# EMWRT III :

# Memories & AXIS

## Amsterdam 12/09/2008

*Prepared by:* Guy Maréchal & Eric Lesage / Philippe Scohy

# EMWRT III : Memories and AXIS

1. *Memories*
2. *The concepts, models and thinkings*
   a. *The Federated archives*
   b. *The OAIS model (ISO 14 721)*
   c. *The SNIA Model*
   d. The models reflexions
      - The usual “Flat model” approach
      - The “ENTITY” rich model approach as implemented in the «AXIS backbone»
3. *Defining profiles*
   a. The « AXIS constructors »
   b. The -aci- document : « Axis Configuration & Indexing »
4. *The personalized Profiles*
   1. The interview profile
   2. The Music profile
5. *Q & A*

# Memories Project

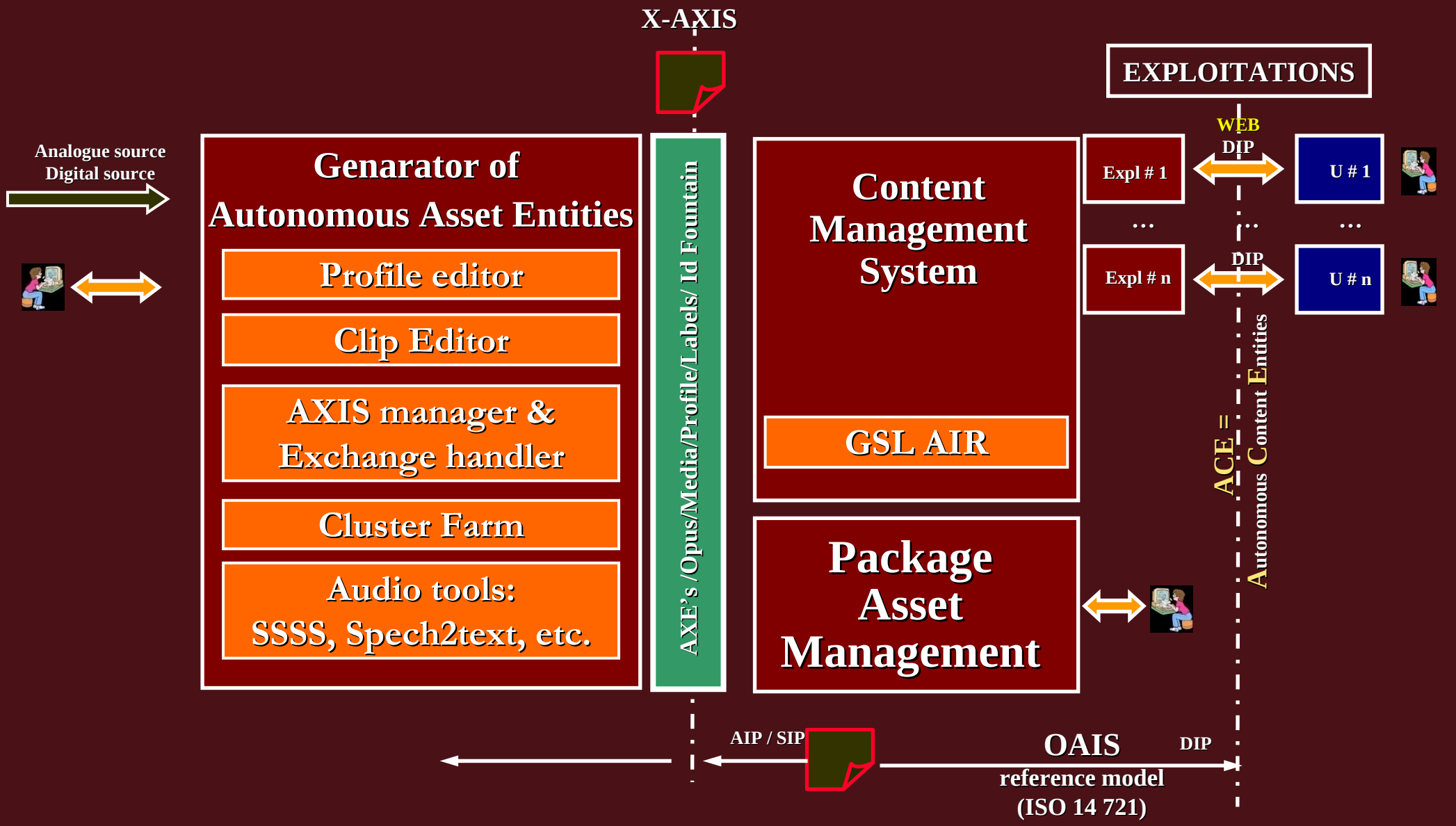
## www.memories-project.eu

*The MEMORIES project focuses on the SOUND media chain:*

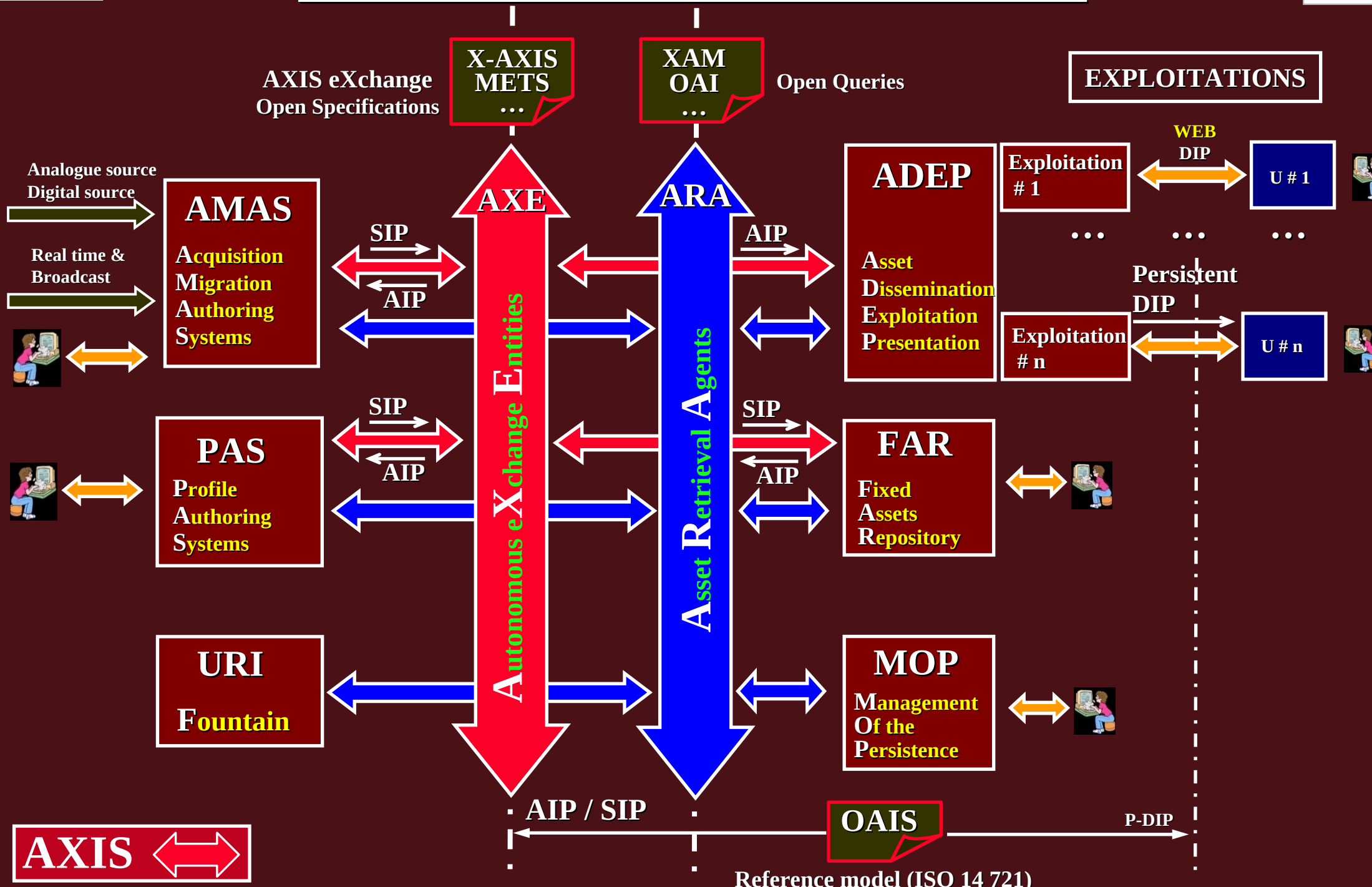
- *The improvement of the acquisition processes*
- *The improvement of the retrieval processes*
- *The definition of an "Open eXchange Format" based on standards, mainly the OAIS reference model (ISO 14 721)*

- *The evaluation and validation by using a demonstrator fed with a large spectrum of domain of applications.*

