## An Argument For "Lossy Preservation"

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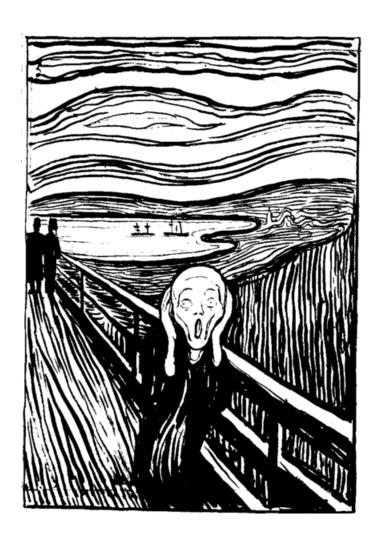
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#### Current Art: "Lossless Preservation"

- 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 <u>want to</u>, but whether we <u>may have to</u>.
  - Are you <u>sure</u> 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 <u>robust</u> w.r.t. local corruption
- Protect <u>important</u> features of objects against loss
  - Protect <u>anticipated</u> future use of objects
  - How to define & track "important", "anticipated"?
- Storage failure modes must be <u>manageable</u>
  - Speed & density may not be most important
  - Durability isn't everything, but it <u>is</u> 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"