

## Miura Overview

*"The Complete Media Acquisition Software Solution"*

### Background

For the last twenty years modular video servers have been used by broadcasters and other high end media companies for the majority of ingest and playout of video and audio content. Originally developed to provide a substitute for playout from tape, video servers are also frequently used for the acquisition of content on the basis that video ingested in this way is bound to be compatible with the playout servers. Of course the fundamental flaw in this approach is that video servers that are used for ingest don't require expensive seamless and timecode accurate playout technology and those used for playout don't require encoding capabilities, in either case redundant technology has been purchased. Nonetheless, this model was justified on the basis that there were relatively low numbers of ingest and playout channels and in any case servers dedicated to ingest or playout could be swapped in case of failure.

A modern media organisation requires many more content formats for different purposes; broadcast, broadband delivery, DVD creation and a host of others. Expensive video servers are not cost effective for this type of activity, specialised, flexible and more affordable systems are required.

Simple media encoding systems using standard PCs and specialised capture cards have been available for many years, in fact MPEG encoding cards pre-date video servers having emerged in the early 1990s. However whilst these have been suitable for some basic operations they mostly came from companies not used to supplying broadcasters and few have been found to be suitable for the demanding requirements of intensive high quality ingest.

Enter Blue Lucy Media (BLM) a company founded in 2007 by a group of industry professionals familiar with both broadcast hardware and software and with the initiative to produce an affordable and modular content acquisition and processing system designed with the realities of television broadcast in mind.

The result was the **Miura** product range a series of advanced audio visual processing modules and metadata creation tools targeted at the media and entertainment sector. BLM is a privately owned UK company based in London, operating globally through OEM partners and directly to end customers through a network of value added resellers.

### Miura Product Suite

The flagship product of BLM is the Miura suite comprising eight standard software products that run on readily available and affordable hardware yet can provide broadcast quality and performance, as well as open ended flexibility of supported formats.

#### Miura Ingest and Miura Scheduled Ingest Modules

**The Miura Ingest and Ingest Scheduler products** enable acquisition from tape or lines, creating a full resolution high bit rate master file together with a frame locked lower resolution browse-proxy simultaneously. Accepting HD or SD SDI serial signal, at any standard of frame rate or resolution,



Miura Ingest will allow any CODEC and file wrapper to be used in the file write process e.g. MPEG-2 or IMX50 with an MXF OP1a wrapper for the master in addition to a Windows Media 9 for the browse proxy. Line recording can either be manual (crash record) or scheduled in which case single or batch ingest is supported.

### [Miura Tape and Miura File Logging Modules](#)

**Miura Tape and File Logging** enables metadata to be easily added to content using metadata templates. Operators can review media in real time, including the playback and review of Windows Media files, whilst the ingest process is ongoing. At the same time metadata may be added as required and timecode delineated clip lists produced and saved. These clip lists may be exported to ingest applications, including the **Miura ingest** modules, to editors to create highlight packages or to remove content as part of a compliance process, or to a third party content management system database for later use.

### [Miura Basic AV Editing and Miura Transcoding Module](#)

The **Miura Editor** module allows multiple users to trim and edit file based content frame accurately at their desktops using browse quality files to create Edit Decision Lists (EDLs). The EDLs are then passed to a BLM renderer component which re-stitches and conforms the edit from the master source content and applies any effects.

Operating via a Web Service, the **Miura Transcoder** module is a transcoding system which also provides software filters and noise reducers, logo insertion, embedded data insertion, file (container) re-wrapping, standards conversion and more.

### [Miura Tape Layback and Miura Basic Playout Modules](#)

The **Miura Tape Layback** product frame accurately plays out content as an HD SDI stream from a compressed media file such as H.264 or MPEG-2 while controlling a VTR for frame accurate layback. A preview monitor view is provided to monitor the destination tape.

The **Miura Playout** product similarly is a file to stream player that is particularly ideal for news playout. It includes VTR emulation using a VDCP interface to control automation systems in addition to manual playout control buttons, alternatively playback from multiple devices may be controlled using a thin client control application or directly through the Web Services API.

