Born Compressed:
Should the Preservation Community Embrace Lossy Video Compression?

No Time To Wait 3, 25. & 26.10.2018 – David Pfluger

Point of view of users of audiovisual achives:

„It makes no sense to ‚inflate' digital born compressed to uncompressed/losslessly compressed files.

Those files are very cumbersome to handle for researchers who are only interested in the image content."

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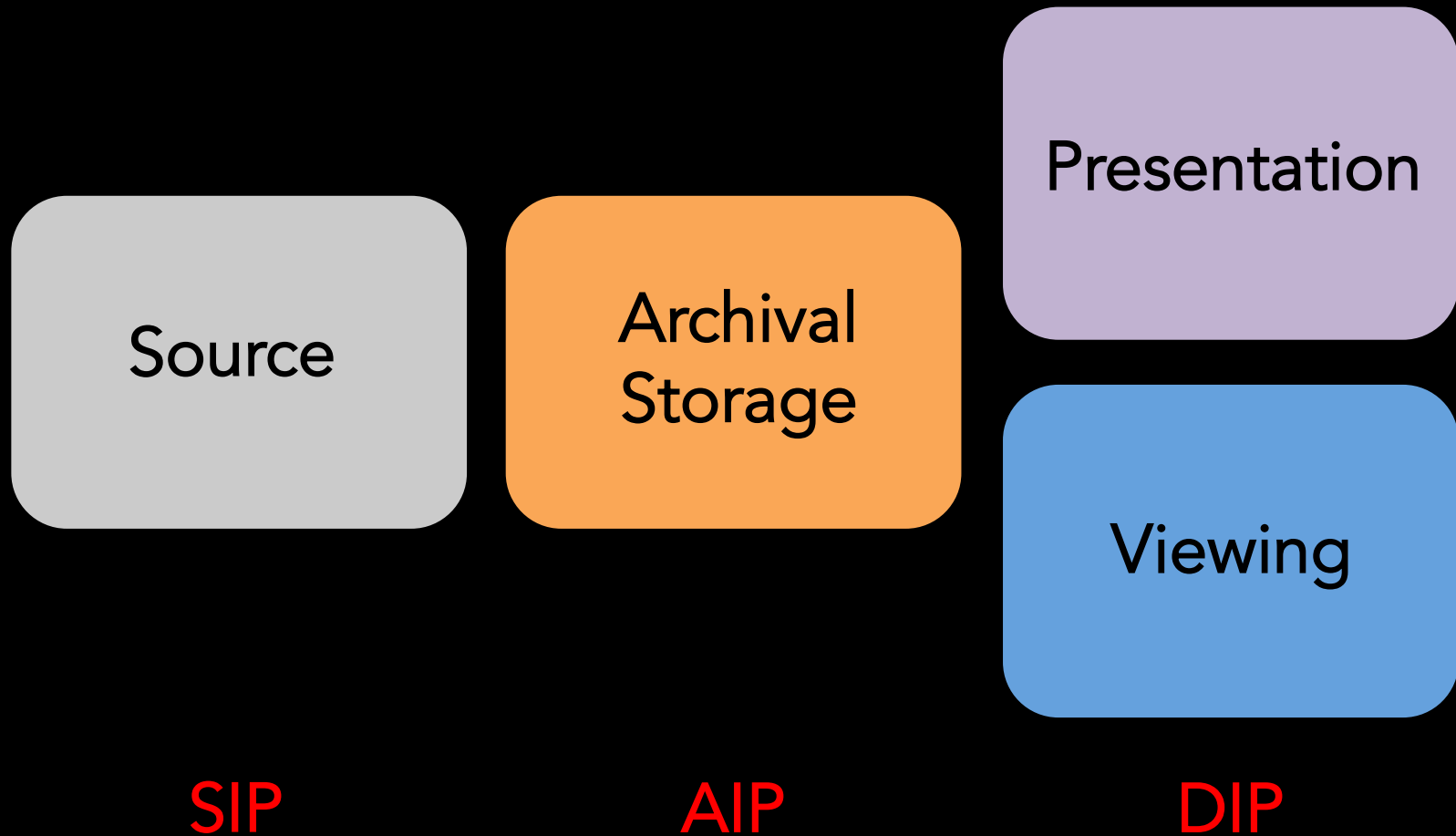Drawing by Shoo Rainer

(1)

Technical characteristics and access hierarchy

of archival files.

