STRATEGIES FOR PRESERVING BORN DIGITAL AUDIO

ARSC 2009

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AUDIOVISUAL PRESERVATION SOLUTIONS

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Image from National Archives Archival Research Catalog

Principles Remain

- First do no harm
- Integrity
- Faithful reproduction of the original
- Migration
- Redundancy
- Geographic separation

Sustainability Factors

- Disclosure
- Adoption
- Transparency
- Self Documentation
- External Dependencies
- Impact of Patents
- Technical Protection Mechanisms

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Shifting Needs

"In the analog world, previous formats persisted over time. Cuneiform tablets, papyrus, and books all exist until someone or something (fires, earthquakes) takes action to destroy them. But the default for digital information is not to survive unless someone takes conscious action to make them persist."

– Howard Besser of NYU out of the Handbook for Digital Projects

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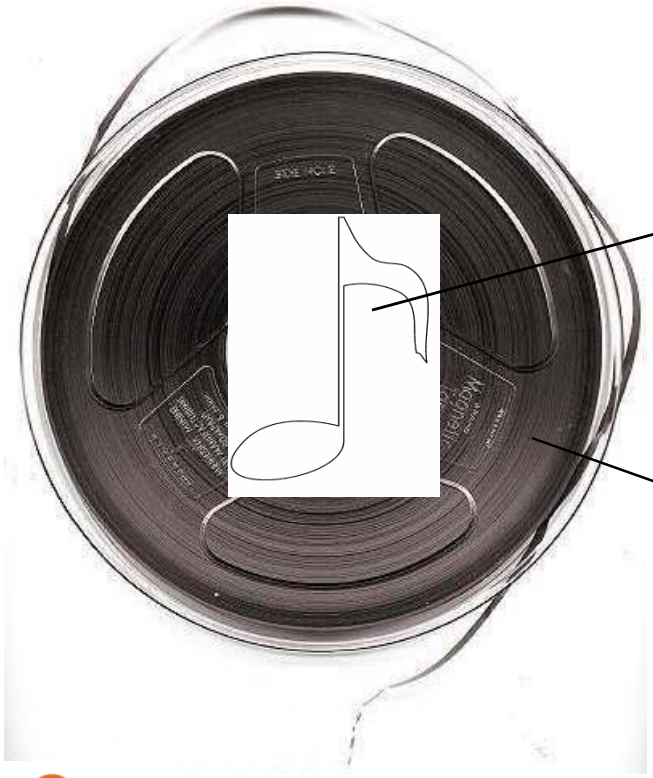
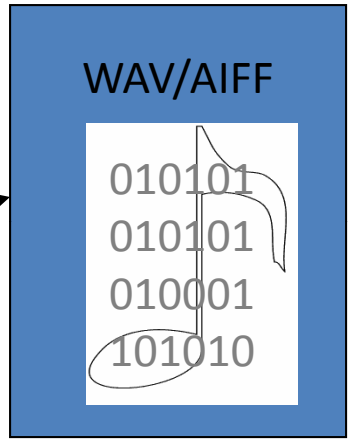
Terminology





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Object of Preservation

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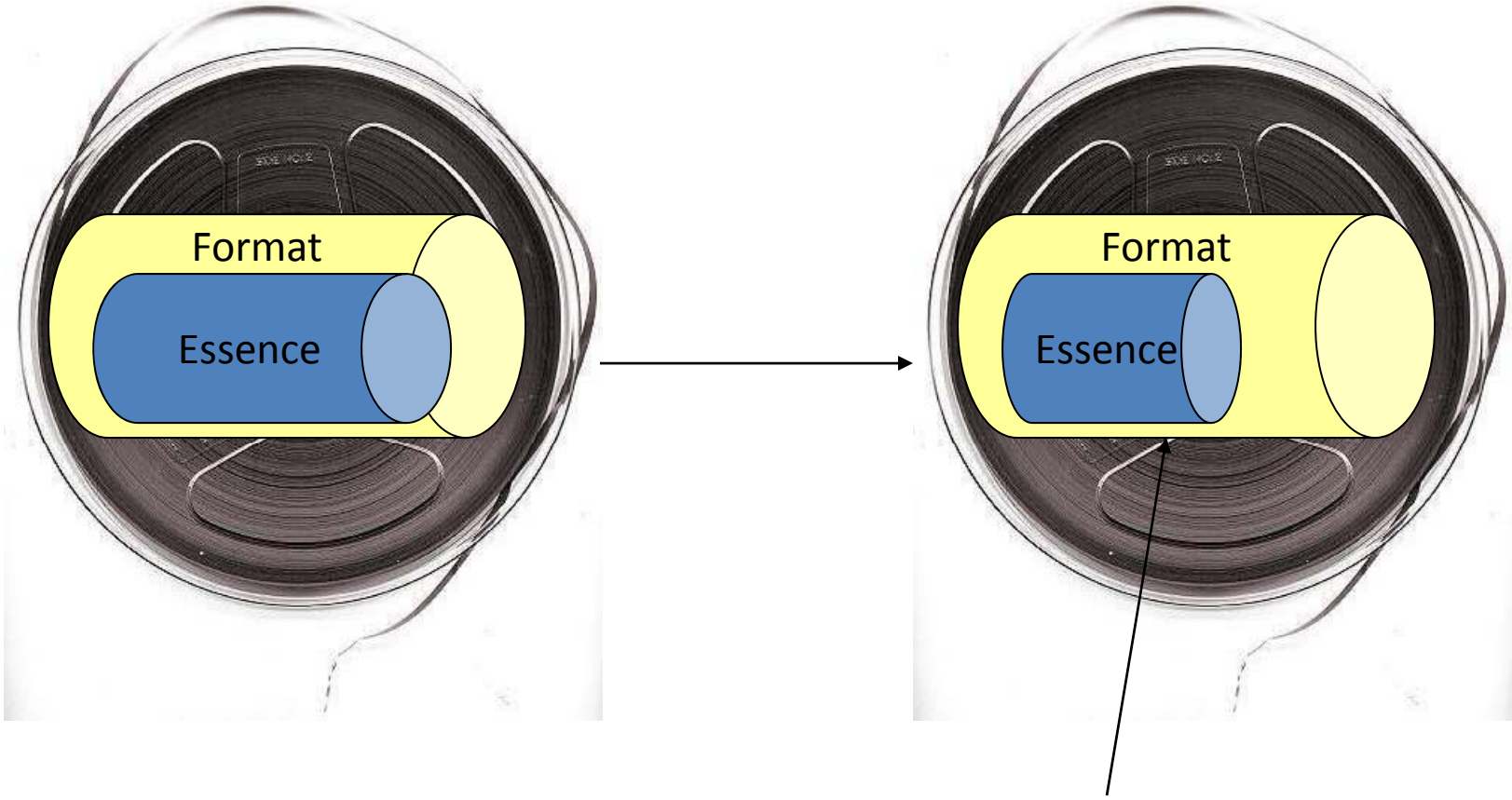
Physical Migration



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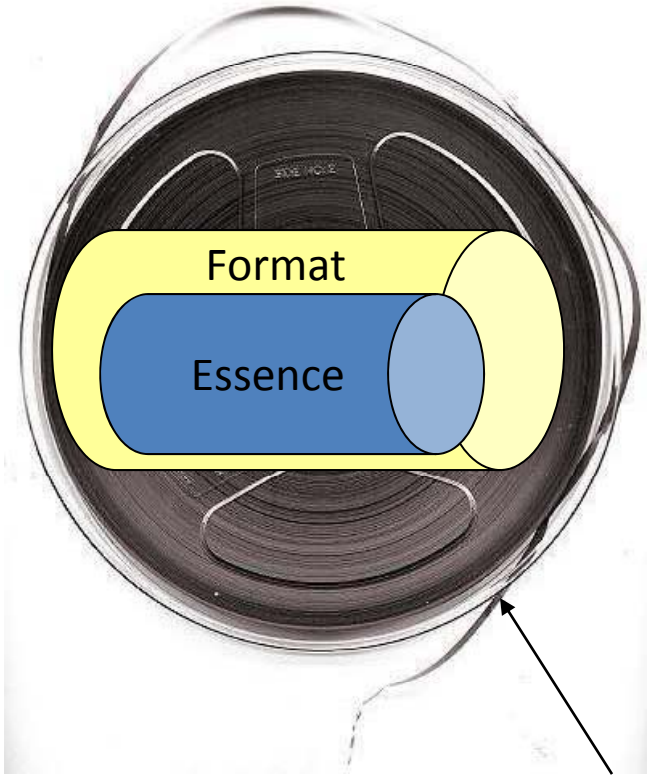
Physical object



