

# An Argument For “Lossy Preservation”

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Library of Congress Storage Arch Meeting

9/28/2010

# Current Art: “Lossless Preservation”

- Assumption: We can preserve the bit representation of digital objects without loss of information in the face of corruption.
- Some approaches
  - Decorrelated replication & voting: LOCKSS
  - Tapes in a cave: Portico
- Issue: Scalability
  - How much data?
  - For how long?

# What If Lossless Preservation Won't Scale?



# Without Losslessness, What Is Left?

- Lossy preservation: Interpreting objects from which bits have been unrecoverably lost.
- It's not a matter of whether we want to, but whether we may have to.
  - Are you sure we won't? How sure?
- Using knowledge of higher-level structure, damaged objects can convey useful information:
  - Streaming video: drop corrupt frames & interpolate
  - Photographs: can we use knowledge of object continuity, lighting, texture, perspective, etc.?

# Denial Is Not Just A River: What If We Rely On Lossless Preservation Alone?

- Possible difficulty scaling lossless preservation
  - Cost
  - Difficulty, continued will
  - Collection size
- We may preserve less
  - Media
  - Raw data
  - Observations
- We may lose objects needlessly
  - E.g. How well can we read a corrupt PDF document?

# Implications of Lossy Preservation

- Formats must be robust w.r.t. local corruption
- Protect important features of objects against loss
  - Protect anticipated future use of objects
  - How to define & track “important”, “anticipated”?
- Storage failure modes must be manageable
  - Speed & density may not be most important
  - Durability isn’t everything, but it is important!
- **Ignoring the possibility of loss may imperil the future usability (or restrict the size) of preserved collections!**

# Things Fall Apart

Turning and turning in the widening gyre  
The falcon cannot hear the falconer;  
Things fall apart; the centre cannot hold;  
Mere anarchy is loosed upon the world...

*William Butler Yeats*  
*"The Second Coming"*