(2)

The use of lossy compression in archival masters.

> Technical characteristics

Source

- „What you get"

- Analogue / Digital

- Any (data) format

- Do not dispose of !

- Contains and comes with metadata

Archival Storage

- Long term digital storage

- Archival file format

- *Digital representation* of source element

- Metainformation is processed and added

Archival Storage

Born digital files are converted into an archival file format which complies with the requirements for archival file formats, to improve its longevity. Equal to analogue and tape source elements, the digital born file should be kept as received.

Archival Storage - Conditions

„Openness" / non-proprietary

High level of adoption

Low complexity

High level of documentation (standard)

Robustness to errors

Low dependency on specific hard- and software

No encryption

Drawing by Shoo Rainer

Presentation

- High quality master element

- Any suitable file format

- *Visual representation* of source element

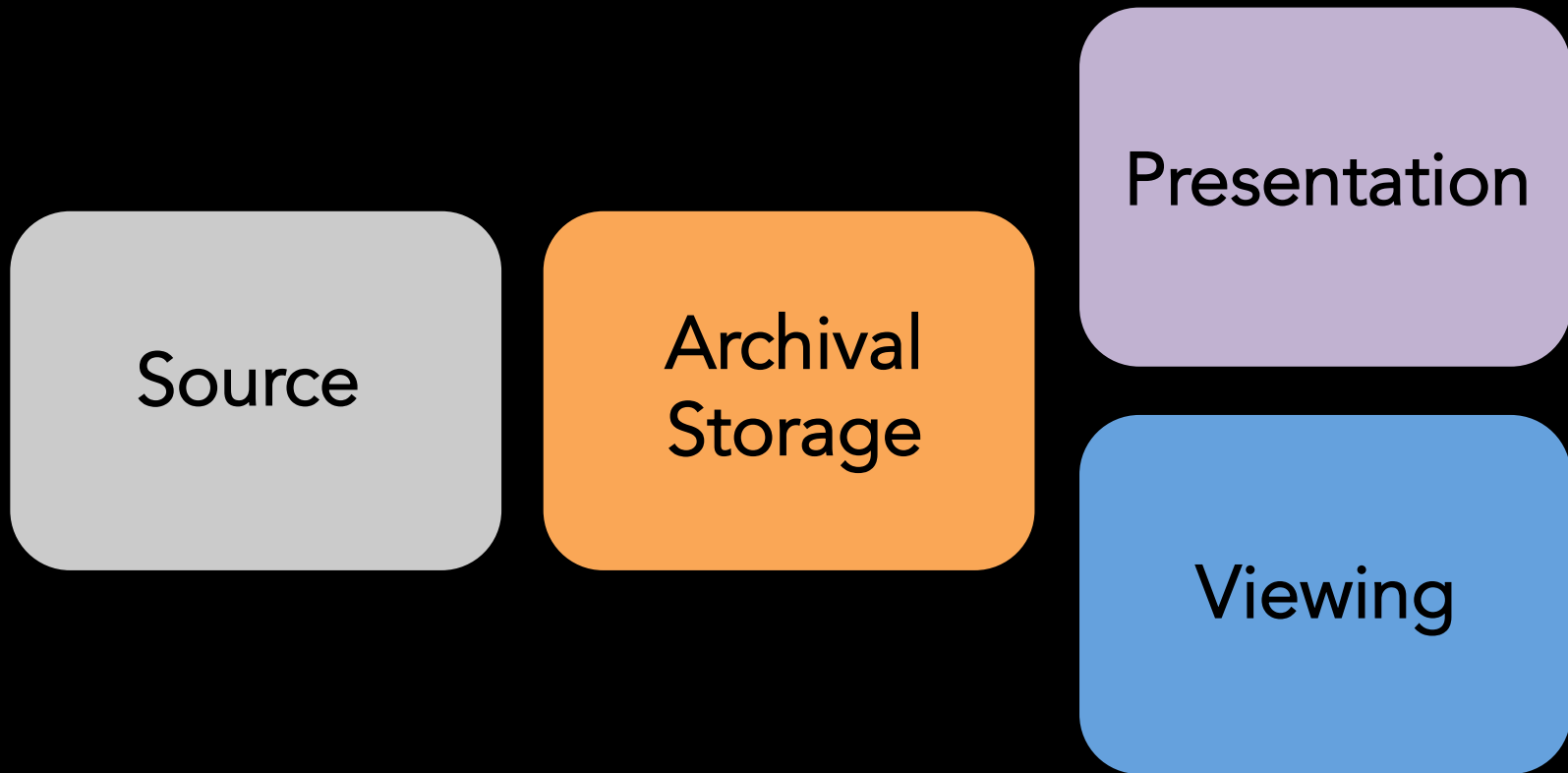- Contains important information about the visual representation