# Demonstrator components



# The AXIS functional reference model



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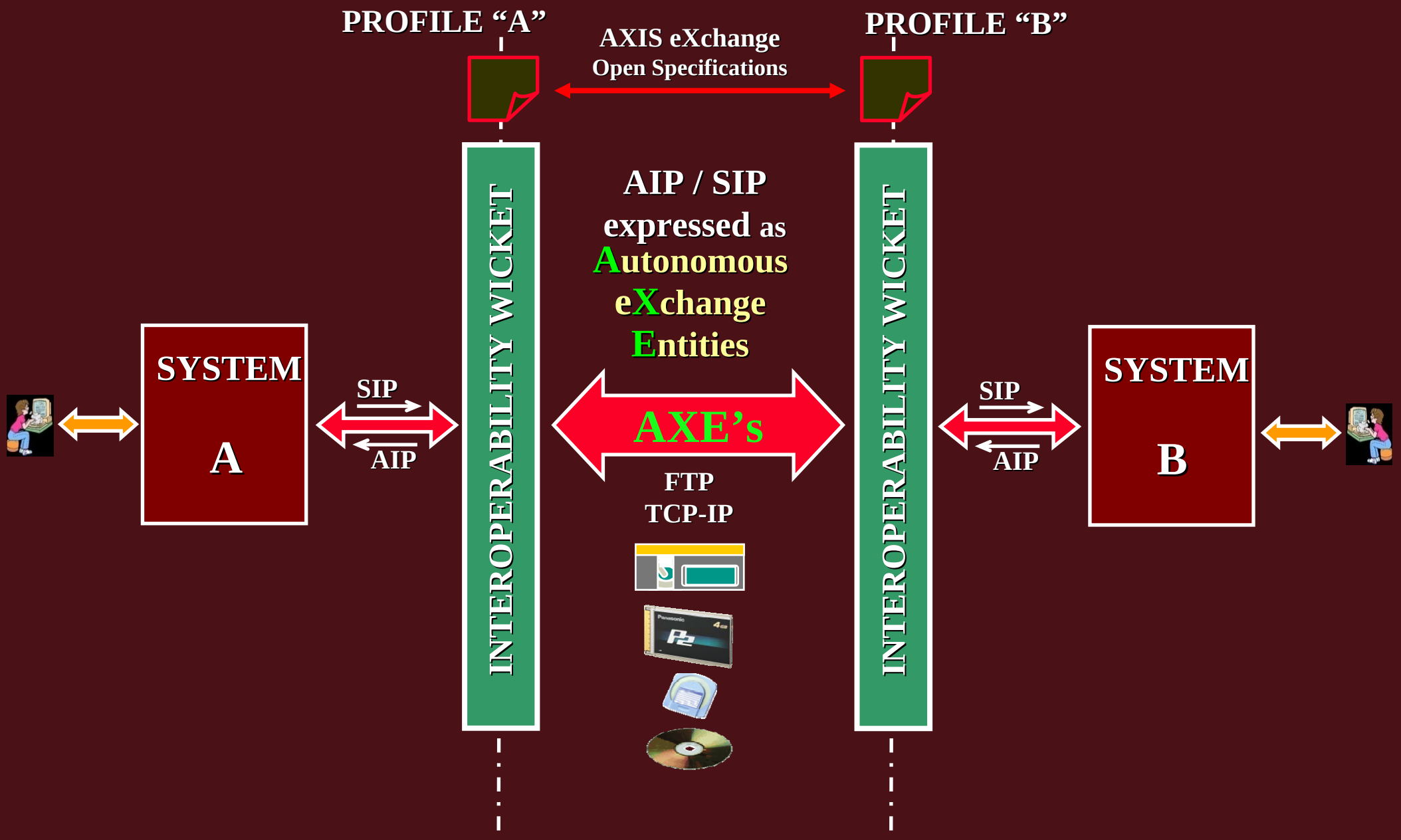
# ENTERPRISE REPOSITORIES
# &
# FEDERATED ARCHIVES

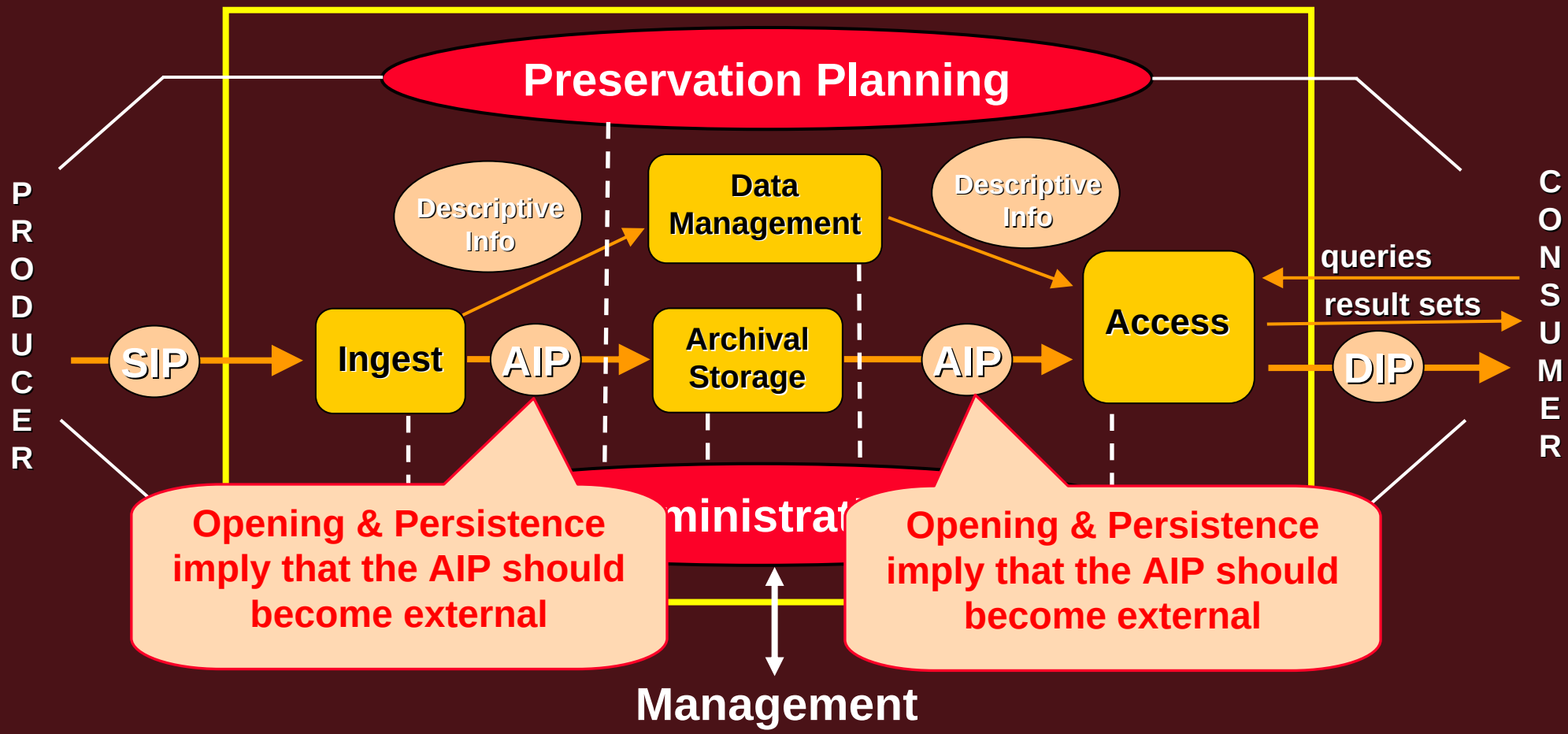
## Realised as a 'federation' of functional modules

1. Each functional module is represented in each 'federation' as to make operational all of the functions as required by the OAIS reference model
2. Each functional module could occur many times in one 'federation'
3. Each functional module could be member of several 'federations'
4. Each functional module manages an UID/URI system with alias:
   - *One* UID/URI *system per 'federation' which could be own or selected as the one of another 'federation'*
   - *Within each functional module, each* ENTITY *and each* DOCUMENT *is identified with all the UID / URI systems of all the federations in which the functional module is member*