Visual Metadata

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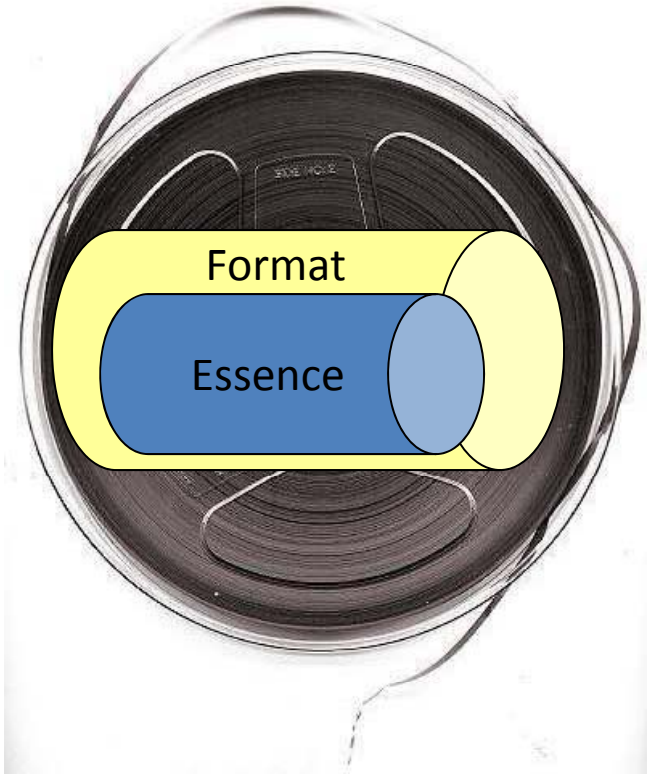
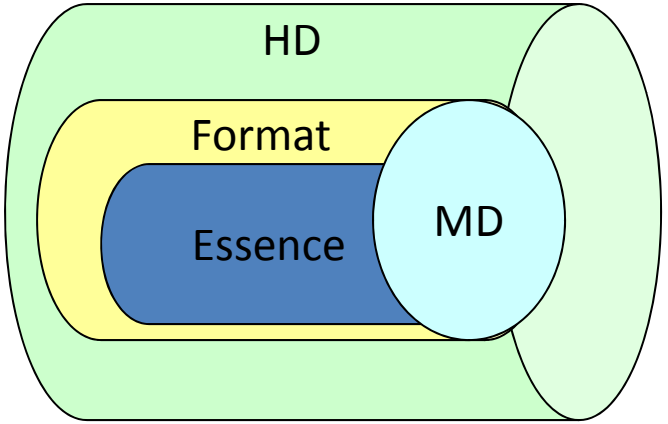
Digital Capture without Loss





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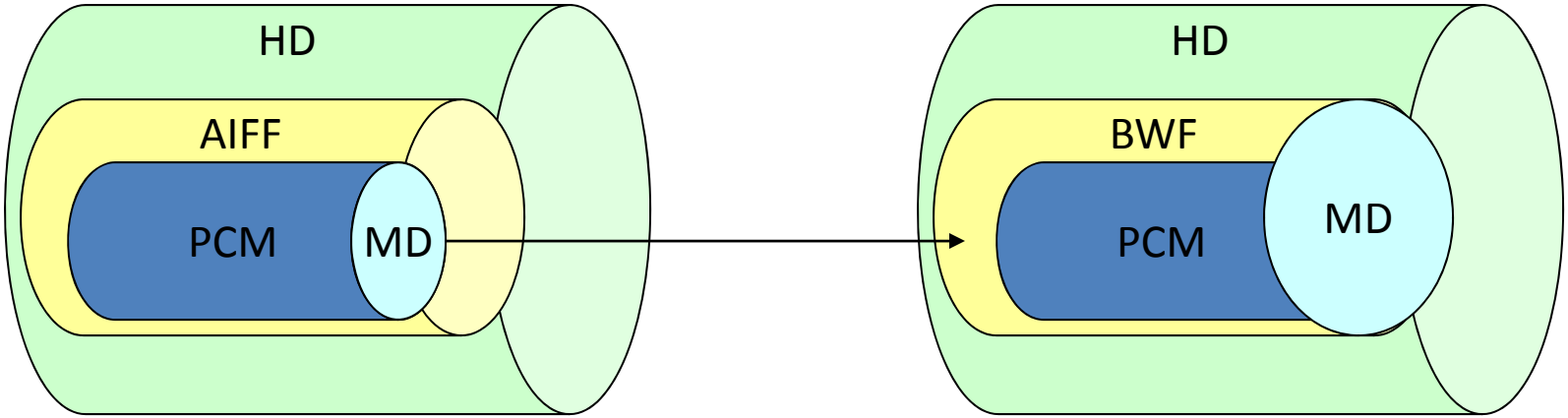
Lossless migration



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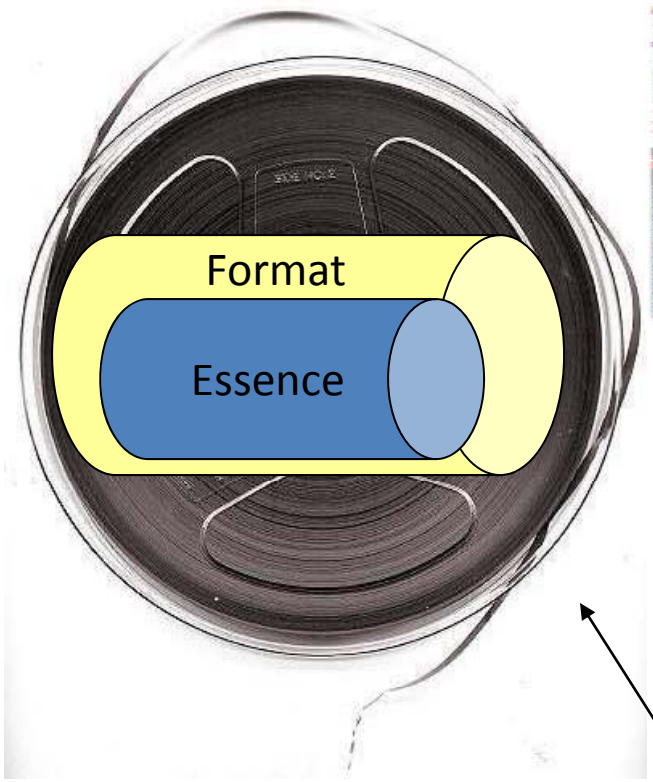
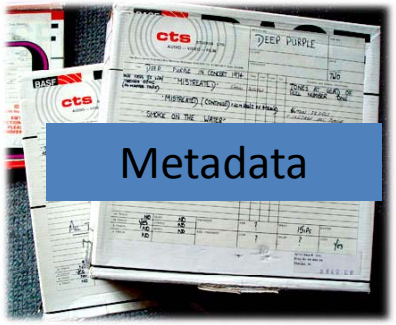
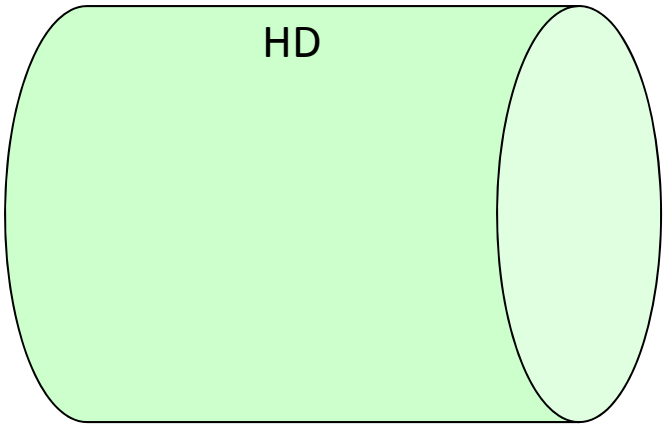
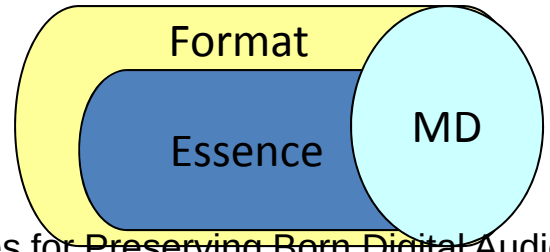
Independence of Media, Format, Essence and metadata







Visual Metadata



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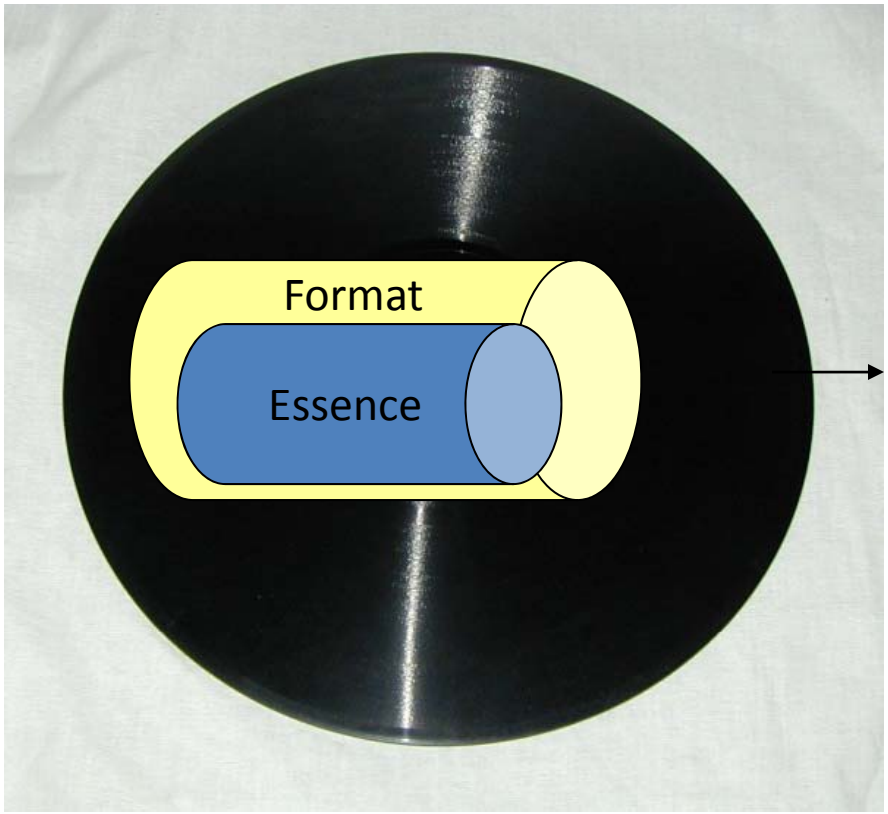
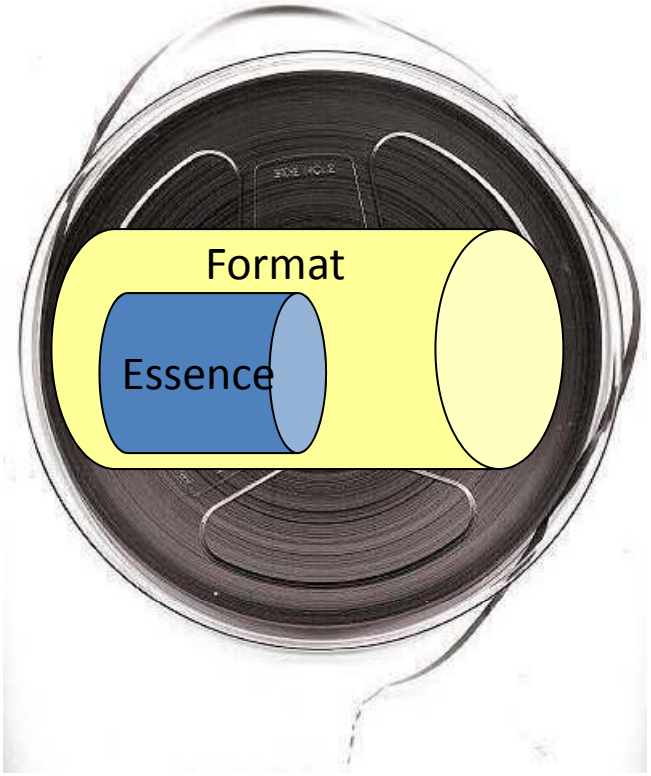
Separation and new terminology
Migration