Viewing

- Low quality element

- Any suitable file format

- Limited visual representation of source element

- Metadata helps to correctly interprete what you see/hear

> Access hierarchy

> Access hierarchy

Source

Archival
Storage

Presentation

Viewing

> Access hierarchy

Search Engine

| Presentation | Viewing | **M** |

Archival Storage **M**
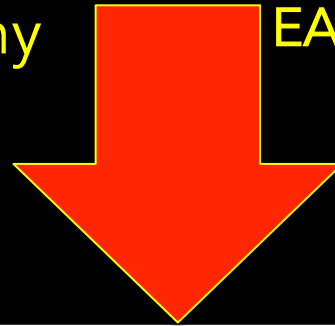
Source (Digital Born)

Geographically
Separated
2nd Copy

M

Source (Analogue/AV Tape) **M**

> Access hierarchy   EASY

Search Engine

Presentation   Viewing   M

Archival Storage   M

Source (Digital Born)
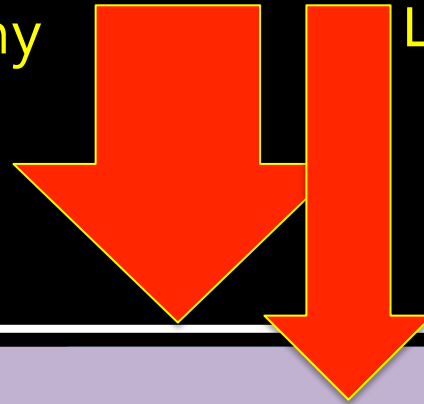
Geographically Separated 2nd Copy

M

Source (Analogue/AV Tape)   M

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> Access hierarchy   LIMITED