# The AXIS reference model (exchanges & migrations)

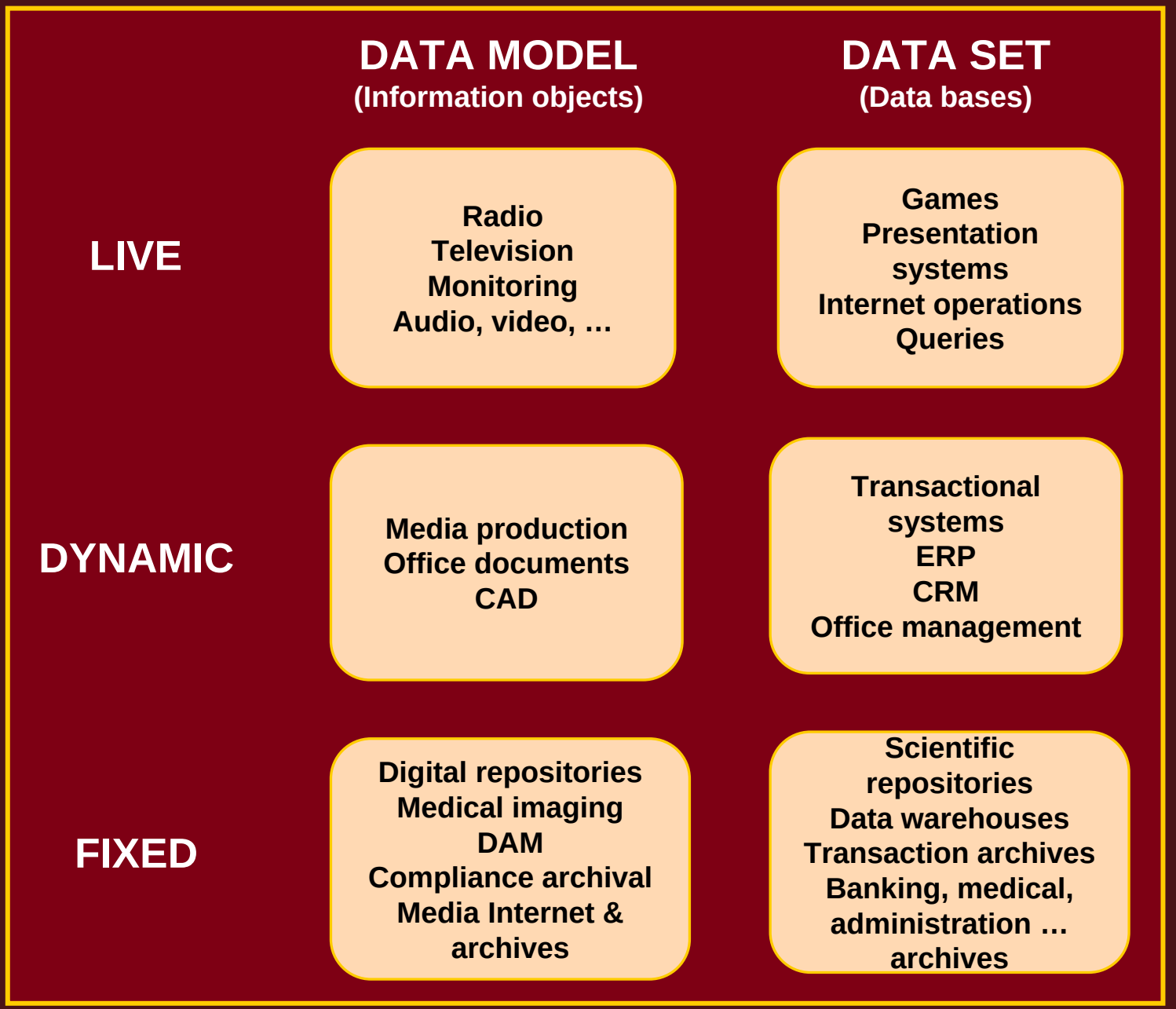


# The OAIS (Open Archival Information System) functional reference model :



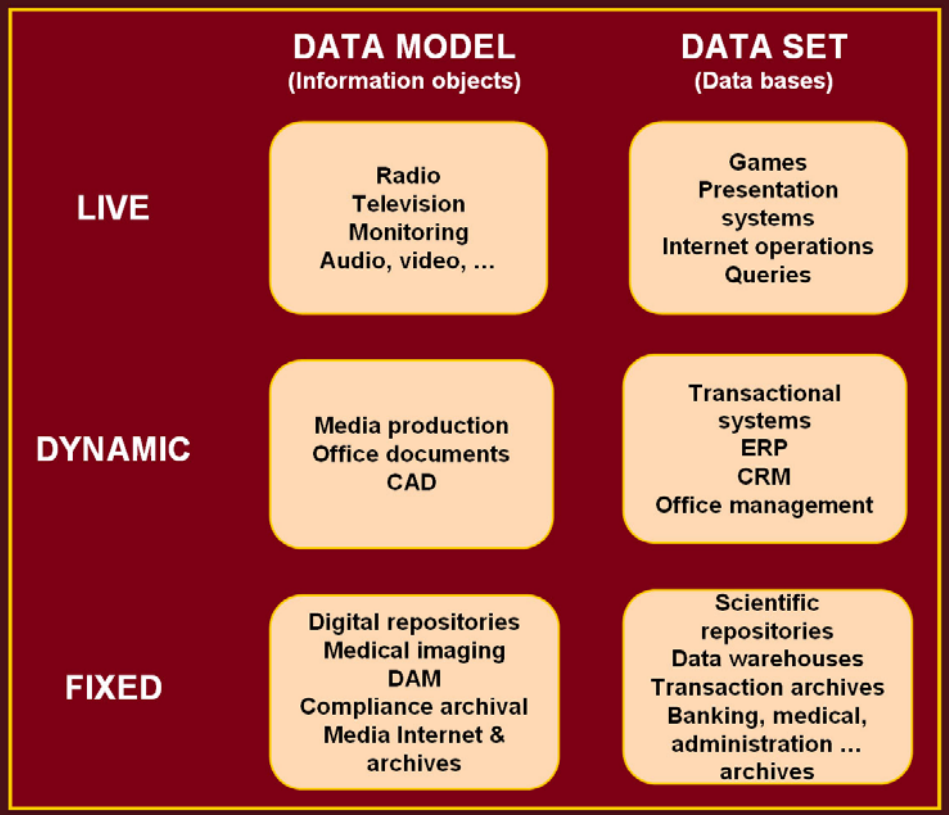

The project does not intend to develop an Open Archival Information System !

# The SNIA Model




**SNIA : Storage Networking Industry Association (EMC – SUN – HP – IBM - …)**

# The SNIA Model



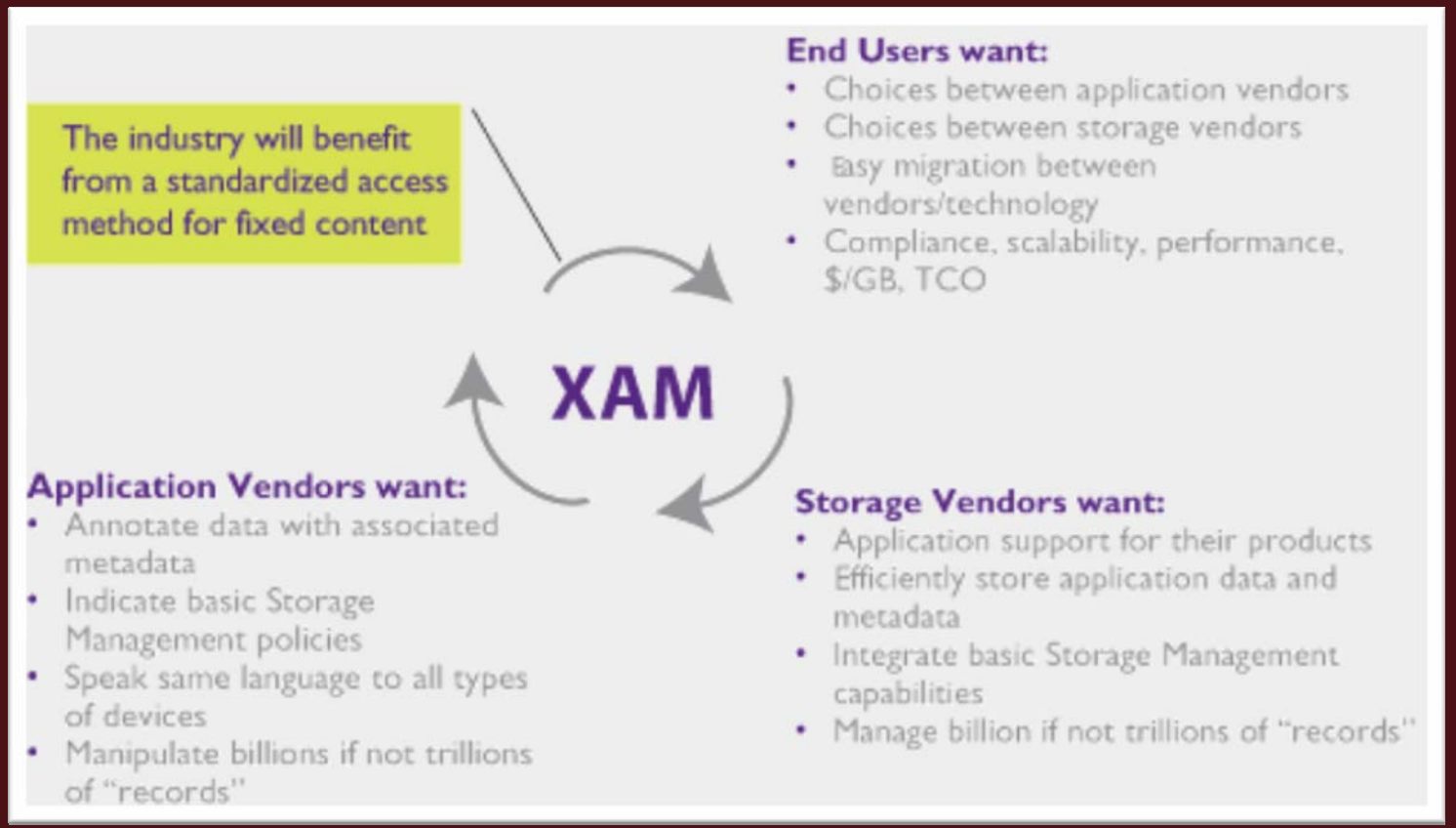

The SNIA claims that the requirements of each of these six "Functional domains' are such that each requires distinct technological solutions and exploitation rules.