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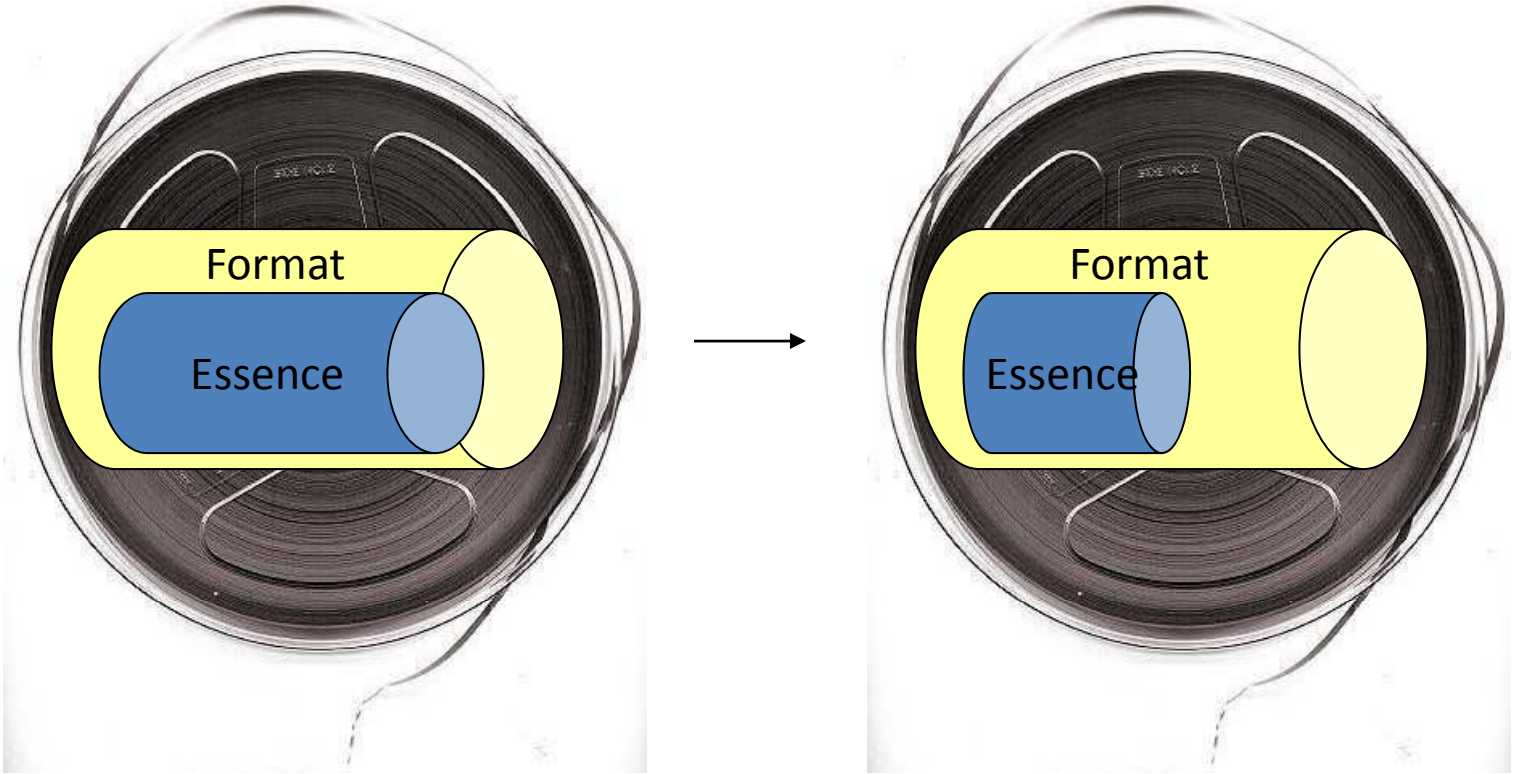
Separation and new terminology Migration



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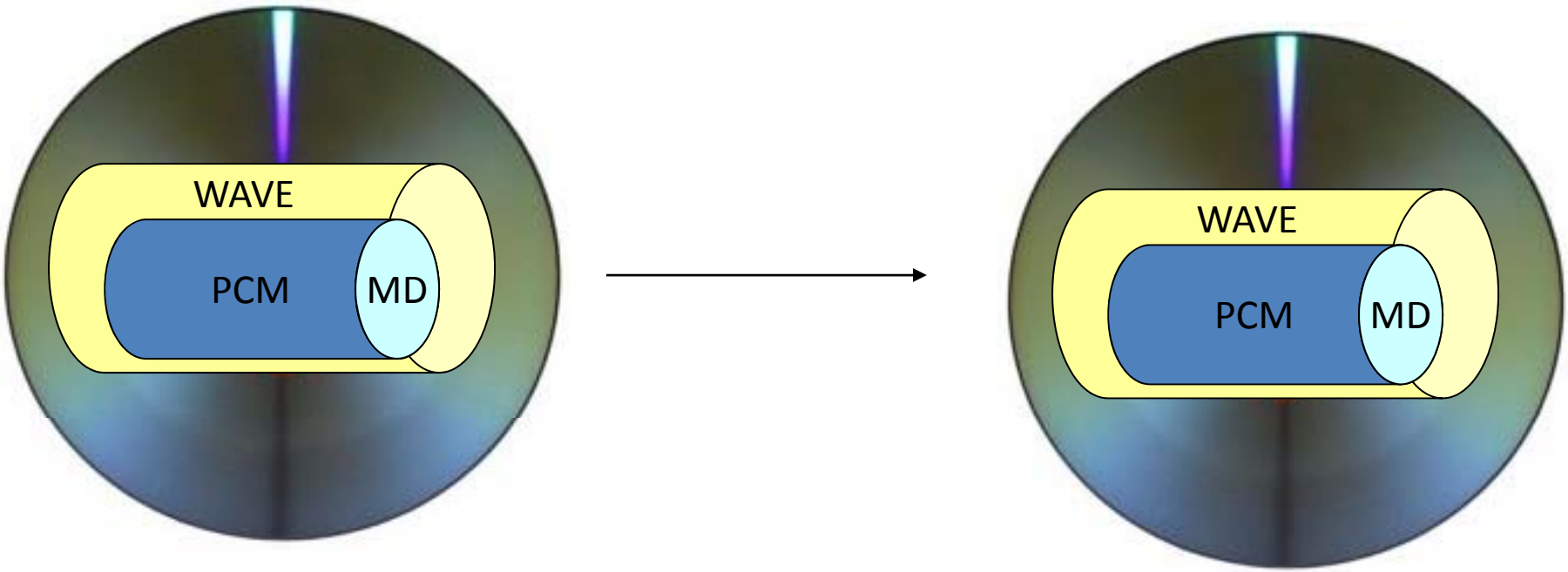
Separation and new terminology Refresh