Presentation   Viewing   **M**

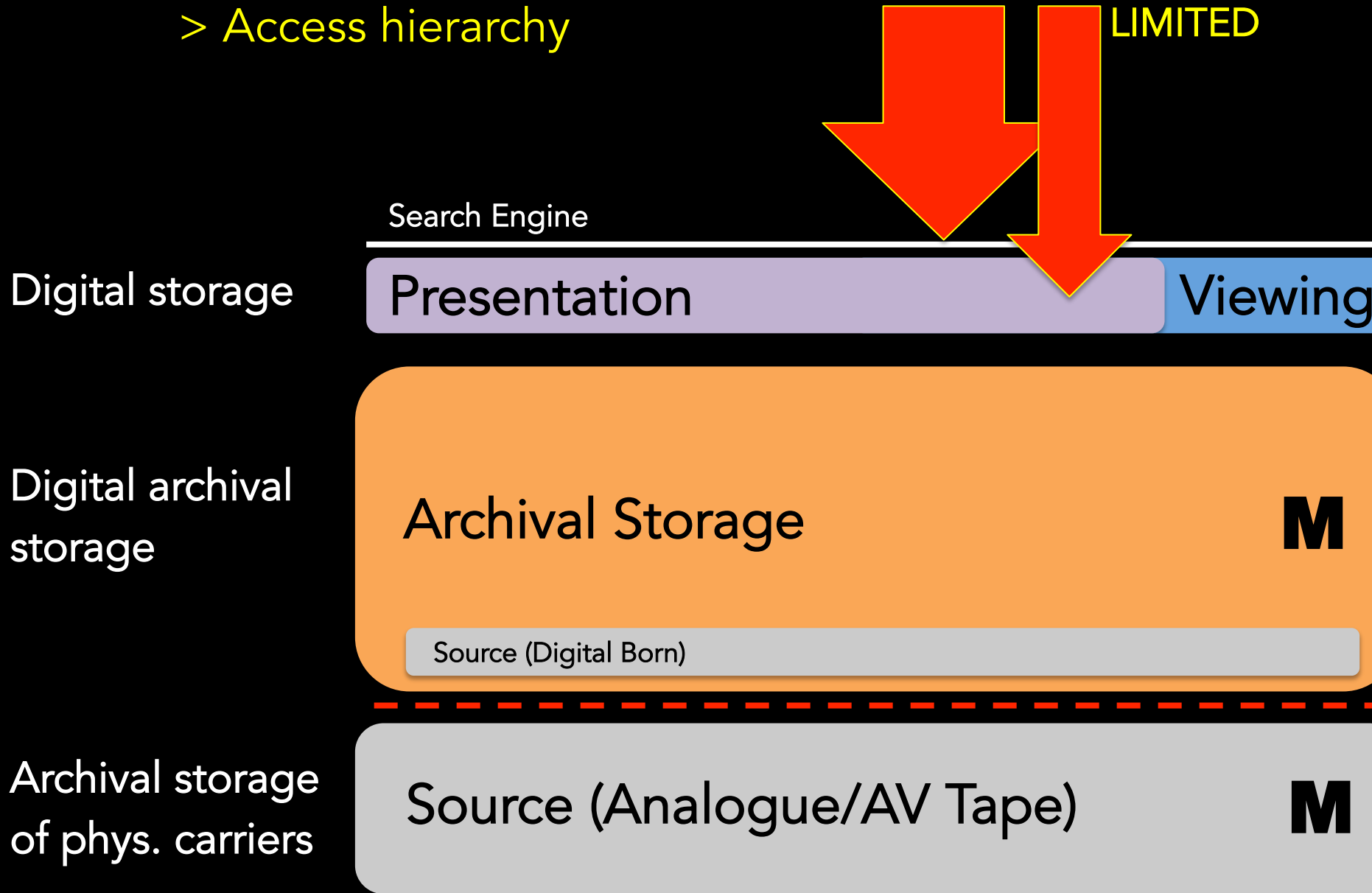Archival Storage   **M**

Source (Digital Born)

Geographically
Separated
2nd Copy

M

Source (Analogue/AV Tape)   **M**

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> Access hierarchy

LIMITED

Search Engine

Digital storage

Presentation

Viewing

Digital archival storage

Archival Storage

M

Source (Digital Born)

Archival storage of phys. carriers

Source (Analogue/AV Tape)

M

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> Access hierarchy   „NONE"

Search Engine

Presentation   Viewing   **M**

Archival Storage   **M**

Source (Digital Born)

