



## Problem

How to reuse subtitles for distribution when they only exist on authored DVD titles

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## Solution #76

Use ZOOsubs to extract subtitle text and timing information automatically and store in a format-neutral database from where new distribution files can be created easily and cost effectively

# Ingest subtitles from DVD

A major international music publisher has accumulated an extensive catalog of video titles that have been published on DVD over a period of 20 years. These consist of live and studio music recordings, artist profiles and biopics, mostly incorporating a range of bonus features and value-added content. For international audiences the titles have been localized into a number of languages through the addition of subtitles. On DVD, these are incorporated in a way that allows viewers to turn them on and off and switch between languages.

Like many film and video content owners, the publisher was eager to exploit this back catalogue of materials by republishing on new platforms, including Blu-ray and various electronic delivery services such as Apple's iTunes. However, in almost all cases, the subtitles were originally delivered to the publisher only in the specific technical format required for DVD. This is in the form of a series of images supplied as TIFF files, one for each individual subtitle that appears in the material.

The following diagram illustrates the way in which media is stored on a DVD-Video disc. In this example two subtitle languages are available. When a viewer turns on the English subtitles, the DVD player overlays the English subtitle image files on top of the video according to timing instructions that indicate when each individual subtitle should appear.

## Media on a DVD-Video disc



Video

Come along, sweetheart!  
We're leaving now.

English subtitles

Komm, Schätzchen!  
Ab nach Hause.

German subtitles



### The Dilemma

This particular representation of subtitles is unique to DVD, and there are over 30 different technical delivery formats for subtitles used in the entertainment industry. Therefore, this publisher had a problem – the previously commissioned subtitles were not available in a form that allowed them to be repurposed.

When faced with this dilemma, some content owners have resorted to commissioning the creation of new subtitle streams, incurring the associated production costs. Facing the substantial cost of this approach to republish the entire back catalog, the publisher worked with ZOO on a much more cost-effective solution.

### **Automated Subtitle Reconstruction**

The ZOOsubs service supports sophisticated ingest facilities to deal with exactly the dilemma faced by this publisher. Starting with the large digital file used for pressing each DVD title, ZOOsubs analyses the content and extracts two key sources of information – the individual subtitle images (as reconstructed TIFF files) and the timing information that instructs the DVD player when to turn on and off each overlay image.