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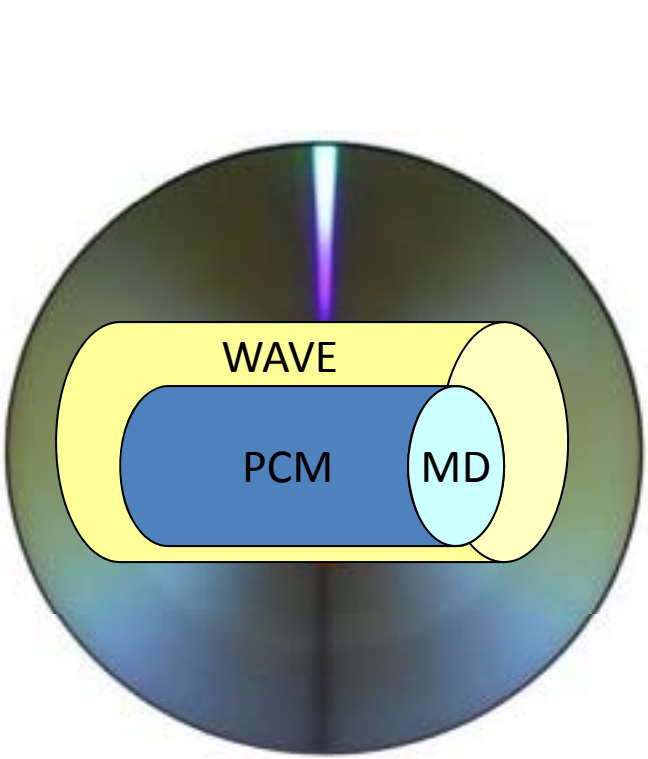
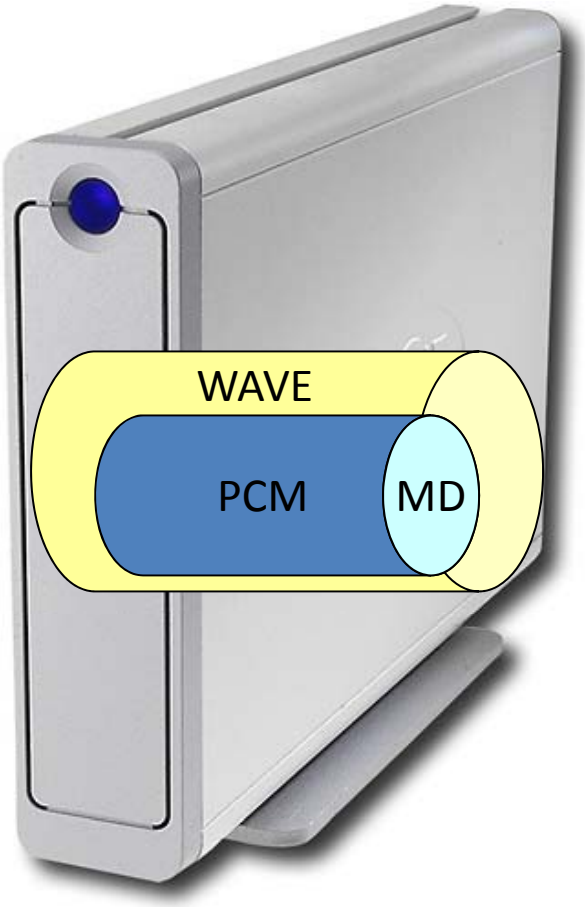
Separation and new terminology Refresh





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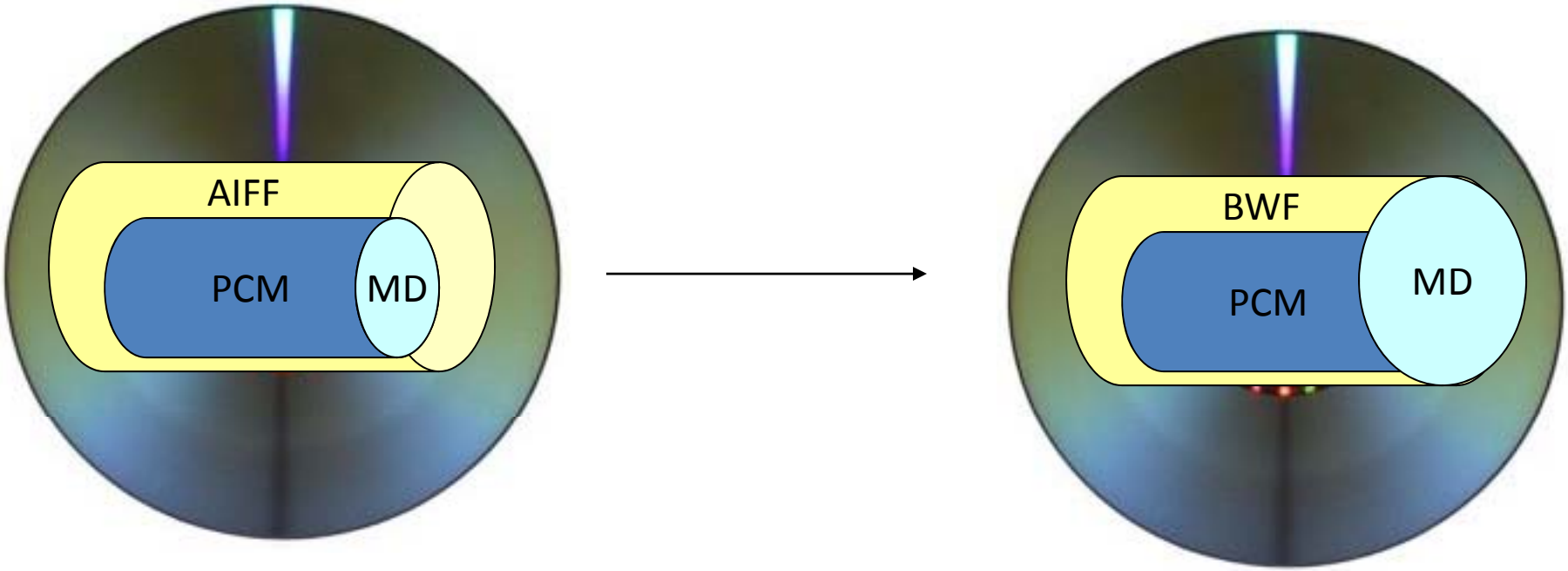
Separation and new terminology Migration



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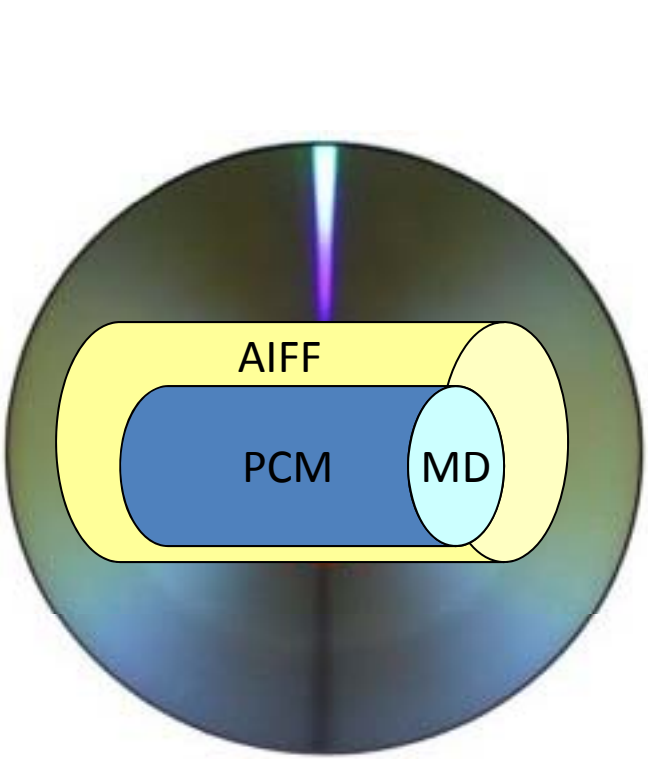
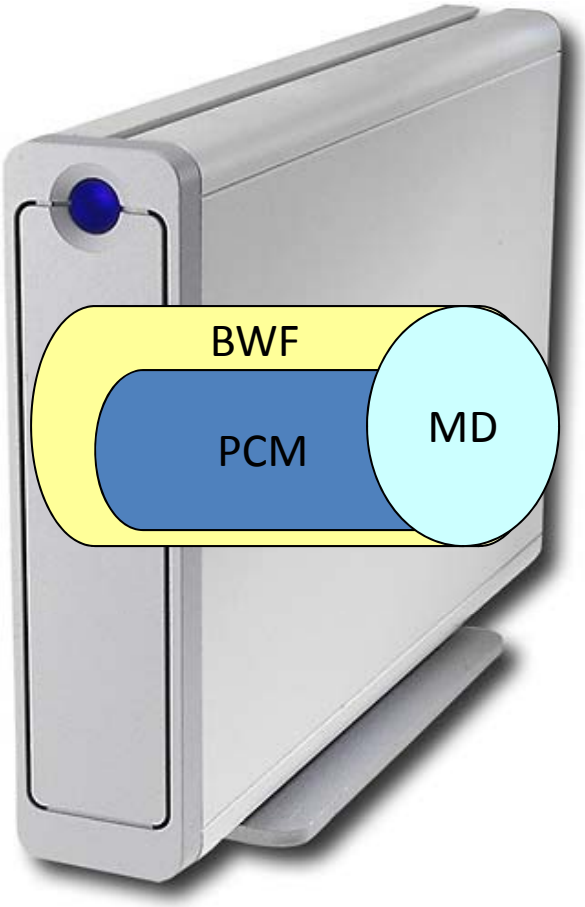
Separation and new terminology
Migration