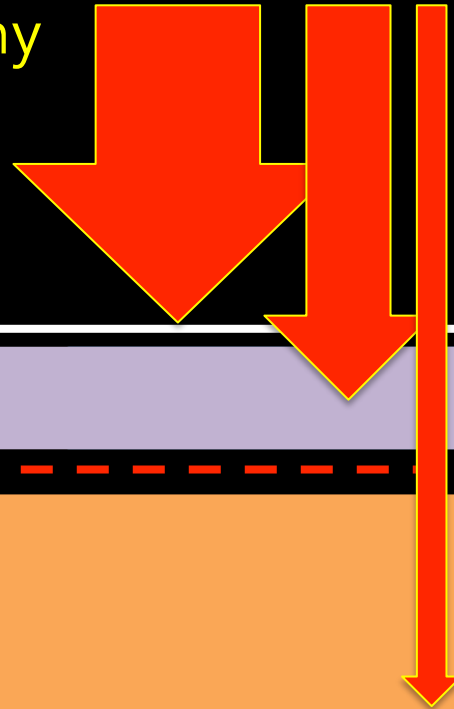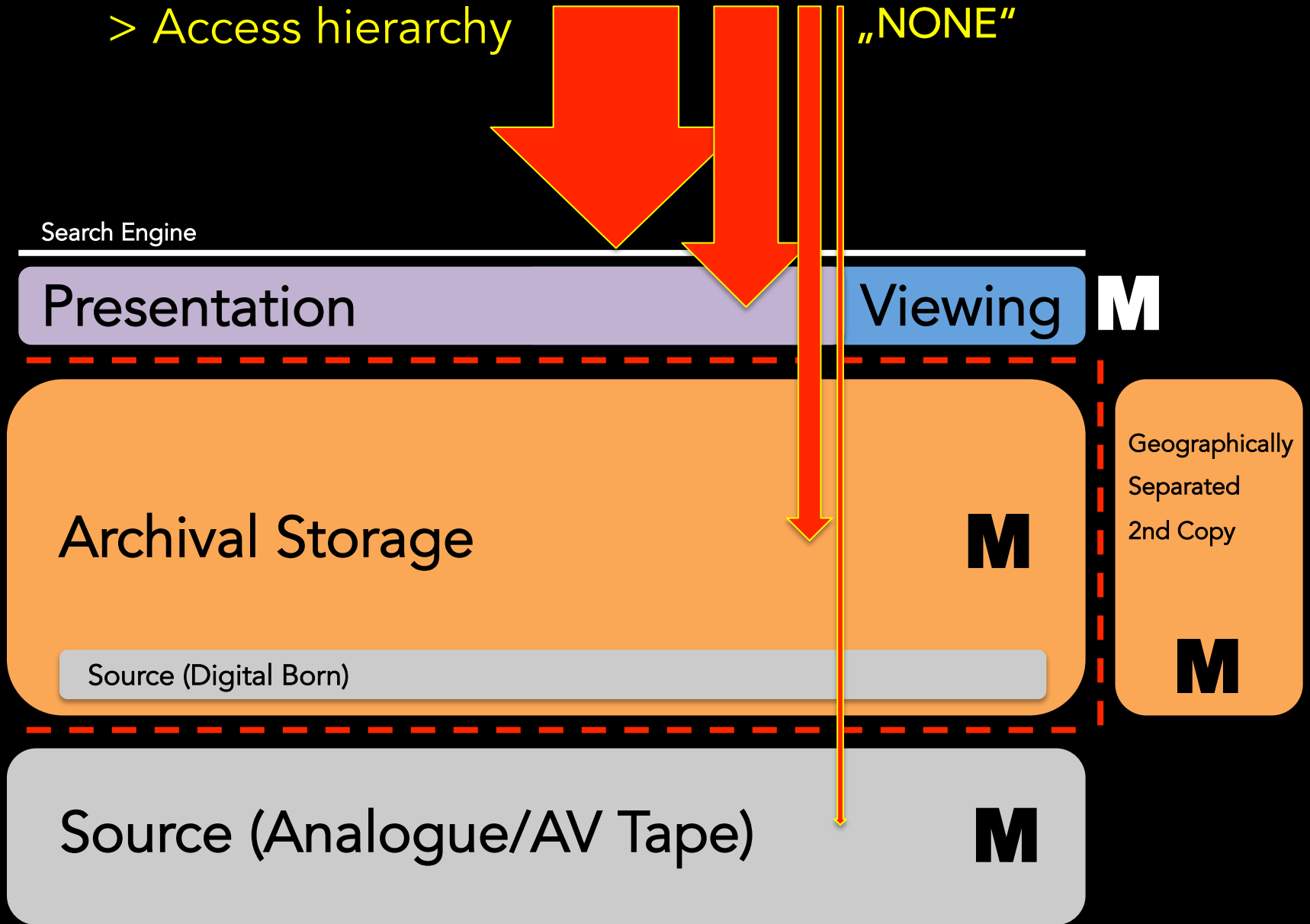Geographically Separated 2nd Copy   **M**

Source (Analogue/AV Tape)   **M**

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> Conclusion 1

Point of view of users of audiovisual achives:

„It makes no sens̶ w up" digital born compressed to ressed/losslessly compressed files.

Those files are very cumbersome to handle for researchers who are only interested in the image content."

When accessing a digital AV element in an archive researchers should not get in touch with the archival data file format.

For viewing purposes the viewing files are made.

In almost all cases these files should suffice together with the corresponding metadata.

Else the archive you are consulting needs to fix their access hierarchy.