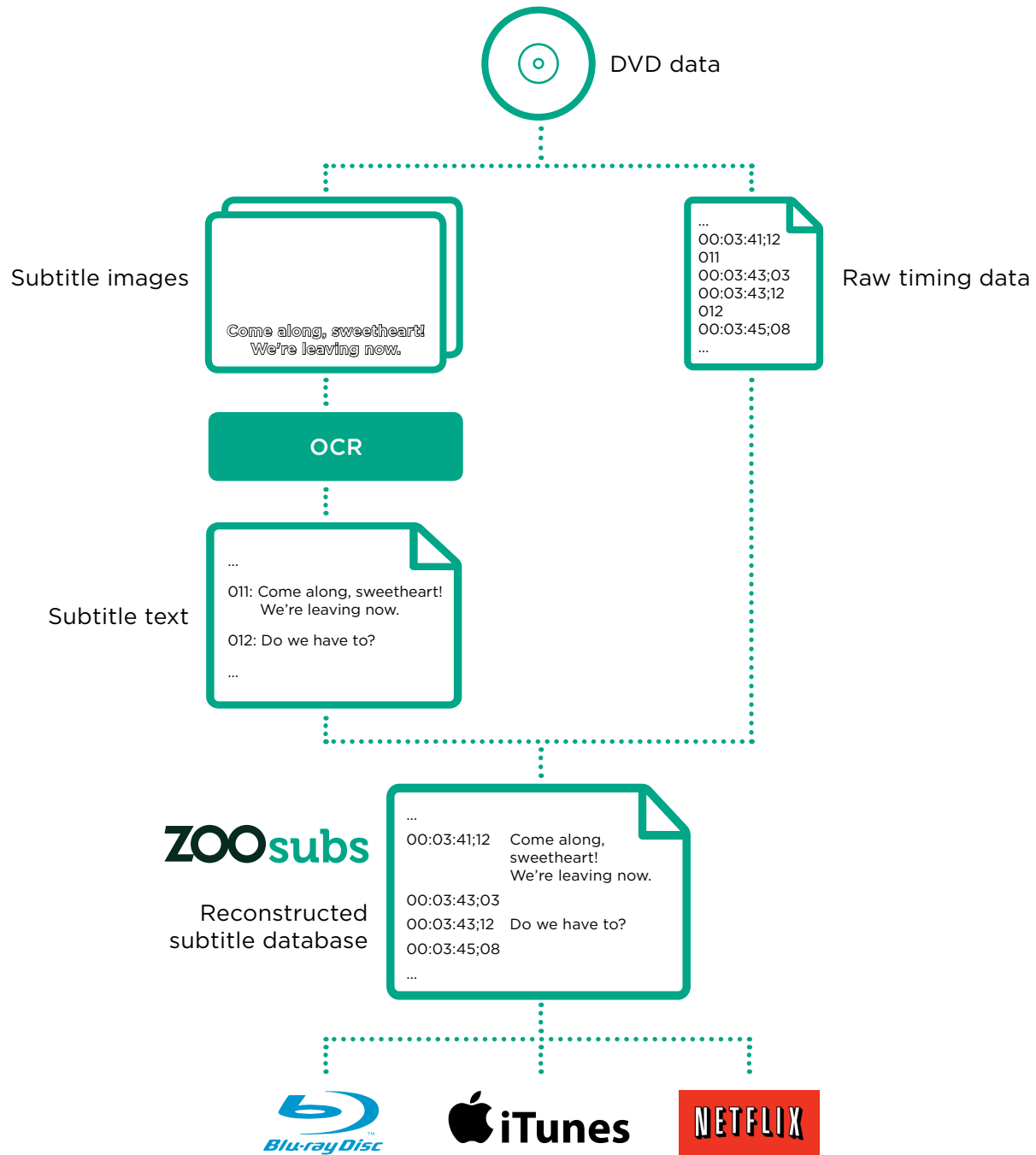
In a second step of the process, Optical Character Recognition (OCR) software is applied to each image in order to recreate the original text information. OCR is normally used on scanned documents and can be inaccurate due to ink smearing, fading and/or marks on the printed pages, but in this case the source images are pristine and OCR delivers a high rate of accuracy.

The process then takes the timing information for each language stream and inserts an entry in the ZOOsubs database for each individual subtitle, synchronized in exactly the same way as on the DVD.

ZOO's Quality Control team verifies each of the subtitle streams to confirm that there are no unexpected errors in the subtitles – this can arise if errors are present on the source DVD assets – and to ensure that each subtitle is positioned appropriately so that it does not obscure any other on-screen text.

Once the QC pass is complete the platform-agnostic subtitle database becomes available to the publisher; distribution packages for each of over 30 technical formats are then available using a secure self-service online portal.

# The ZOO approach



Through the use of ZOOsubs this music publisher has been able to republish back catalog DVD titles on Blu-ray and iTunes and a fraction of the cost and substantially quicker than would otherwise have been necessary.



## Find out more

To find out how your organization can localize content more efficiently, contact our ZOOsubs team.

### North America

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☎ +44 114 241 3700

## Software-powered services for creative organizations

ZOO is a new generation provider of services that works with leading content owners and creative organizations to enable the delivery of media content globally, faster, and for less investment.

We offer highly efficient approaches to creative media production through the use of Cloud computing combined with talented people. This means that our customers can select the combinations of services and technology that best enable them to respond and react to ever-changing market dynamics.

We tailor our offering for each client to deliver quality and efficiency resulting in greater productivity and shorter time to market at lower cost.

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