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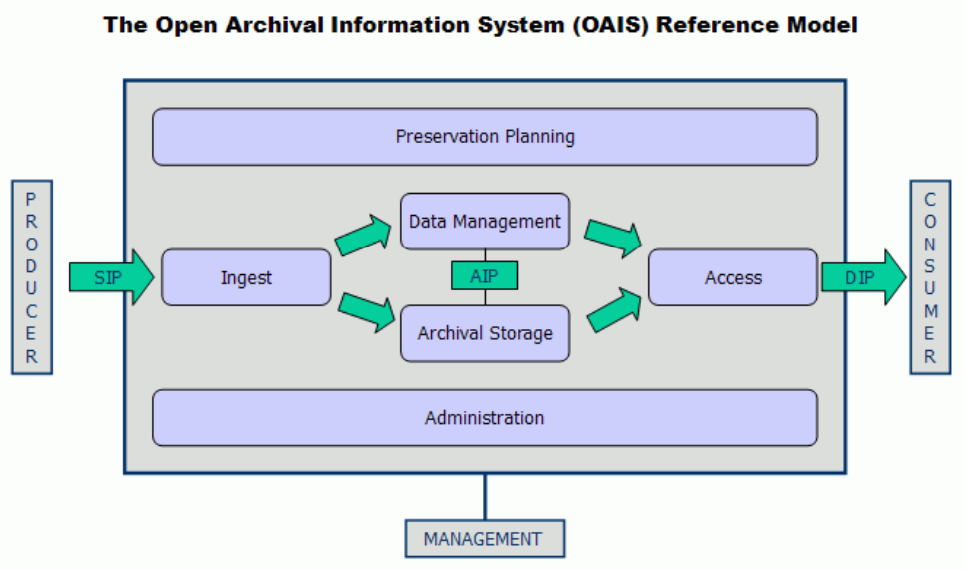
Practices

- OAIS Functions
  - Ingest
  - Store
  - Administrate
  - Maintain/Manage
  - Access/Disseminate



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"preservation is the totality of things necessary to ensure the permanent accessibility – forever – of an audiovisual document with the maximum integrity"

Ray Edmondson
Audiovisual Archiving: Philosophy & Principles

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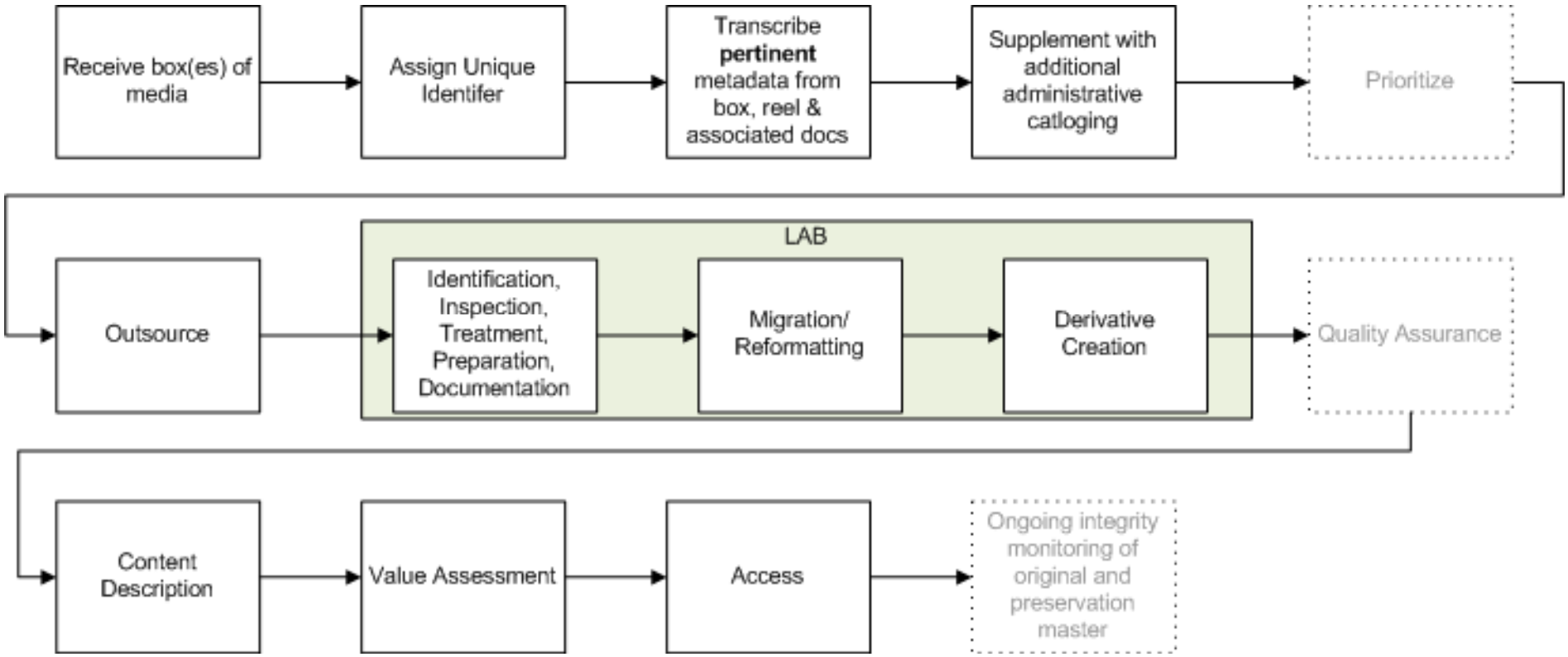
Typical Physical Workflow



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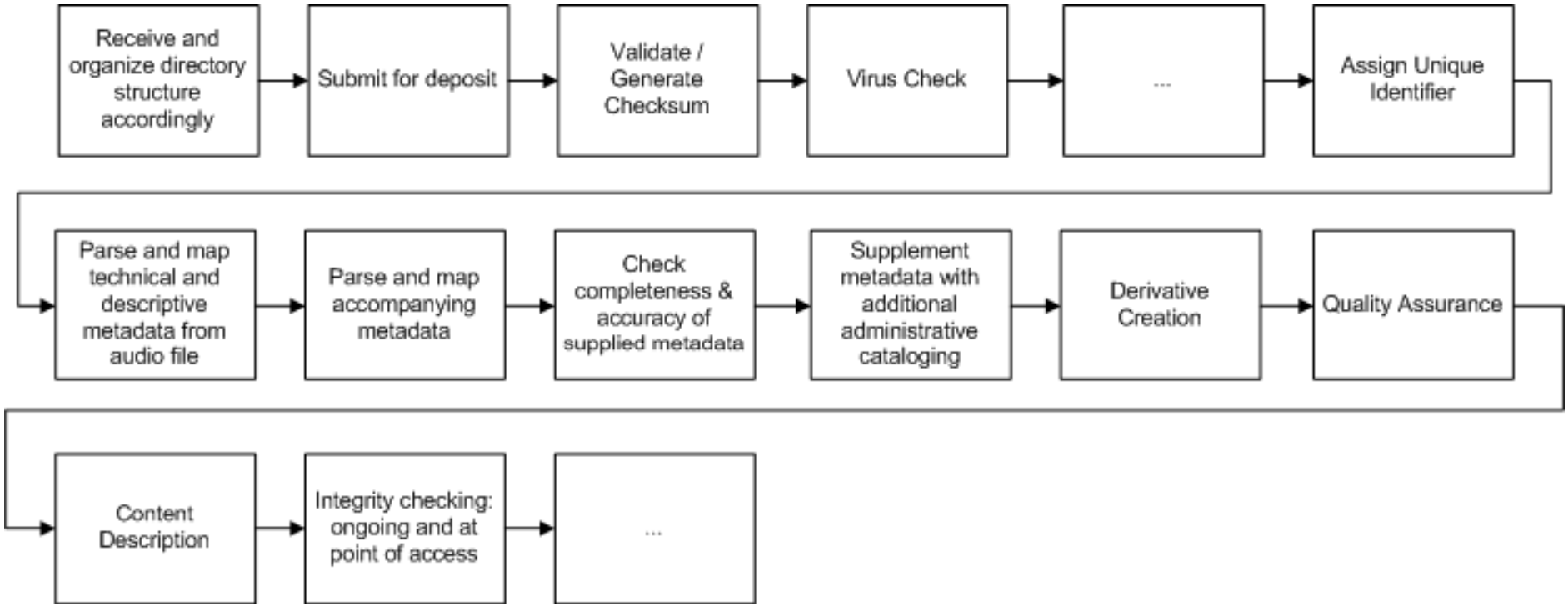
Typical File-Based Workflow