### [Miura in Action](#)

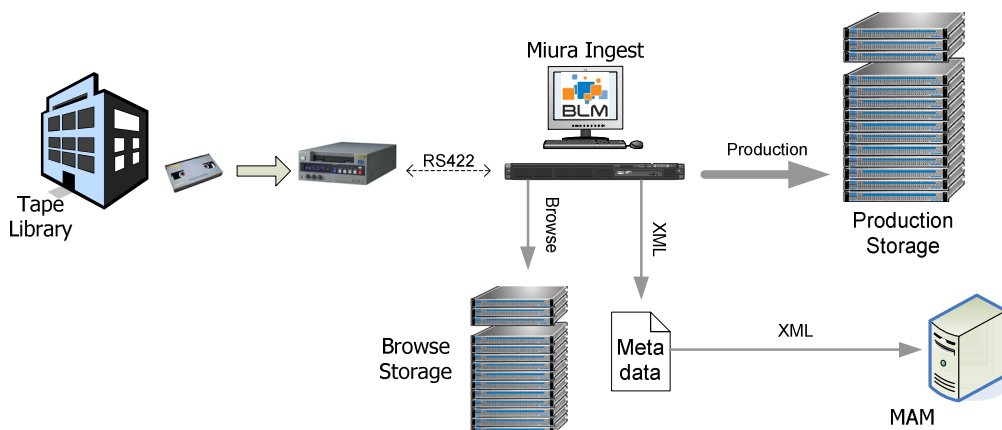
The following are some examples of the many possible applications of Miura components for high end content acquisition and processing.

#### [Archive Ingest](#)

One of the most common applications for Miura is the 'digitisation' of a tape based archive, either to create an in-house library of archive content or for later distribution via the web or a closed IPTV portal. A Miura Ingest workflow is shown below. This simple implementation is highly efficient and effective and illustrates how an owner of premium content held on legacy tape formats, may use



Miura to ingest and begin to monetise these assets – the so called exploitation of the content long tail.



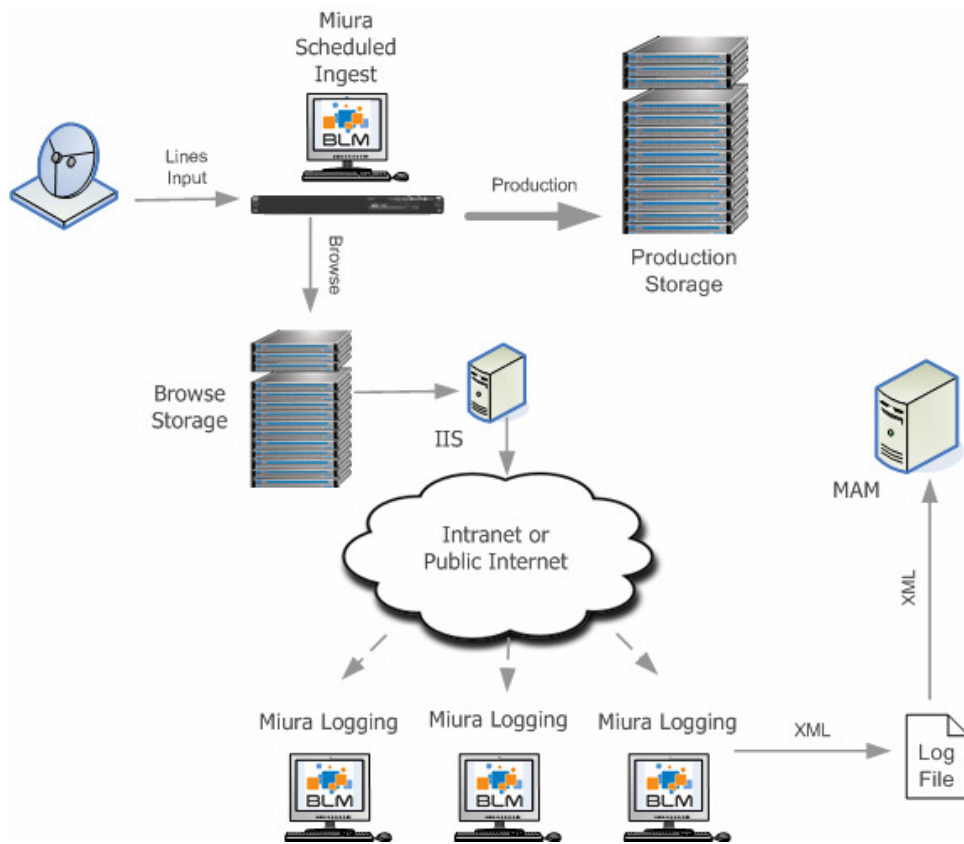
As shown above, for manual ingest archive tapes are retrieved from the Tape Library and loaded into a local VTR. Each tape may contain several discrete clips, so using the Miura thin client application, running on an office computer, the operator previews the tape content and builds up an ingest list delineated by time-code, of the clips to be digitised. At the same time the operator adds metadata for each clip asset using the Miura client UI, information such as year of production and some content keywords are captured together with standard data such as clip name and duration. When the ingest list is complete a single click on the ingest key and Miura automatically ingests the individual clips as a batch, freeing up the operator to get on with other tasks.