For the 'Fixed Content' the SNIA commits to:

- Standardized access
- Formal build-in coupling of the
  - *Information Object with its related*
  - *Metadata and Identifiers*

**SNIA : Storage Networking Industry Association (EMC – SUN – HP – IBM - ...)**

# SNIA - XAM


The industry will benefit from a standardized access method for fixed content
End Users want:
• Choices between application vendors
• Choices between storage vendors
• Easy migration between vendors/technology
• Compliance, scalability, performance, $/GB, TCO
XAM
Application Vendors want:
• Annotate data with associated metadata
• Indicate basic Storage Management policies
• Speak same language to all types of devices
• Manipulate billions if not trillions of "records"
Storage Vendors want:
• Application support for their products
• Efficiently store application data and metadata
• Integrate basic Storage Management capabilities
• Manage billion if not trillions of "records"

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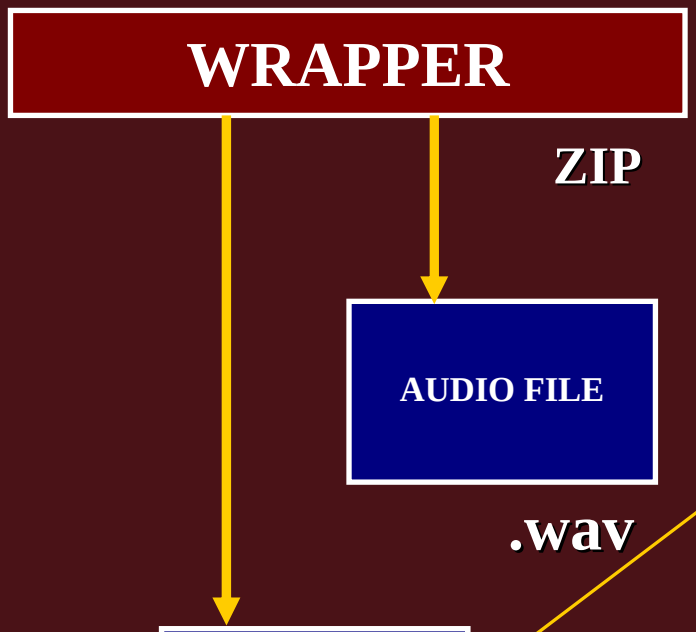
# The Flat Model : The « USUAL » one level wrapping




*Example of an excerpt of a XML document « Dublin Core »*

*Notice that, for simplicity, the 'natural language' is not expressed*

```
<?xml version="1.0" encoding="UTF-8"?>
<oai_dc:dc >
    xmlns:oai_dc="http://www.openarchives.org/OAI/2.0/oai_dc/"
    xmlns:dc="http://purl.org/dc/elements/1.1/"
    xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
    xsi:schemaLocation="http://www.openarchives.org/OAI/2.0/oai_dc/
    http://www.openarchives.org/OAI/2.0/oai_dc.xsd">
    <axis:opus>
        <dc:title >Eine kleine Nachtmusik</dc:title>
        <dc:creator>Mozart</dc:creator>
    </axis:opus>
</oai_dc:dc>
```

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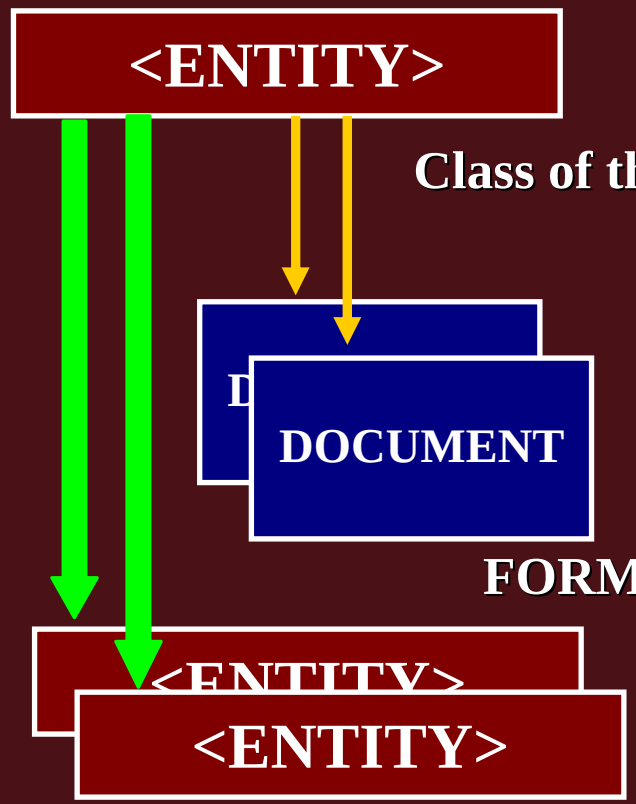
# DEFINITIONS & SYMBOLISM

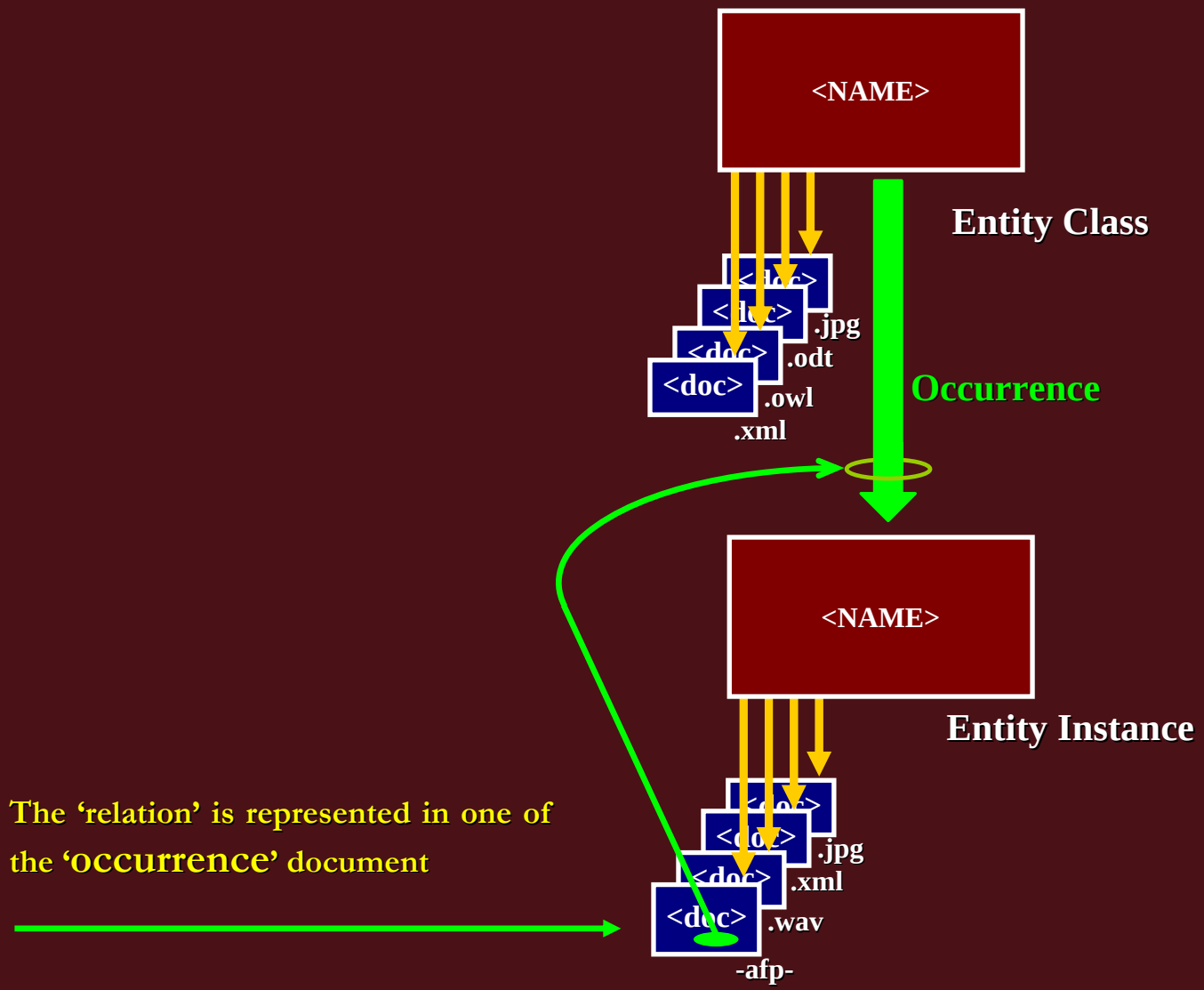
*An ENTITY is an abstract or concrete 'resource' modeled by one or a set of DOCUMENTS and/or ENTITIES:*