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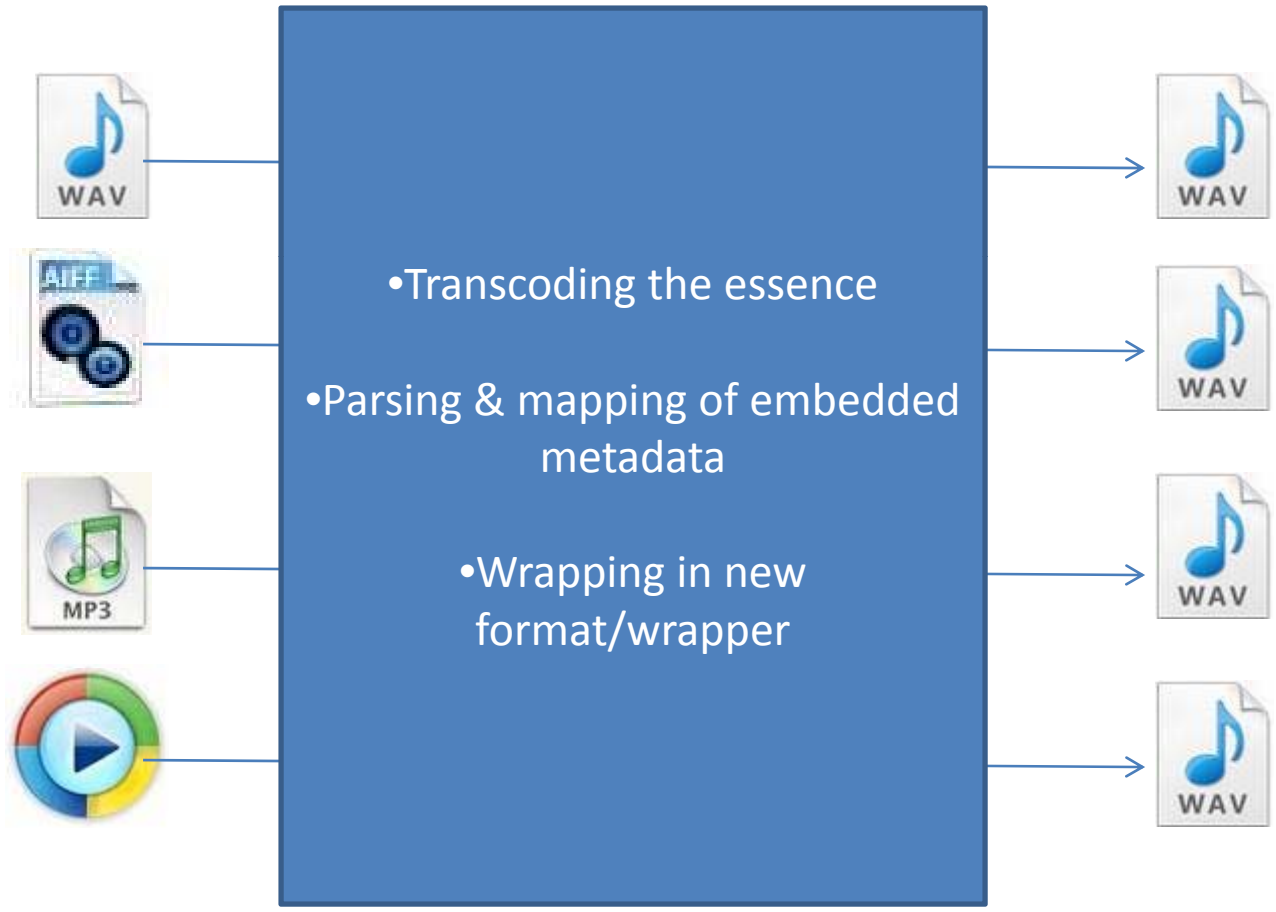
Normalization



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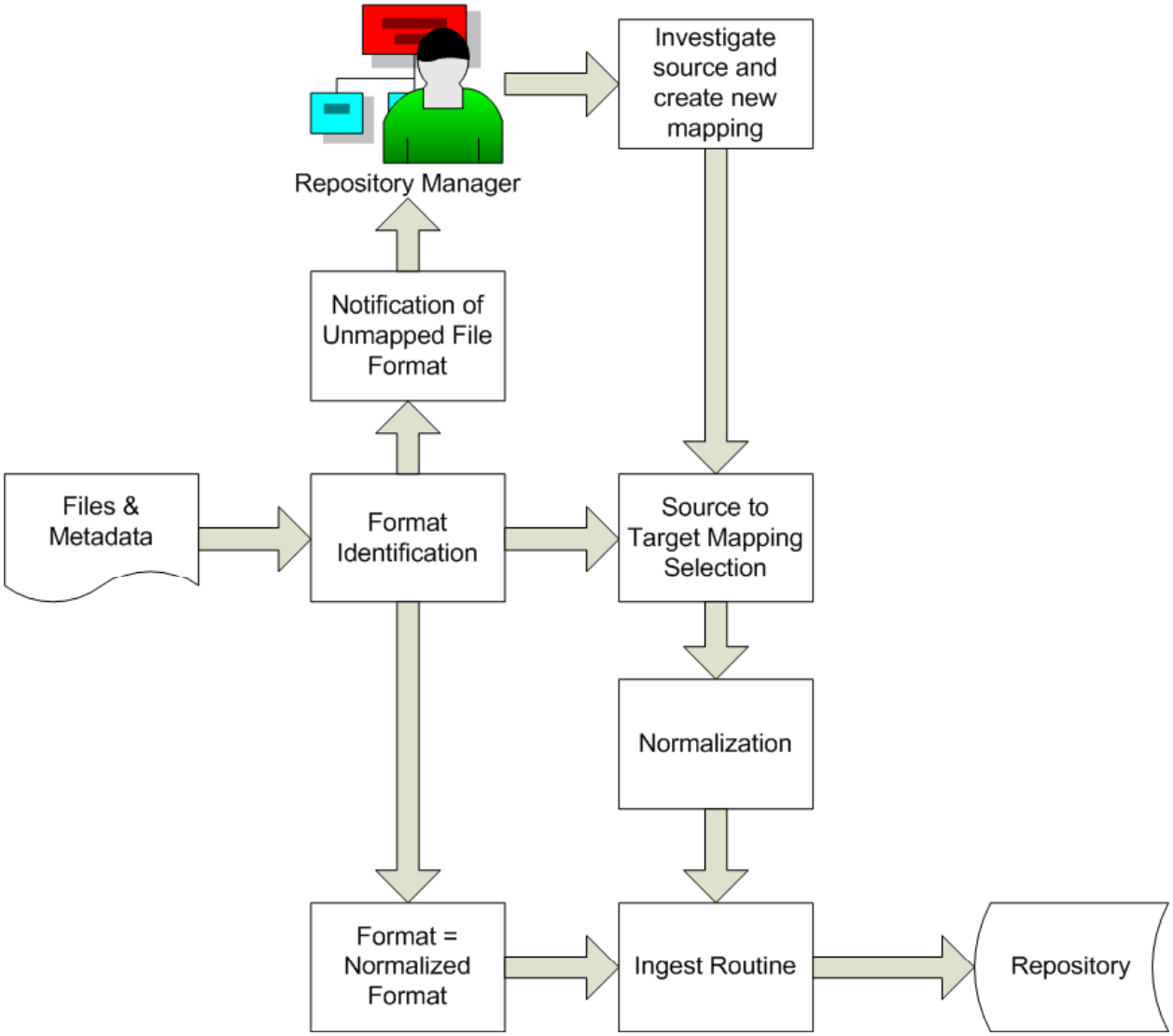
Basic Process



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Normalization Pros

- Consistency
- Avoids obsolescence

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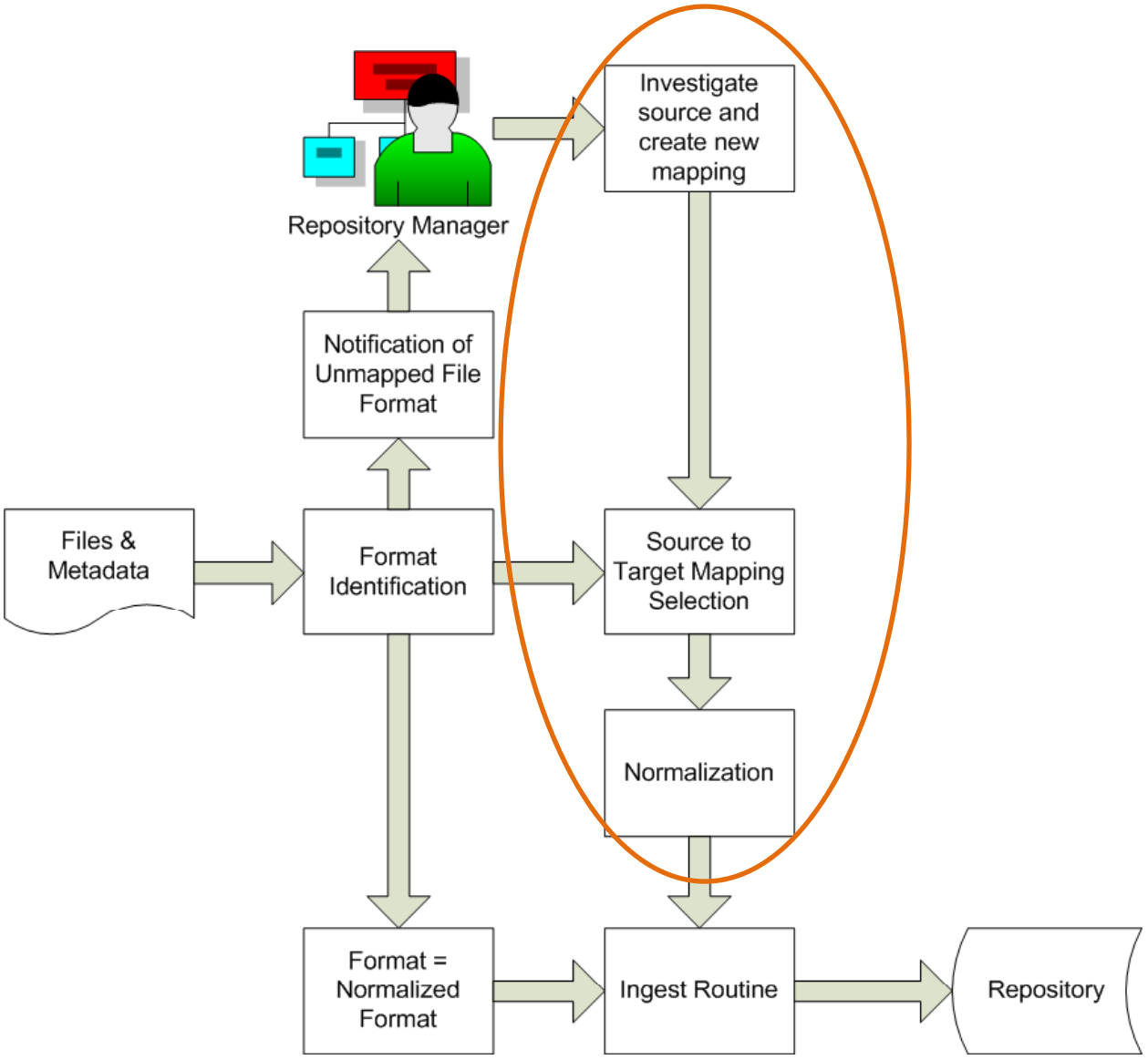
Basic Process



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Normalization Cons

- Too blunt of an instrument on its own
- Not as automatable as one would like to think!
  - Requires complex and variable mapping of essence and metadata
  - Variable provenance metadata must be captured
- Disallows prioritization and proper collection management.
- Risk loss of integrity
  - structure, semantics and links
  - Quality
- Decompress lossy-compressed content?

