



iMP

Intelligent Metadata-driven Processing and distribution of audiovisual media

Publishable Summary (Part of Periodic Report 3)

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PROJECT PERIODIC REPORT

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3.1 Publishable summary

Project description

iMP research focuses on architecture, workflow and applications for intelligent metadata-driven processing and distribution of digital movies and entertainment. The goal is to enable a 'Virtual Film Factory' in which creative professionals can work together to create and customise programmes from Petabyte - scale digital repositories, using semantic technologies to organise data and drive its processing. By separating metadata from essence, controlling all the image and sound processing operations from the metadata layer, the underlying data library can be maintained unchanged while enabling a new generation of more flexible applications. This will radically reduce the amount of data created: new versions, grades, or language releases only result in additional metadata, not new data files. The system will support a more automated workflow for content distribution from postproduction to the assembly, distribution and playout of multiple variations of programmes in different formats and locations.

Summary of activities

The major achievements of the project in the final period, grouped by focus, are:

- **Metadatabase and Middleware**
 - Completed installation of metadatabase server at two sites, Laspospo premises in Barcelona, Spain, and Filmlight premises in Soho London
 - Prototype of Intelligent Storage, and Middleware v2
- **Tools and Technology**
 - Fully functional multi-head Baselight metadata browser
 - 3D Browser integrated with metadata of server
 - Nuke Plugin XML output for integration with metadata of server
 - Audio framework layer which allows the decoupling of all processes normally done in an audio post-production (editing, EQ, etc), and all processes related to 3D sound
- **Semantic media management and distribution**
 - Post-Production Semantic Assistant
 - Final integration steps of the satellite distribution system, ready for live demos and tests

The iMP project began the 1st January 2009, and at the end of June 30th, has now finished. The current results of the project are excellent, and the project can be said to have completed all of its main objectives.

The different work areas within the project are the following:

Imp Metadatabase

The metadatabase constitutes the core of the new infrastructure development for the Virtual Film Factory (VFF). Without it, the data management of the content flowing into and out of the VFF would be too cumbersome, too slow and too complex. The creative aim of the VFF is to assist and encourage the interactive creation of iterations and versions which enable a superior creative outcome. That creative aim is simply not attainable within a framework based on conventional file system structures. The rationale behind the database was described more completely in the second year periodic report.

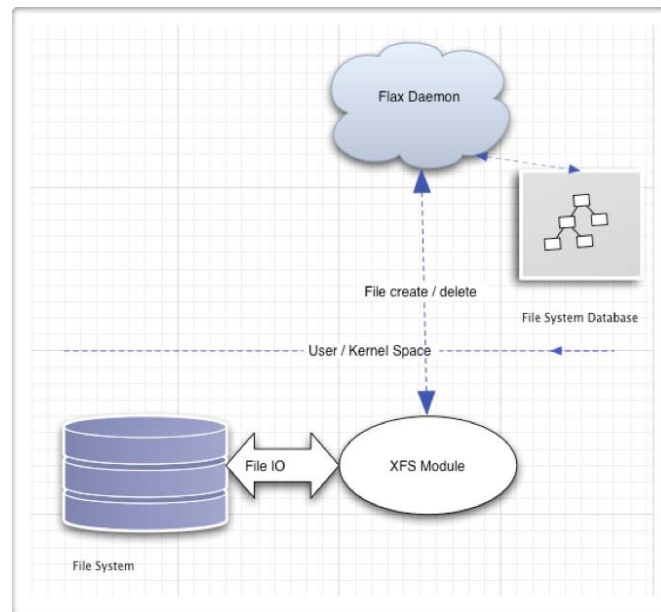


Figure 1: Metadatabase file system overview. The upper half of the diagram shows how the ‘public’ face of the files system metadatabase (the standard file system interface) interacts with the lower level systems that maintain associated metadata with files stored in a standard file system.

The initial metadatabase prototype image server was installed at Lapospo on the 1st of October 2010. An identical server has been in operation at FilmLight in London since a few months earlier. Both machines have remained in their physical configuration unchanged since their initial installation. This configuration consists of a 16-channel RAID controller connected to 16 TB of raw disk space, formatted as a single volume of 12TB, with a dual multicore processor server motherboard with 4GB of memory.

In the final 6 months of the project, the database has undergone considerable testing, and has shown some startling performance improvements, notably a 70% improvement in storage efficiency, potential 50% improvement in postproduction efficiency, and an order of magnitude improvement in the conform process.