> Topic in need of clarification!
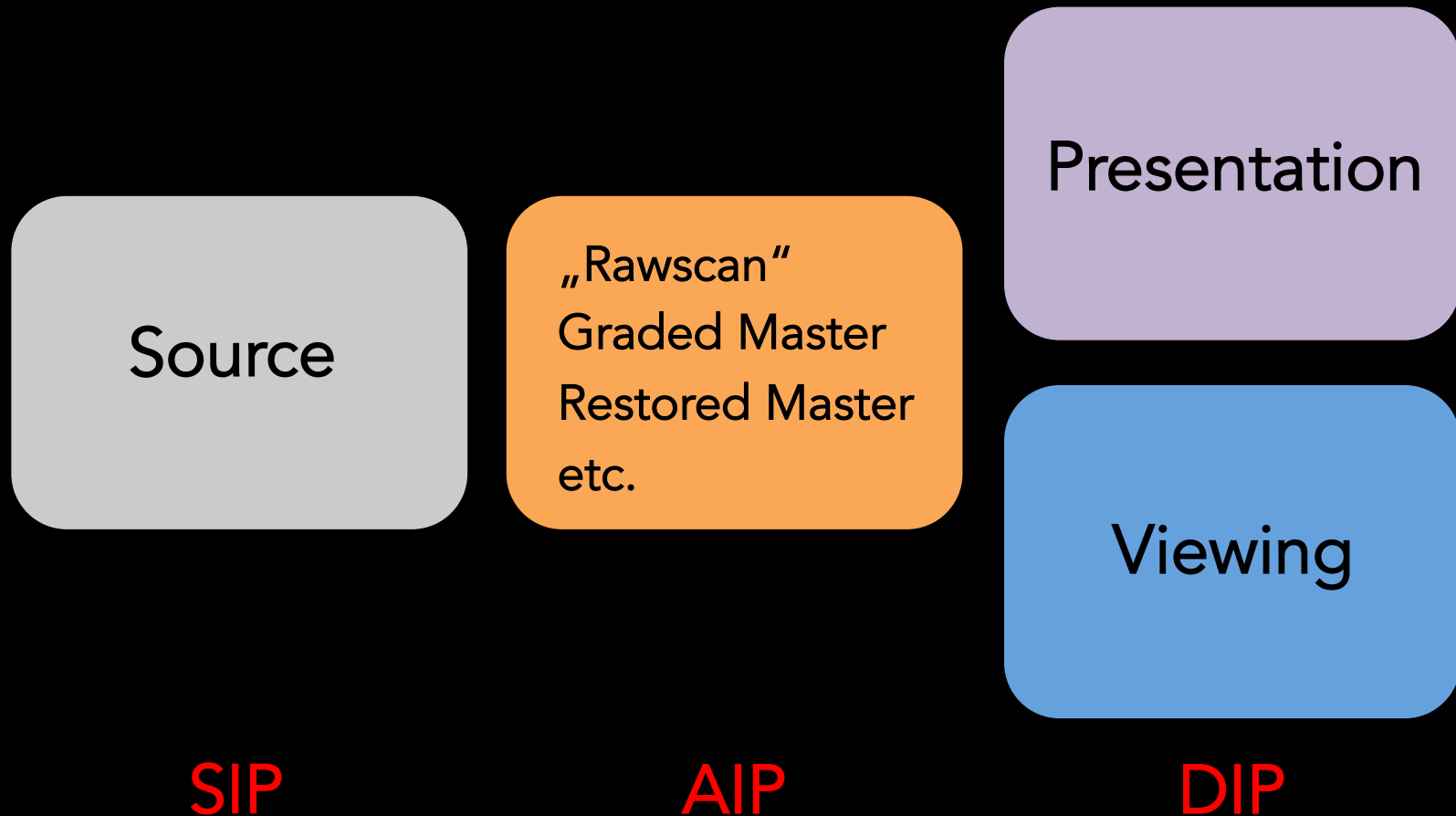
Source

„Rawscan"
Graded Master
Restored Master
etc.

Presentation

Viewing

SIP   AIP   DIP

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> Topic in need of clarification!

Source

"Rawscan"
Graded Master
Restored Master
etc.

M

Presentation

Viewing

SIP?   AIP?   DIP?

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(2)

The use of lossy compression in archival masters.

MEMORIAV
RECOMMENDATIONS

DIGITAL ARCHIVING OF FILM AND VIDEO:
PRINCIPLES AND GUIDANCE

Agathe Jarczyk, Reto Kromer, Yves Niederhäuser, David Pfluger

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Archival Storage - Conditions

„Openness" = Non-proprietary

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High Level of Documentation (Standard)

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Formats	Data rate	Work area	Suitability for archiving
Apple ProRes	SD: 30–62 Mbit/s HD: 100–250 Mbit/s	Post-production	Not recommended
XDCam HD (MPEG-2)	50 Mbit/s	Recording, post-production	Conditionally recommended
FFV1 (from version 3)	variable	Archive	Recommended
Avid-Codecs (DNxHD)	SD: 146–186 Mbit/s	Post-production	Not recommended
REDCODE RAW family, closely related to JPEG 2000 (HD only)	HD: 224–336 Mbit/s	Recording	Not recommended