The system supports the ingest of a full resolution high bit-rate master which is written as MPEG-2 I-frame, 4:2:2 at 50mb/s that is suitable for subsequent editing together with a Windows Media 9 browse proxy file.

As standard Miura stores multiple ingest profiles to allow for the different requirements of resolution and format. In addition as part of the ingest, a de-interlace filter is applied upstream of the encoding together with a noise reducing pre-filter which removes analogue artefacts for the highest image quality in the output file. If required at the encoder stage a digital watermark – perhaps a company logo – is ‘burnt’ into the Windows Media file to prevent this being ‘scraped’ from a public website.

On ingest Miura takes control of the VTR deck, via an RS422 interface and frame accurately ingests each clip in real time. The master file is written directly to the facility central storage and the browse proxy together with the metadata – which in this instance is XML – are written to another storage area volume. The metadata may be automatically picked up using a watch folder by a content management system or MAM, in which case the material is immediately made available on a web portal.

Scheduled Ingest and Logging



Camera or line feeds are connected to the Miura server which will begin recording production and browse versions simultaneously according to a schedule held in the Miura system. To facilitate remote logging the browse file is served up via HTTP, using IIS running on the Miura Server such that the WM9 may be viewed in any Silverlight enabled player, on the local network, or over the public internet.

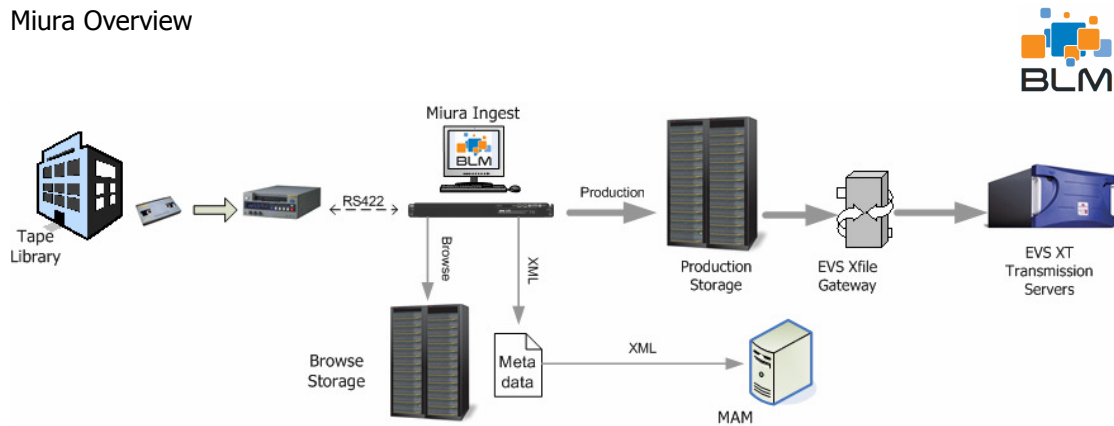
This media file serving mechanism unique to Blue Lucy Media which is not a clumsy ‘chunking’ function, allows the logging operator to seek randomly within the growing WM9 file, facilitating pause, fast (re)wind and single frame advance. The ability to pause and re-review material whilst it is being recorded is particularly helpful for accurate logging – for instance for content compliance logging or a sporting event in which the action moves quickly.