- *Each ENTITY has characteristics identified by 'modeling technology' coded by its Class of ENTITY.*
- *The documents owned by the ENTITY are shown attached by small orange arrows:*
- *The relation of the ENTITY with another ENTITY are shown as large green arrows:*

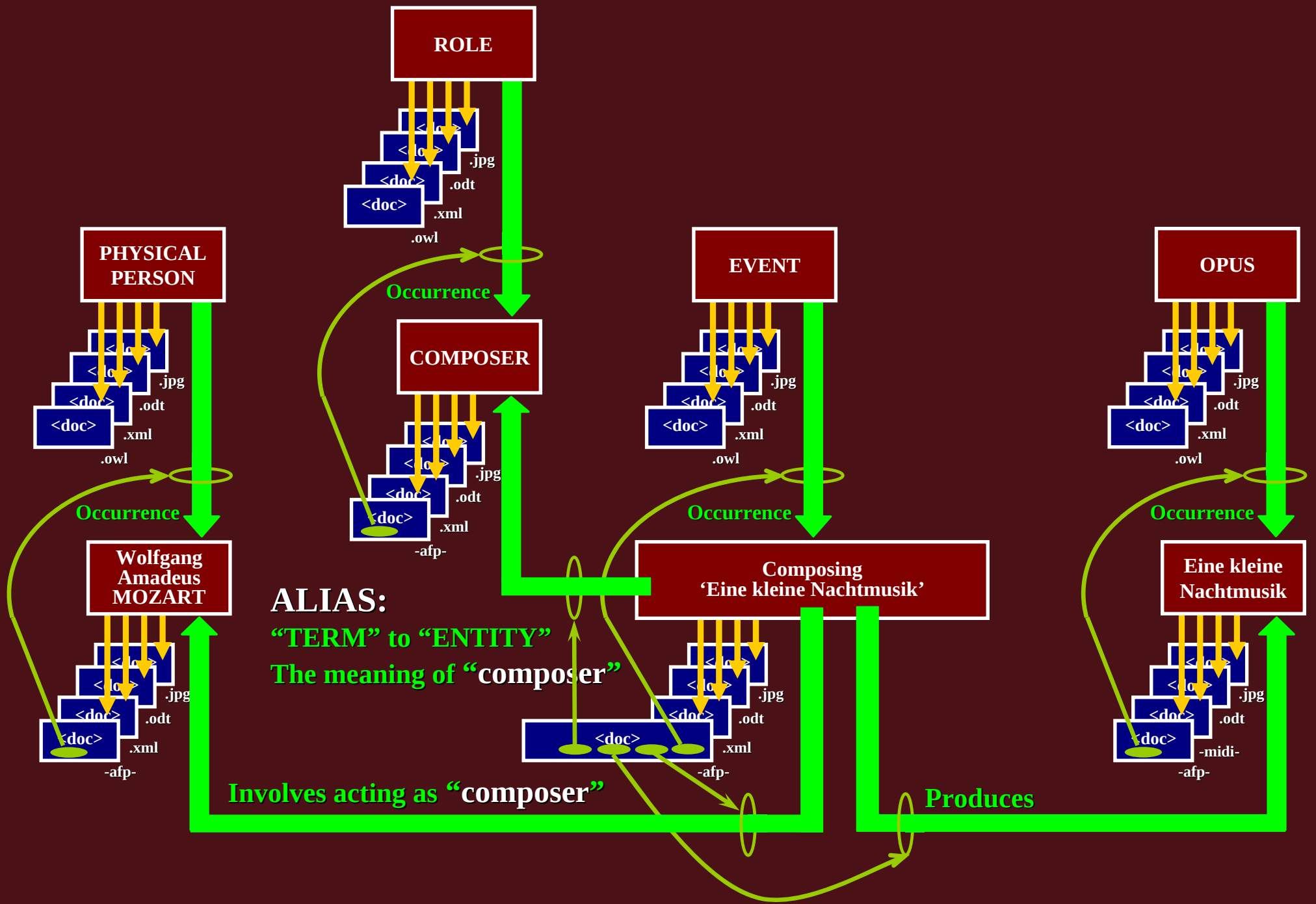



*A DOCUMENT is a reachable 'resource' expressing a model of one or several ENTITIES according to one identified 'modeling technology' coded by its FORMAT of DOCUMENT.*

# The abstract 'object oriented' « ENTITIES »
# The concrete « DOCUMENTS »



# RICH MODEL : A composite concrete example:



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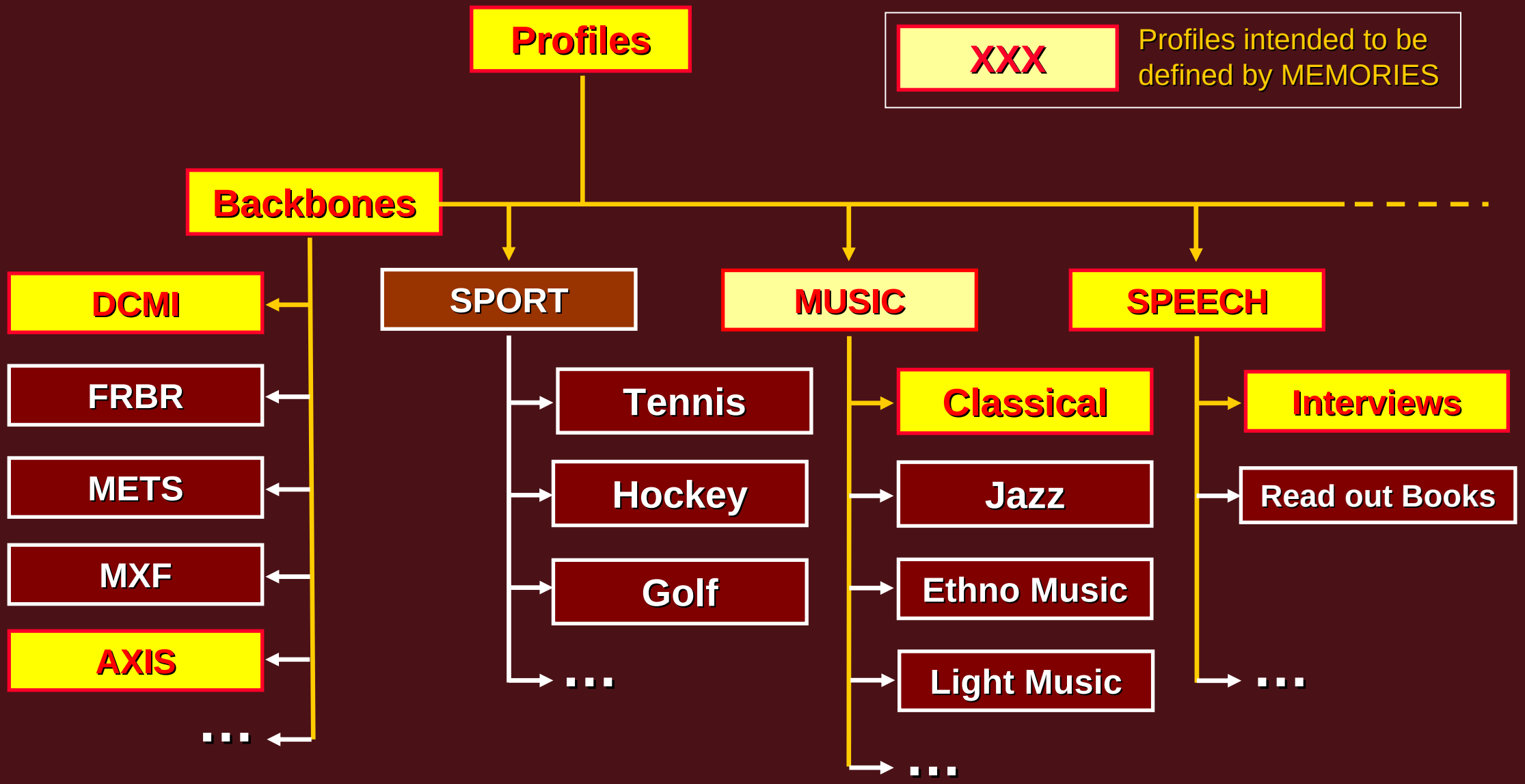
# Typical PROFILES



# The concept of " PROFILE "

## A « Profile » is defined by

- An identification system for the resources, including No (or one) "Namespace" and the reference to all the "Namespaces" including the definition of the terms required / used in the profile.
- A set of definitions of "Terms" (*with their associated "Encoding Schemes*") and "Set of Terms" (Lists) either by reference to an external term definition (*like the reference to a standard term such as "date"*), or as an explicit local definition set of "Terms" (*with their associated "Semantics"*).
- The definition of "Entities" as resources (*as understood by the RDF standard*) carrying and defined by a set of "Documents" and/or other "Entities".
- The definition of "Documents", either by reference to an external format definition (*like the reference to a standard format such as "wave"*), or as an explicit local definition.
- The definition of "References" i.e. data required as parameters for specific applications.
- A resource carrying the definition

  (*for example, the AXIS profile could be registered at :* http://www.titan/axis/documents/axisCap-v00/)

