Identification and Watermarking

Two essential metadata

used to secure and trace

exploitation of Multimedia contents

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Identification

- Uniquely attached to an object
- Delivered by a Registration Authority (R.A.)
- Input form to update R.A. database
- Controlled access to input information
- Fully significant long ID
- Partly significant short ID
- Non significant minimum ID #

Identification : examples (1)

- ISBN for books
- ISSN for series of publications
- ISMN for Music number
- ISRC for record code
- ISAN for Audiovisuals
- ISWC for work codes
- IMLP MM objects License Plate

Identification : examples (2)

- Car plates : country, state, number
- EAN bar code : figures only
- Social security number : syntax
- Phone number : network, country, area, #
- UMID Unique Material ID
- GUID Globally unique ID
- DOI for digital objects ID
- UPN for programs

Identification as metadata

- May be tagged inside data stream
- May be inserted as visible stamp
- May be included as invisible mark
- Must be secured
- Must be repeated during a sequence
- Must be a link to R.A. database
- Must be easy to read and monitor

Watermarking

- The invisible way to tag an ID
- Available for image as well as sound
- Non-erasable mark
- Resistant to manipulations and laundering
- One to three marks on the same contents
- Easy to monitor with secret code
- High level of security in contents

Watermarking : application

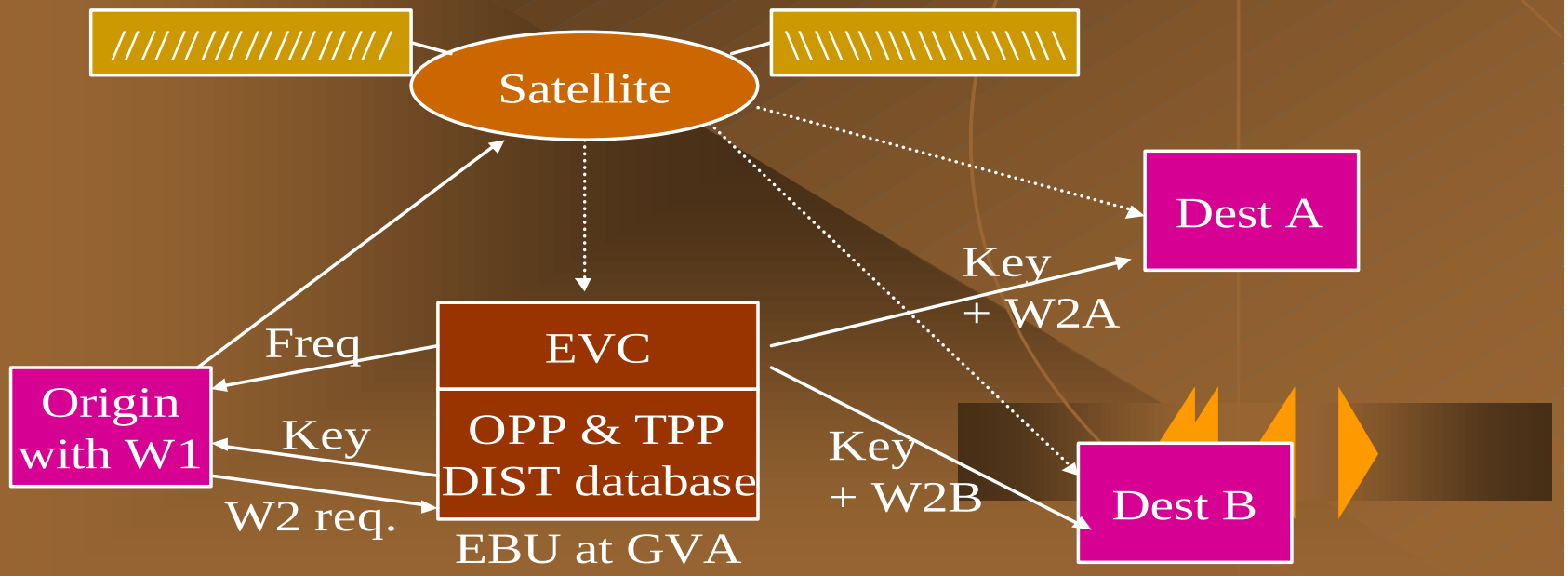
- First mark at production level : Wm1 = IPR
- Second mark at distribution level : Wm2 for customer Identification
- Two independent R. A. and databases
- Each mark is a link to the relevant DB
- Wms reflect an ID delivered by R.A. or T T P
- Wm1 and Wm2 used for ECMS systems

Technical data

- All IDs may be compacted to 64 bits
- Watermarking technique easy with 64 bits
- Wm duplicated for security in a tag
- Wm application point connected to delivery of ID #
- EBU to deliver the Wm2 for distribution
- Wm2 to be inserted at descrambling level

Application example

EBU role in the watermarking process (W2 and DIST only)



Conclusions

- Identification : unique, secure, short, fixed size for easy processing, delivered by R.A. against IPR or usage information, links to database, compliant to standards (Isxx)
- Watermarking : invisible, linked to ID, easy to monitor, non-erasable, two types, subject to standardization : length, syntax, delivery process, coding, algorithm, monitoring, flag