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Normalization Tools

- DAITSS - http://daitss.fcla.edu/
- XENA - http://xena.sourceforge.net/

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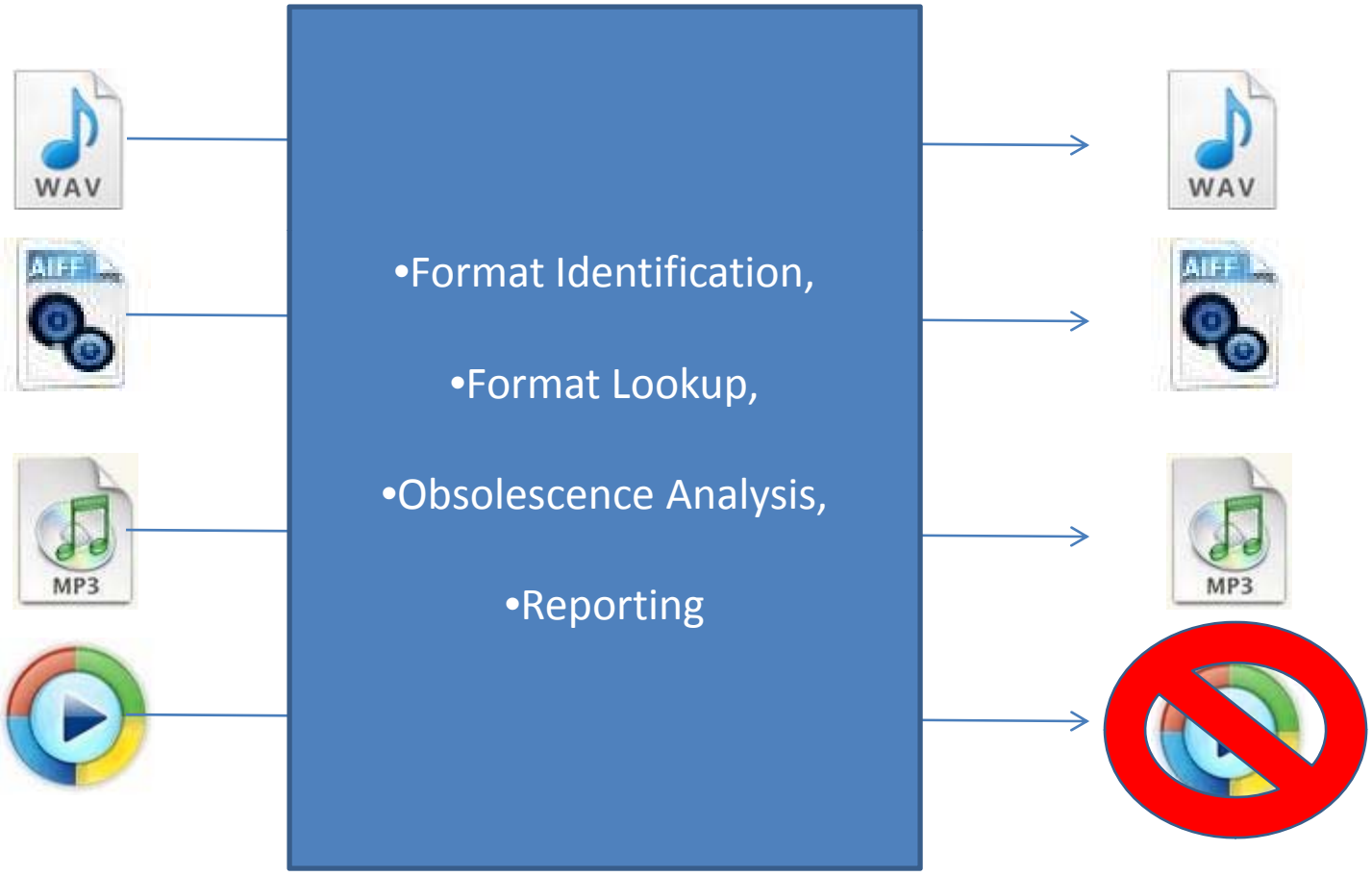
Obsolescence Monitoring



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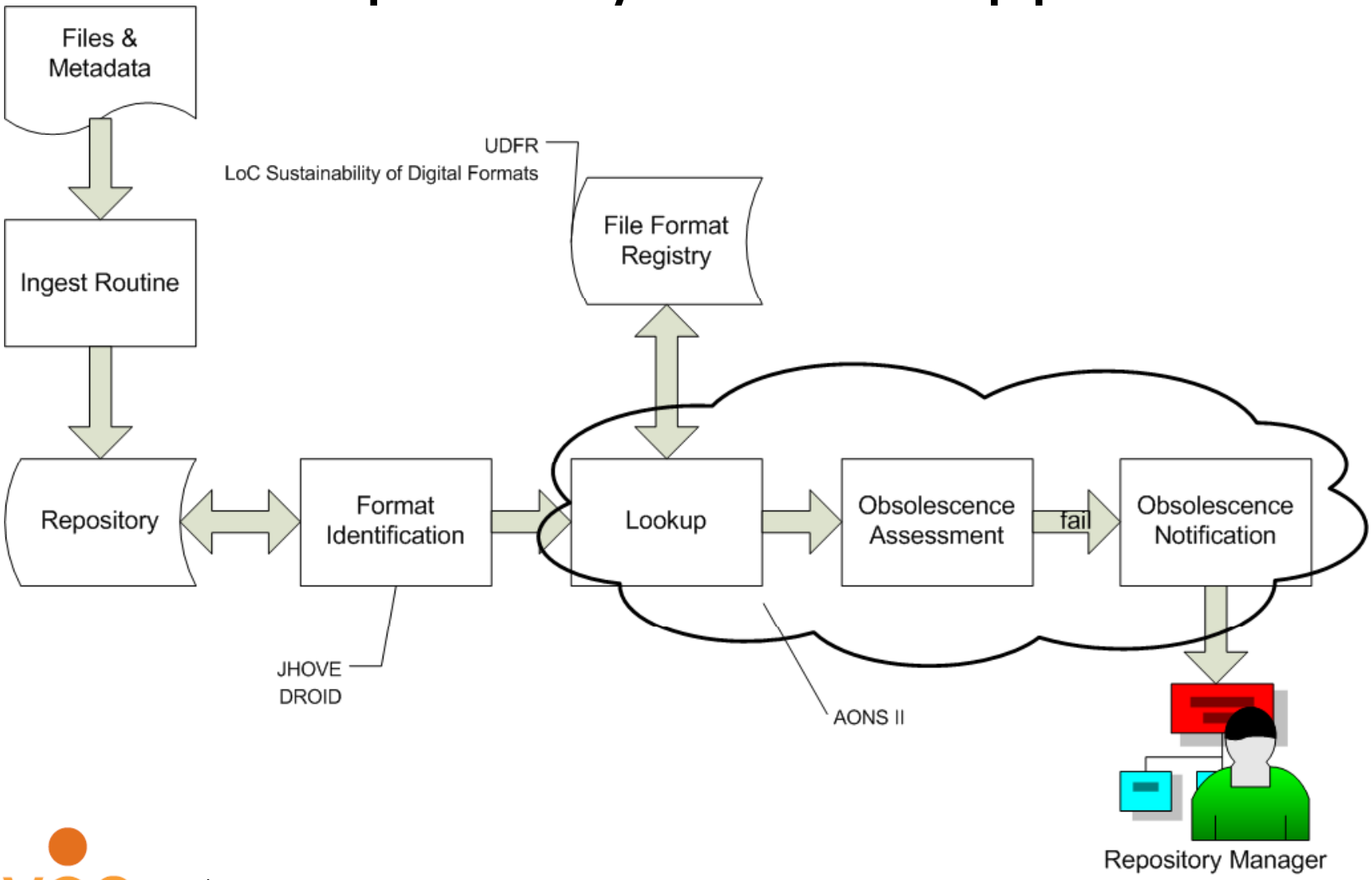
Basic Process
Retrospective/Routine Approach