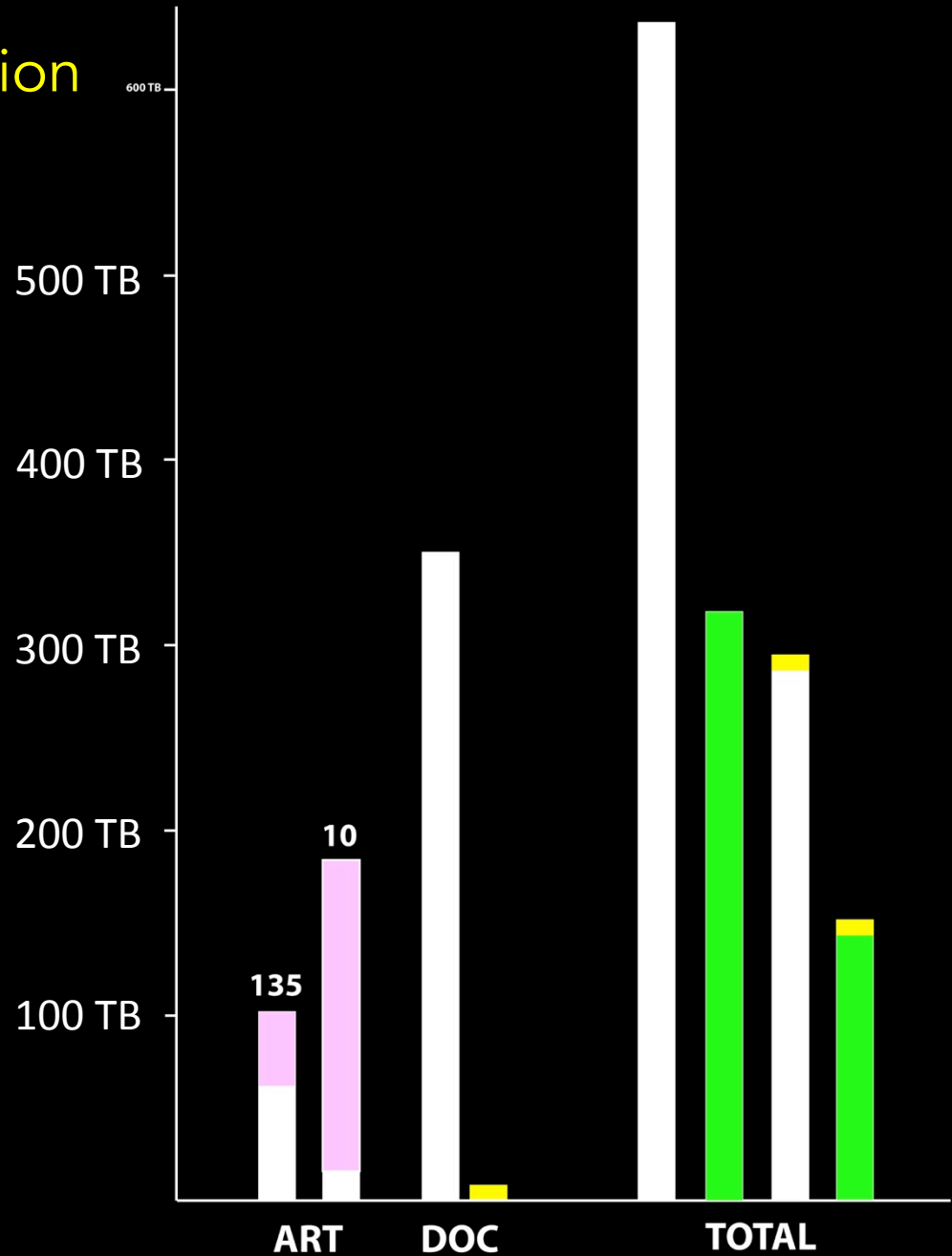**> Lossy compression**

Art collecting institution

- Mixed collection

- ca. 145 AV artworks

- 135 in SD video, carrier based

  (U-Matic, Beta SP, VHS, Laserdisc, DigiBeta, DVD)

- 10 digital born in HD video, lossy compression

- In-house production of documentation in HD video

> Lossy compression

Assuption for the in-house production of documentation:

30% of works are documented with a 60 min HD video.

> Lossy compression

Drawbacks

- Chances that the data is lost is higher for the documenting footage.
- More efforts need to be invested in regular checks for obsolete formats.
- You may have to transcode in a future migration step which may decrase the image quality.

> Conclusion?

> Thanks for your attention!

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