The log files, which are time-code frame accurate with respect to the stored master file, may be created directly within a Media Asset Management system or uploaded periodically to another application from the logging client.

Ingest for Transmission

Miura is ideally suited for use in ingest for transmission as it is a scalable and flexible system that can adapt to the stringent requirements of broadcasters and others.

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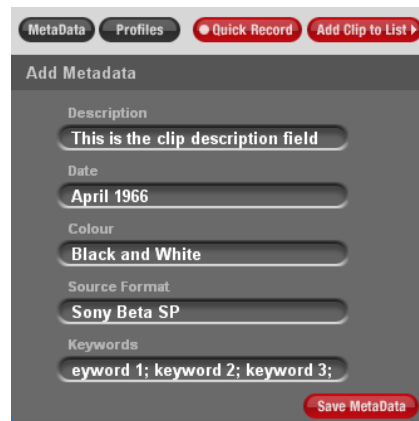
As an example the diagram above shows a straightforward method by which SD or HD material may be ingested using Miura as an IMX50 file in MXF OP1a container, and subsequently pushed onto an EVS XT[2] play-out server system via an EVS XFile software gateway. The destination server system here is the EVS XT[2] but could equally be for instance an Omneon Spectrum system or a Video on Demand (VoD) system. Even at low content volumes of a few tens of hours a week, a Miura implementation for this type of ingest will quickly justify the investment committed to it.

### [Ingest for Edit](#)

Similar to the example described above for bulk ingest for transmission, open operating standards and general improvements in interoperability, enable Miura to be deployed for bulk content ingest for edit. In the case of Apple's Final Cut Pro (FCP) and XSAN this is straightforward with Miura being able to write content in native file formats directly to the Apple XSAN mass storage device. For an Avid facility which utilises ISIS / Interplay, the Avid Transfer Manager or the Medway tool from Marquis Broadcast will be required as the gateway between the Miura storage volume and ISIS. Even with this added step – which re-wraps the MXF OP1a files output from Miura as OPAAtom suitable for use with Avid tools - the cost benefit of deploying Miura for ingest rather than using a Media Composer or Airspeed is significant, and the Miura browse proxy is always frame accurate with respect to the master.

## Metadata

Miura allows operator entered metadata to be preserved as XML, to be written to a file and subsequently passed to other systems such as Media Asset Management.



The Miura metadata capture view shown above is truncated for simplicity, in deployed systems, the metadata set is entirely user configurable, and may extend to the entire MXF DMS-1 schema. Additionally, metadata may be written to an MXF wrapper (OP1a) rather than an XML file for use with downstream systems.

## Standards

Miura products are designed to comply with standards and common working practices in the media industry. Miura currently supports the following formats:

### File Formats

MPEG-1  
 IMX / D10  
 DV  
 H264  
 VC1  
 MJPEG

MPEG-2  
 DVCPRO 25/50 HD100  
 DNxHD  
 AVC  
 Windows Media

### Container Formats

MXF OP1a  
 MOV  
 MP4

AVI  
 MPG  
 FLV

### Media Players

Microsoft Media Player  
 Microsoft Silverlight Media Player

### Integration

Web Services  
 XML file exchange

## Metadata

MXF DMS-1  
 Custom