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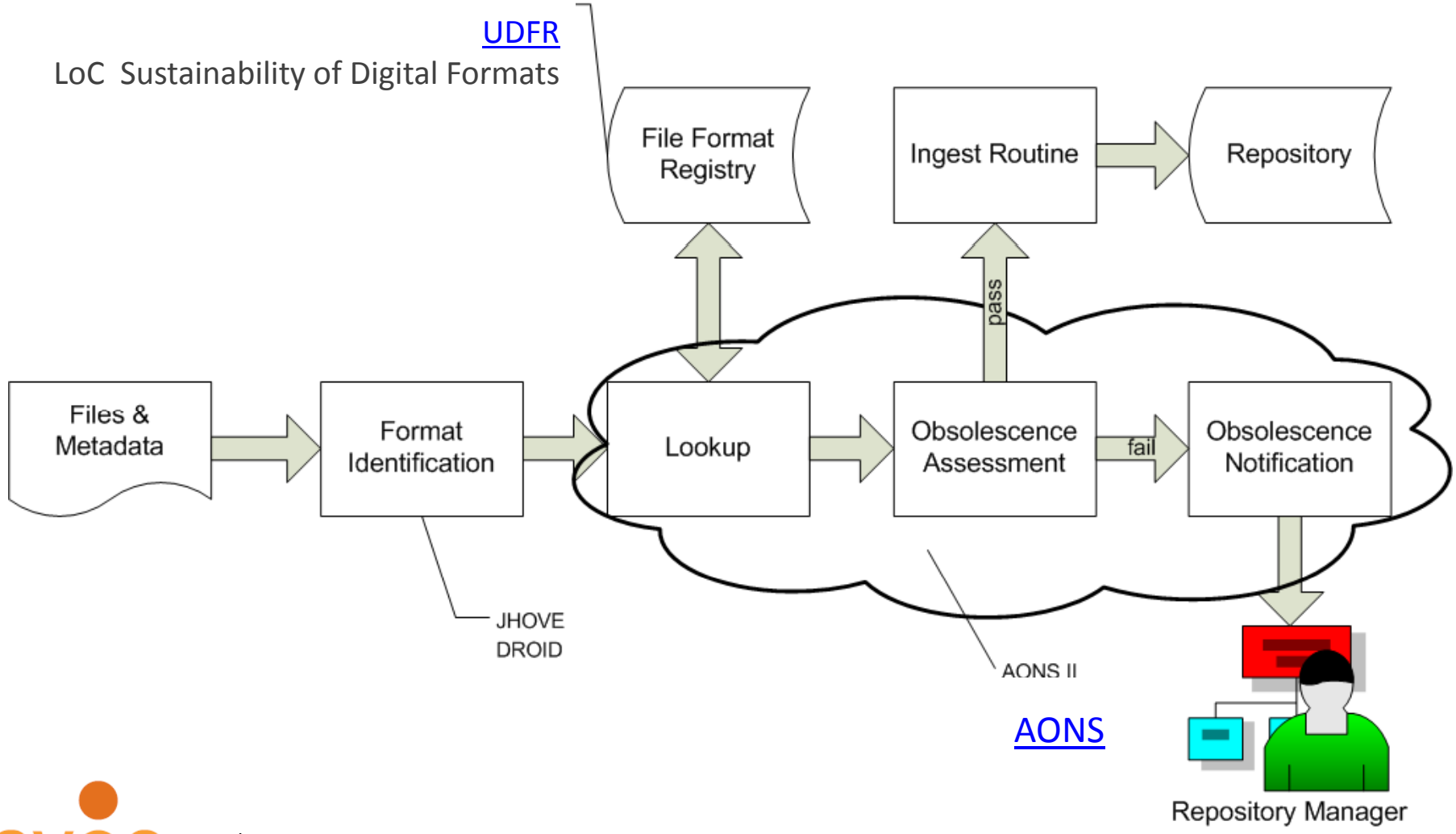
Basic Process
Proactive Approach



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Obsolescence Monitoring Pros

- Enables a managed approach to collection management
  - Meaningful prioritization
  - Intelligent allocation of resources
- Keeps source structure and semantics intact
- Holistic community approach
- Promotes awareness

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Obsolescence Monitoring Cons

- Still developing
- Technically complex
- Requires upkeep of local apps
- Depends on upkeep of overarching tools by others

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Obsolescence Monitoring Tools

- AONS II (Automatic Obsolescence Notification System)
  - Download: http://sourceforge.net/projects/aons/
  - Blog: http://aons2dev.blogspot.com/
- UDFR (Unified Digital Formats Registry) - http://www.gdfr.info/udfr.html
  - PRONOM - http://www.nationalarchives.gov.uk/PRONOM/Default.aspx#
  - GDFR (Global Digital Format Registry) - http://www.gdfr.info/
- Library of Congress Sustainability of Digital Formats http://www.digitalpreservation.gov/formats/intro/intro.shtml
- JHOVE (JSTOR/Harvard Object Validation Environment) - http://hul.harvard.edu/jhove/
- DROID (Digital Record Object Identification) - http://droid.sourceforge.net/wiki/index.php/Introduction

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Obsolescence Monitoring Small Scale

Common Sense Approach: Manually

- Keep plugged in to UDFR
- Apply Sustainability Factors and AONS criteria

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Better Together

Normalization and Obsolescence Monitoring work best in tandem

- Any formats identified as failing criteria are normalized upon ingest.
- “Supported” formats are taken in as-is and monitored on an ongoing basis.
- Once formats are identified as risky they are migrated or normalized

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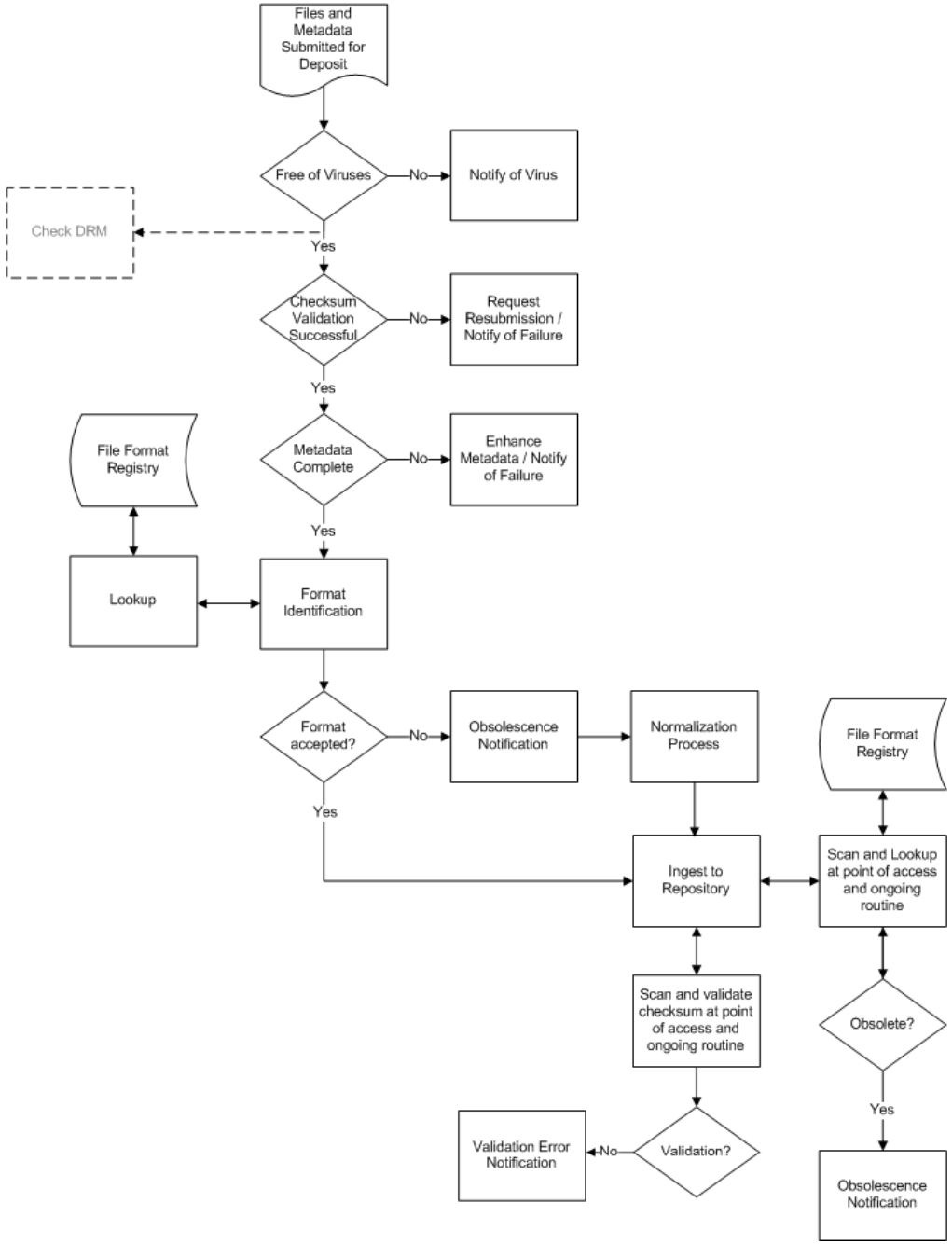

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Factors to Consider

Sustainability Factors

- Disclosure
- Adoption
- Transparency
- Self Documentation
- External Dependencies
- Impact of Patents
- Technical Protection Mechanisms

AONS and UDFR data and criteria

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Other Factors to Consider

What type of organization and input?

- Production Centric = Potential control over deliverable to the archive
- Uniform input = pseudo control
- Variable input = no control

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Other Factors to Consider

What your internal systems support

- formats
- bandwidth/resolution
- Archival systems vs. production and access systems

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Some Examples of Actual Approaches

- Florida Digital Archive Obsolescence Planning- http://www.fcla.edu/digitalArchive/formatInfo.htm

- University of Minnesota Digital Conservancy Obsolescence Planning

  http://conservancy.umn.edu/pol-preservation.jsp#level2

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permanence persistence preservation

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