Also, Filmlight’s Baselight browser has been adapted for use with the metadatabase, allowing complex search and grouping actions to be carried out in a manner that simply was not possible before.

Novel semantic, visual and audio applications

In close collaboration with Filmlight and Lapospo, the academic partners of the project (Universitat Pompeu Fabra - UPF, Barcelona Media - BM, and the National University of Ireland Galway - NUIG) have developed a series of novel applications that improve the post-production workflow:

- Semantic post-production assistant (PPA) – The *D6.1.3 Semantic Tools and Ontologies Documentation* reports on the advances and new contributions to the PPA system and knowledge database, building upon D3.1.3 and explains the advances and the application of the iMPO (iMP Ontology) concerning concrete use cases that were developed and introduced in the deliverable D3.1.4. The deliverable D6.1.3 introduces updates of the post-

production workflow models based on interaction with the project partners. Further, D6.1.3 explains updates concerning the set of iMP ontologies as well as details out the communication between Flax (cf. section 3.1 of the deliverable) and the PPA, establishing the integration. Eventually, D6.1.3 explains in greater detail how the PPA is related to workflow models.

- Visual Applications – the increase and ease of access to metadata has allowed UPF to create a series of novel visual applications that allow users to more quickly visualise and access crucial data, including a plugin for the Nuke compositing tool, an industry standard software application developed by The Foundry, demonstrating the integration of the metadatabase with third party applications.

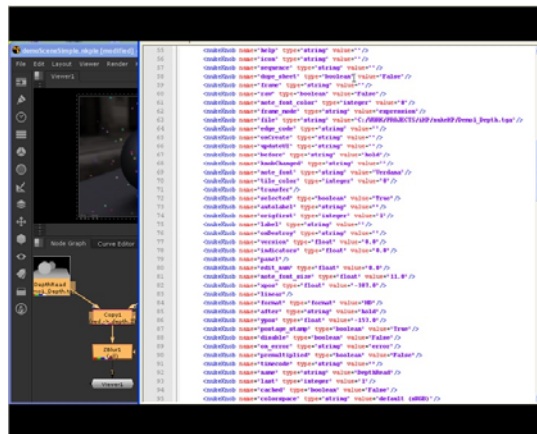


Figure 2: Screenshot of the plugin developed for Nuke by UPF

- Novel Audio Applications – BM has integrated the novel post-production tools in a framework which exploits the metadatabase layer. This layer allows the decoupling between all processes normally done in an audio post-production (editing, EQ, etc), which remain within professional digital audio workstations like Protools, and all processes related to 3D sound, which are done in what is called an Immersive Audio Workstation.

Satellite Distribution Prototype

Datasat Digital has developed a full satellite distribution system for cinema content. The system was tested at four different receive sites:

- Cine World, Milton Keynes
- DDE (formally DTS), Twyford
- Cine Full HD in Splau, Barcelona
- Lapospo, Barcelona

These tests were carried out using live satellite links, allowing ‘users’ at the receive site to order content using the Theatre/Screen Management System (via the internet), and then receive the files over the satellite link. A VPN is also set up between send and receive sites, to ensure obtaining successful file transfer acknowledgements (or requests for repeat segments if received files are incomplete).

Dissemination, Promotion and Awareness

In the final six months of the project, several showcase events were held to demonstrate and disseminate the iMP project. The key events that took place were:

FilmLight Technology Showcase, Los Angeles – 2 day event intended to give both an update of the technology shown at NAB for those who could not attend the event back in April, and to give a preview of further product integration, covering the iMP project and related technologies

FilmLight Technology Showcase – Expo Cine Telemundo, Mexico - used as an opportunity to show the iMP metadata browser and the integrated metadata workflow with FCP

iMP Distribution Technology Showcase – Splau HD Cinema, Cornellà de Llobregat, Barcelona & other sites – Live demonstration of several iMP technologies, in particular the satellite distribution system, in several sites including a real working multiplex cinema

iMP Showcase – ICT Industry Day at Universitat Pompeu Fabra – Demonstration of iMP technology to over 50 companies and research institutes as a dedicated ICT industry demonstration day at UPF

iMP Showcase – Dimension 3 – In partnership with fellow FP7 project, 20203Dmedia, iMP technology was demonstrated at the Dimension 3 trade show in May 2011.