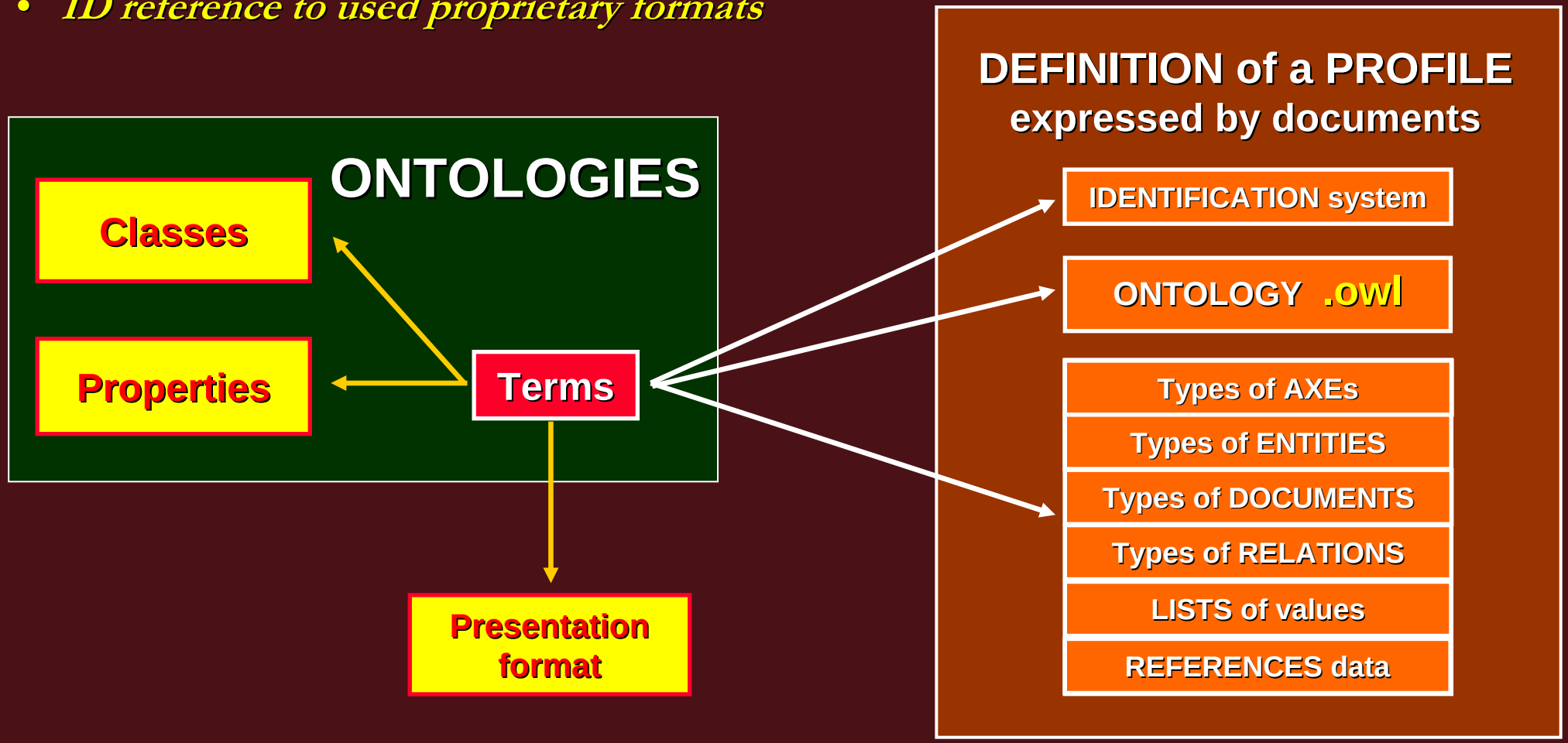
  Note: *The definition of the naming & identifying rules are integral part of the definition of respectively the "Terms", "Entities", "Documents" and "Identifiers & Names"*

# The definition of the PROFILES

**A PROFILE is the formal definition of a coherent set of constructs fitting for the modelling of items pertaining to a semantic domain.**

***In practice:***

- *Local copies of existing formal definitions*
- *Local copy of applicable parts of International & Industrial standards*
- *ID reference to used proprietary formats*



# Example of an –afp- document

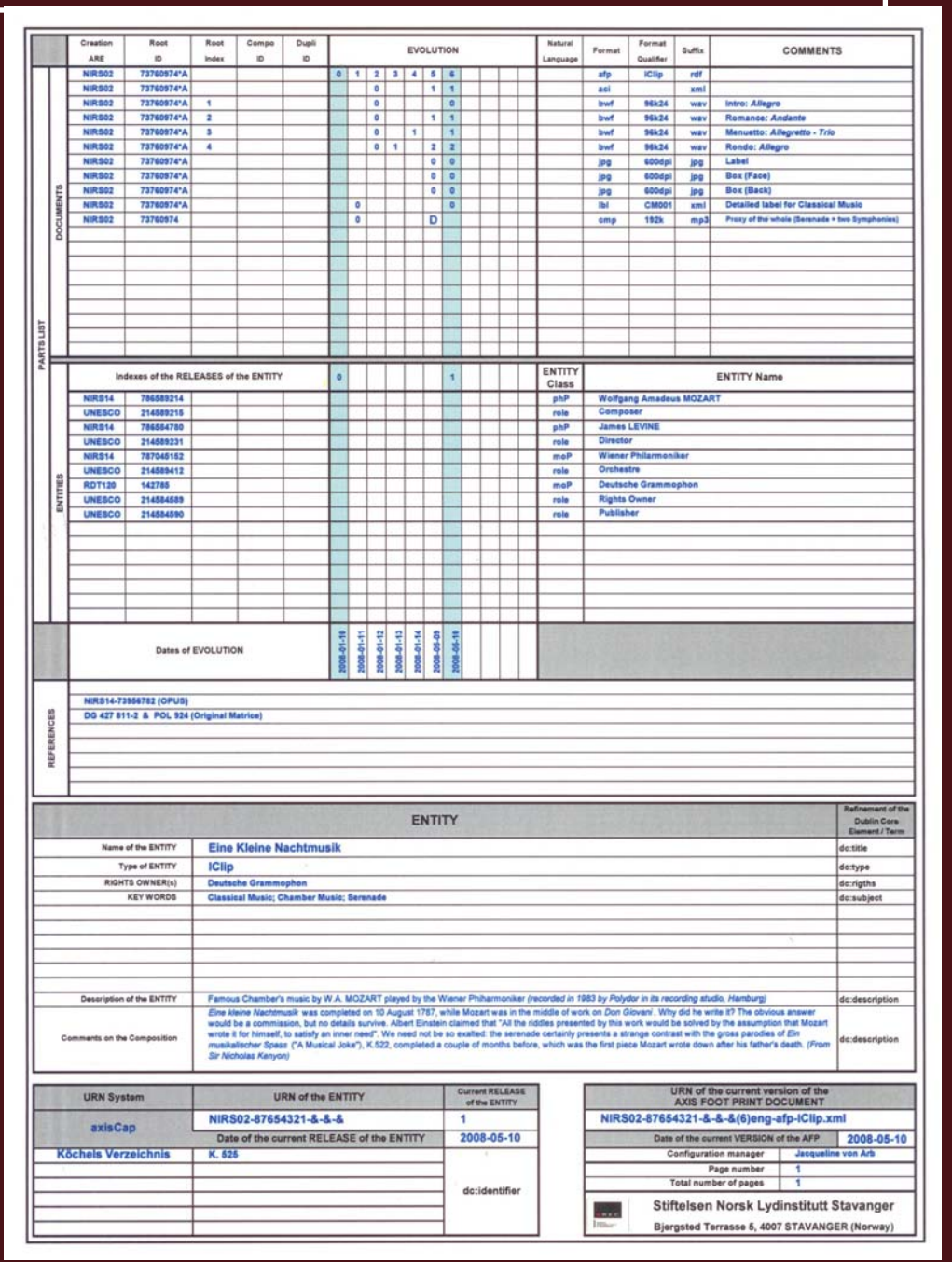
List of documents

List of entities

References

Entity description

URN's area



PARTS LIST – DOCUMENTS

| Creation ARE | Root ID | Root Index | Compo ID | Dupli ID | EVOLUTION | Natural Language | Format | Format Qualifier | Suffix | COMMENTS |
|---|---|---|---|---|---|---|---|---|---|---|
| NIRS02 | 73760974*A | | | | 0 1 2 3 4 5 6 | | afp | IClip | rdf | |
| NIRS02 | 73760974*A | | | | 0 1 1 | | aci | | xml | |
| NIRS02 | 73760974*A | 1 | | | 0 0 | | bwf | 96k24 | wav | Intro: *Allegro* |
| NIRS02 | 73760974*A | 2 | | | 0 1 1 | | bwf | 96k24 | wav | Romance: *Andante* |
| NIRS02 | 73760974*A | 3 | | | 0 1 1 | | bwf | 96k24 | wav | Menuetto: *Allegretto - Trio* |
| NIRS02 | 73760974*A | 4 | | | 0 1 2 2 | | bwf | 96k24 | wav | Rondo: *Allegro* |
| NIRS02 | 73760974*A | | | | 0 0 | | jpg | 600dpi | jpg | Label |
| NIRS02 | 73760974*A | | | | 0 0 | | jpg | 600dpi | jpg | Box (Face) |
| NIRS02 | 73760974*A | | | | 0 0 | | jpg | 600dpi | jpg | Box (Back) |
| NIRS02 | 73760974*A | | | | 0 0 | | lbl | CM001 | xml | Detailed label for Classical Music |
| NIRS02 | 73760974 | | | | 0 D | | cmp | 192k | mp3 | Proxy of the whole (Serenade + two Symphonies) |

