 for local distribution on digital terrestrial (DTT). This process is known as a 'turnaround' service.

The challenge for broadcasters is to preserve the subtitle content present in the incoming stream and ensure that retransmission is correctly timed with the video. This timing needs to take account of the delay introduced in the re-encoding process which, although relatively short, is enough to cause subtitles to become misaligned.

#### The Solution

To overcome this issue, Softel's Swift TX can be used to take the incoming ASI or Gigabit Ethernet (GiGE) transport stream containing the subtitle content, for example DVB bitmaps. The unit will then store the packets for a configurable delay, typically one to one and a half seconds, relaying them to DTT multiplexer for retransmission.

#### Challenge

- Preservation and correct timing of subtitle content where incoming feeds are re-encoded.

#### Solution

- Softel Swift TX 'Submux' with subtitle packet delay.

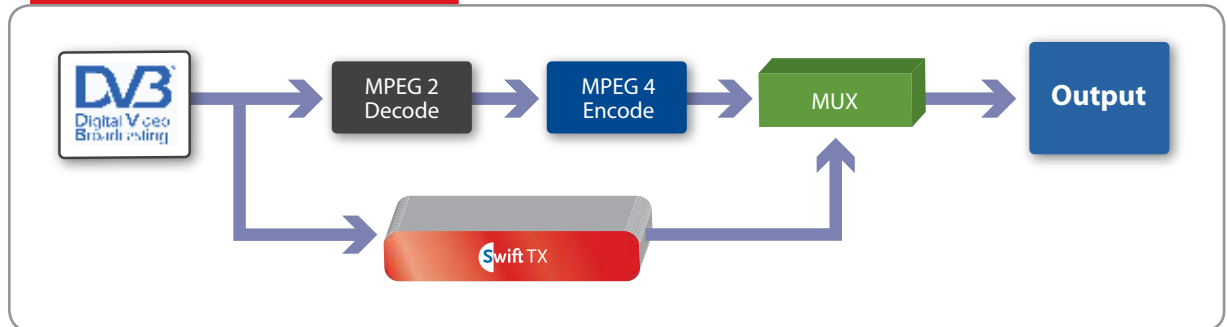
#### Benefits

- Accurate, consistent, delay and retransmission of incoming subtitle packets for "Turnaround" services.

## Ensuring correct timing

As ensuring correct timing is essential, Swift TX uses Presentation Time Stamp (PTS) values that correspond to Program Clock Reference (PCR) feedback signals from the video. The PTS is used to correctly time the output of the delayed subtitle packets. The output of the subtitle content can also be across ASI and/or GiGE.

### Overview of solution



## Multi-channel support and high availability

The Swift TX subtitle delay and retransmission solution easily scales across multiple channels, decoding multiple services from within a single ASI stream and provides multiple input.

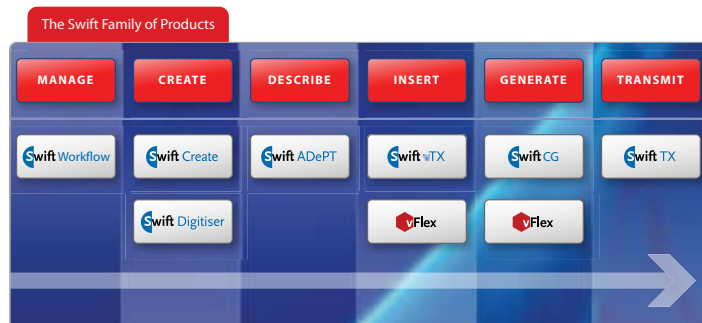
In addition the solution utilizes highly reliable rack mount Windows server hardware and caters for high availability applications, with additional Swift TX units in switchable N+1 configurations. This configuration can be tailored to suit the specific master/standby capabilities of the main compression equipment.

## About Softel and Swift

Backed by three decades of broadcast experience, Softel is a global leader in key TV & video technologies including Interactive TV, MPEG stream processing & multiplexing, Captioning, Opt cuing, Teletext and Subtitling; delivered through a full range of products, professional services and bespoke development.

The Swift family of products is an end-to-end solution for subtitle creation, repurposing, encoding, transmission and monitoring. Swift Create is a leading solution for subtitle creation and repurposing, often specified as the solution of choice by many subtitlers.

Combined with Swift Workflow, it provides an efficient environment for the preparation or live input of subtitles. Swift vTX and TX integrate with Swift Create to provide video asset encoding, subtitle transmission and transcoding. These products accept subtitle data from most well known subtitle preparation products and deliver wide support for output formats, such as DVD, Digital Cinema, Line 21, Open and Teletext.



Automation, high availability and easy manageability are hallmarks of the Swift products, offering interfaces with leading automation systems, as well as the widely adopted Softel XAP protocol.

Due to continuous enhancement and development by Softel, product features, designs and specifications are subject to change without notice. Please contact Softel to confirm details of any required functionality or specification. © Copyright Softel Group 2009

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Horseshoe Park, Pangbourne, Reading RG8 7JW, UK  
t: +44 118 984 2151  
www.softel.co.uk info@softelgroup.com

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