ENTITIES

| Indexes of the RELEASES of the ENTITY | | | | | 0 1 | ENTITY Class | ENTITY Name |
|---|---|---|---|---|---|---|---|
| NIRS14 | 786589214 | | | | | phP | Wolfgang Amadeus MOZART |
| UNESCO | 214589215 | | | | | role | Composer |
| NIRS14 | 786584780 | | | | | phP | James LEVINE |
| UNESCO | 214589231 | | | | | role | Director |
| NIRS14 | 787045152 | | | | | moP | Wiener Philarmoniker |
| UNESCO | 214589412 | | | | | role | Orchestre |
| RDT120 | 142785 | | | | | moP | Deutsche Grammophon |
| UNESCO | 214584589 | | | | | role | Rights Owner |
| UNESCO | 214584590 | | | | | role | Publisher |

| Dates of EVOLUTION | 2008-01-10 | 2008-01-11 | 2008-01-12 | 2008-01-13 | 2008-01-14 | 2008-05-09 | 2008-05-10 |
|---|---|---|---|---|---|---|---|

REFERENCES

NIRS14-73986782 (OPUS)
DG 427 811-2 & POL 924 (Original Matrice)

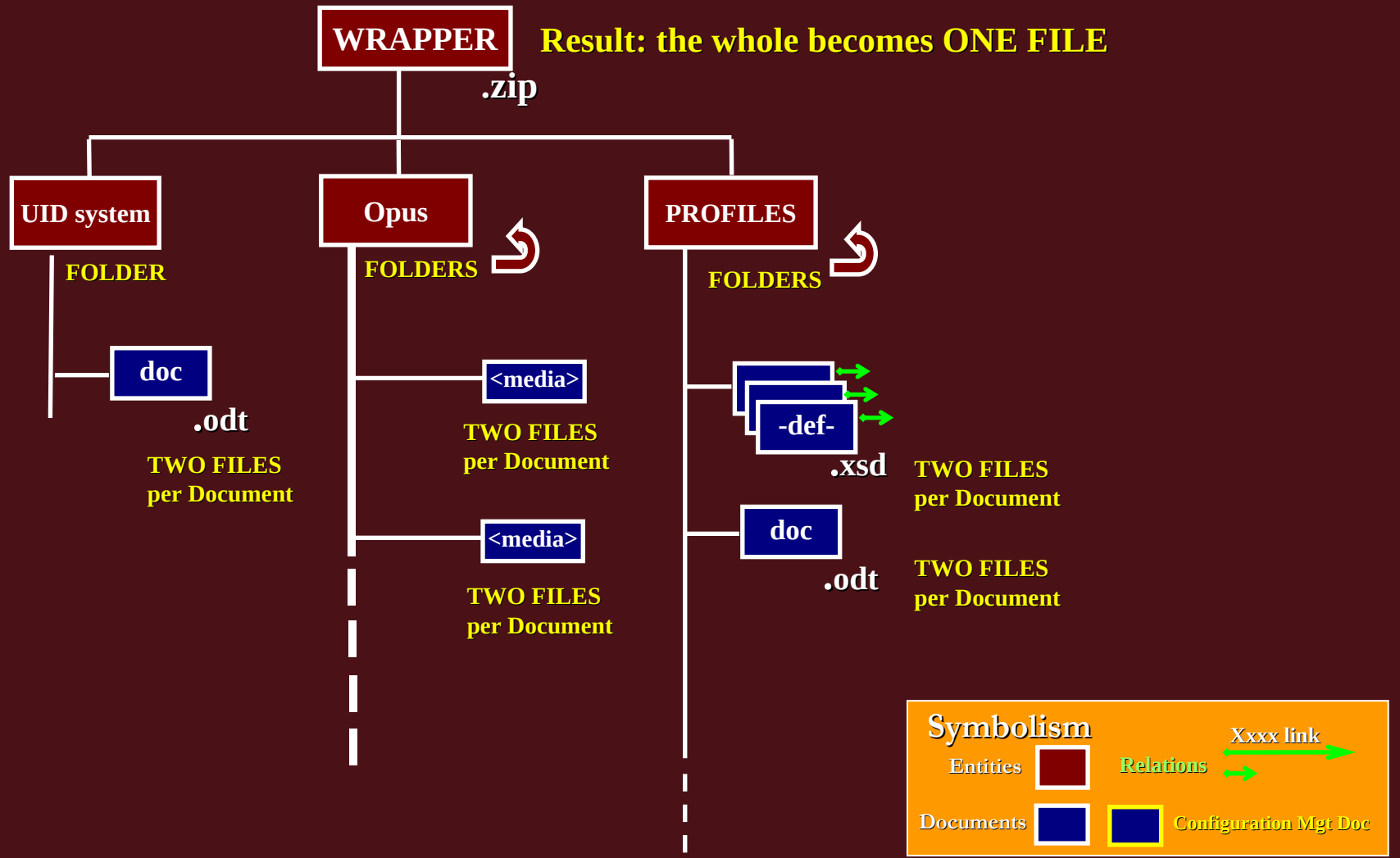
| ENTITY | | Refinement of the Dublin Core Element / Term |
|---|---|---|
| Name of the ENTITY | Eine Kleine Nachtmusik | dc:title |
| Type of ENTITY | IClip | dc:type |
| RIGHTS OWNER(s) | Deutsche Grammophon | dc:rigths |
| KEY WORDS | Classical Music; Chamber Music; Serenade | dc:subject |
| Description of the ENTITY | Famous Chamber's music by W.A. MOZART played by the Wiener Philharmoniker *(recorded in 1983 by Polydor in its recording studio, Hamburg)* | dc:description |
| Comments on the Composition | *Eine kleine Nachtmusik* was completed on 10 August 1787, while Mozart was in the middle of work on *Don Giovani*. Why did he write it? The obvious answer would be a commission, but no details survive. Albert Einstein claimed that "All the riddles presented by this work would be solved by the assumption that Mozart wrote it for himself, to satisfy an inner need". We need not be so exalted: the serenade certainly presents a strange contrast with the gross parodies of *Ein musikalischer Spass* ("A Musical Joke"), K.522, completed a couple of months before, which was the first piece Mozart wrote down after his father's death. *(From Sir Nicholas Kenyon)* | dc:description |

| URN System | URN of the ENTITY | Current RELEASE of the ENTITY |
|---|---|---|
| axisCap | NIRS02-87654321-&-&-& | 1 |
| | Date of the current RELEASE of the ENTITY | 2008-05-10 |
| Köchels Verzeichnis | K. 525 | dc:identifier |

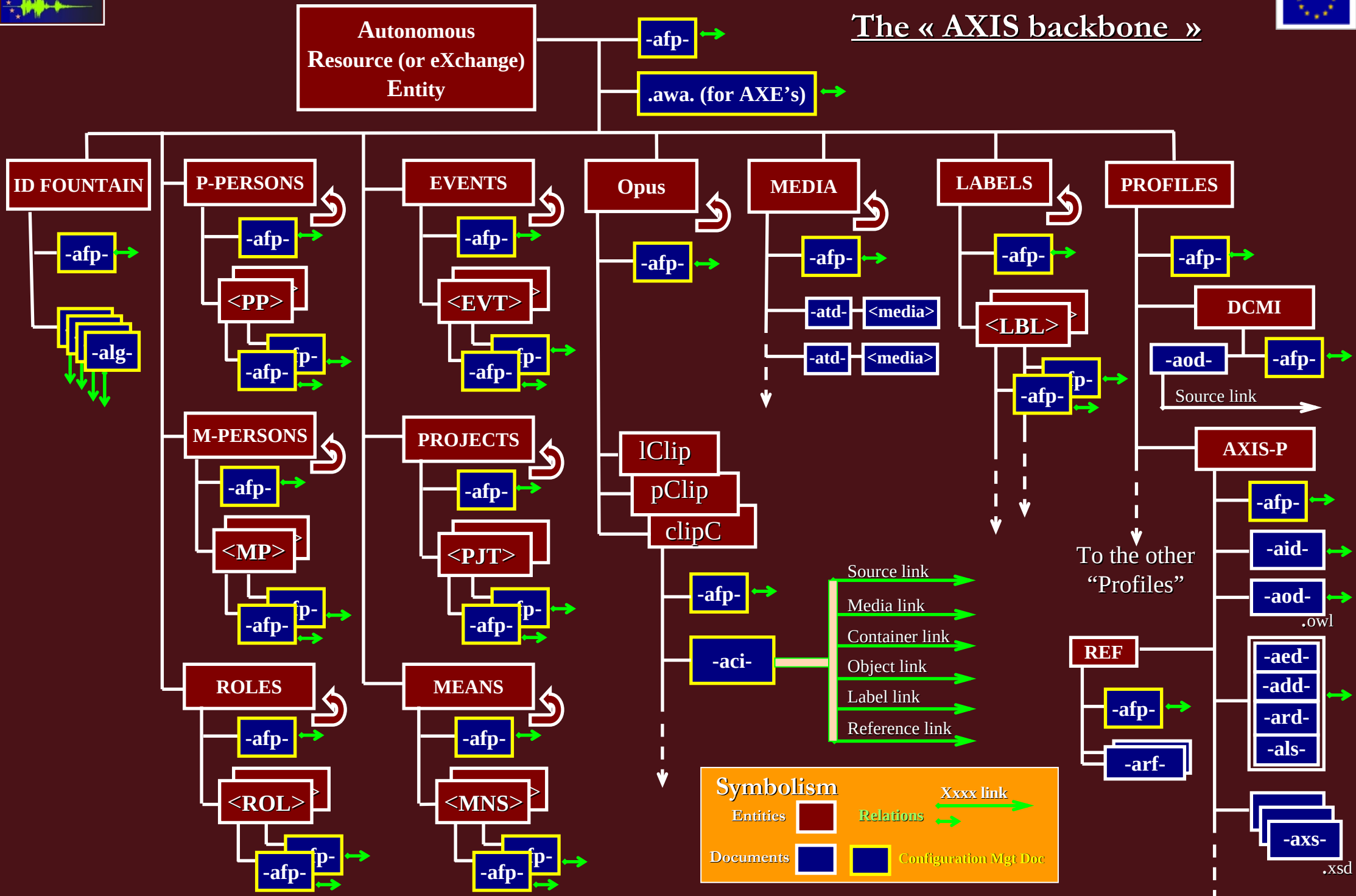
| URN of the current version of the AXIS FOOT PRINT DOCUMENT | |
|---|---|
| NIRS02-87654321-&-&-&(6)eng-afp-IClip.xml | |
| Date of the current VERSION of the AFP | 2008-05-10 |
| Configuration manager | Jacqueline von Arb |
| Page number | 1 |
| Total number of pages | 1 |

Stiftelsen Norsk Lydinstitutt Stavanger
Bjergsted Terrasse 5, 4007 STAVANGER (Norway)

# A « Simple AXE »


WRAPPER
.zip
Result: the whole becomes ONE FILE
UID system
Opus
PROFILES
FOLDER
FOLDERS
FOLDERS
doc
.odt
TWO FILES
per Document
<media>
TWO FILES
per Document
<media>
TWO FILES
per Document
-def-
.xsd
TWO FILES
per Document
doc
.odt
TWO FILES
per Document
Symbolism
Entities
Relations
Xxxx link
Documents
Configuration Mgt Doc

# The « AXIS backbone »



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   b) The -aci- document : « Axis Configuration & Indexing » for the management of the structure and indexing of the clips
3. *The personalized Profiles*
   a) The interview profile
   b) The Music profile
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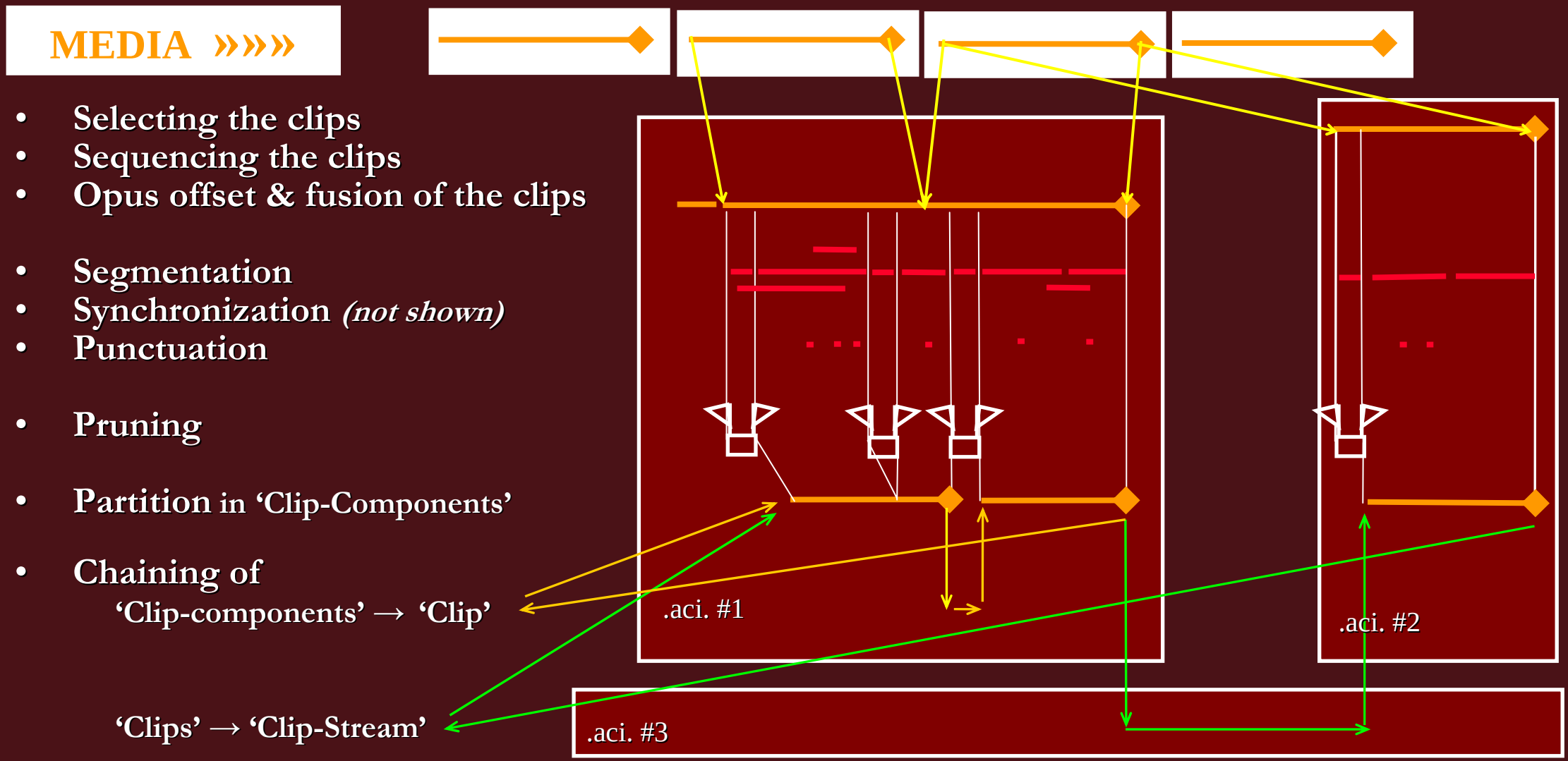
# The document of the type –aci-

## « Axis Configuration & Indexing » for the audio and/or video streams




- Selecting the clips
- Sequencing the clips
- Opus offset & fusion of the clips

- Segmentation
- Synchronization *(not shown)*
- Punctuation

- Pruning

- Partition in 'Clip-Components'

- Chaining of
  'Clip-components' → 'Clip'

'Clips' → 'Clip-Stream'

Labeling of 'Clip-Stream', 'Clip', 'Clip-Component', 'Segment', 'Point.

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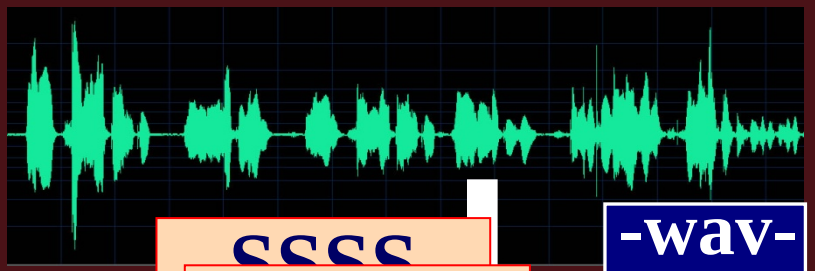
# The INTERVIEW PROFILE

## The modelling of the documents and processes



Contents

Structure

Words & Sentences synchronization

Text Publication

SSSS EASAIER

Speech to Text (transcription)

-wav-

-ihl-

-aci-

-iwd-

-isd-

-odf-

Document Formats

SSSS EASAIER ...

Manual editing

Manual editing

Manual editing

Text to Speech (emulation)

Presentation

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# The Music PROFILE

## The modelling of the documents and processes

Contents

Structure

Note
synchronisation

Score
publication

-wav-

-aci-

-lbl-

-midi-

-odf-

SSSS

EASAIER

...

Sound to Midi
(transcription)

Midi to Sound
(emulation)

Manual editing

Presentation

Manual editing

Document formats

# Thank you for your attention!

# Questions ??????????????