Digital Necromancy

Risks

Everyday Risks:
- users not clicking a "preserve" button
- accidentally deleting a file or object

Major Risks:
- vendor lock-in
- db/storage/etc. total failure

Worst-Case Scenarios:
- entire software stack unusable
- total destruction of our datacenter

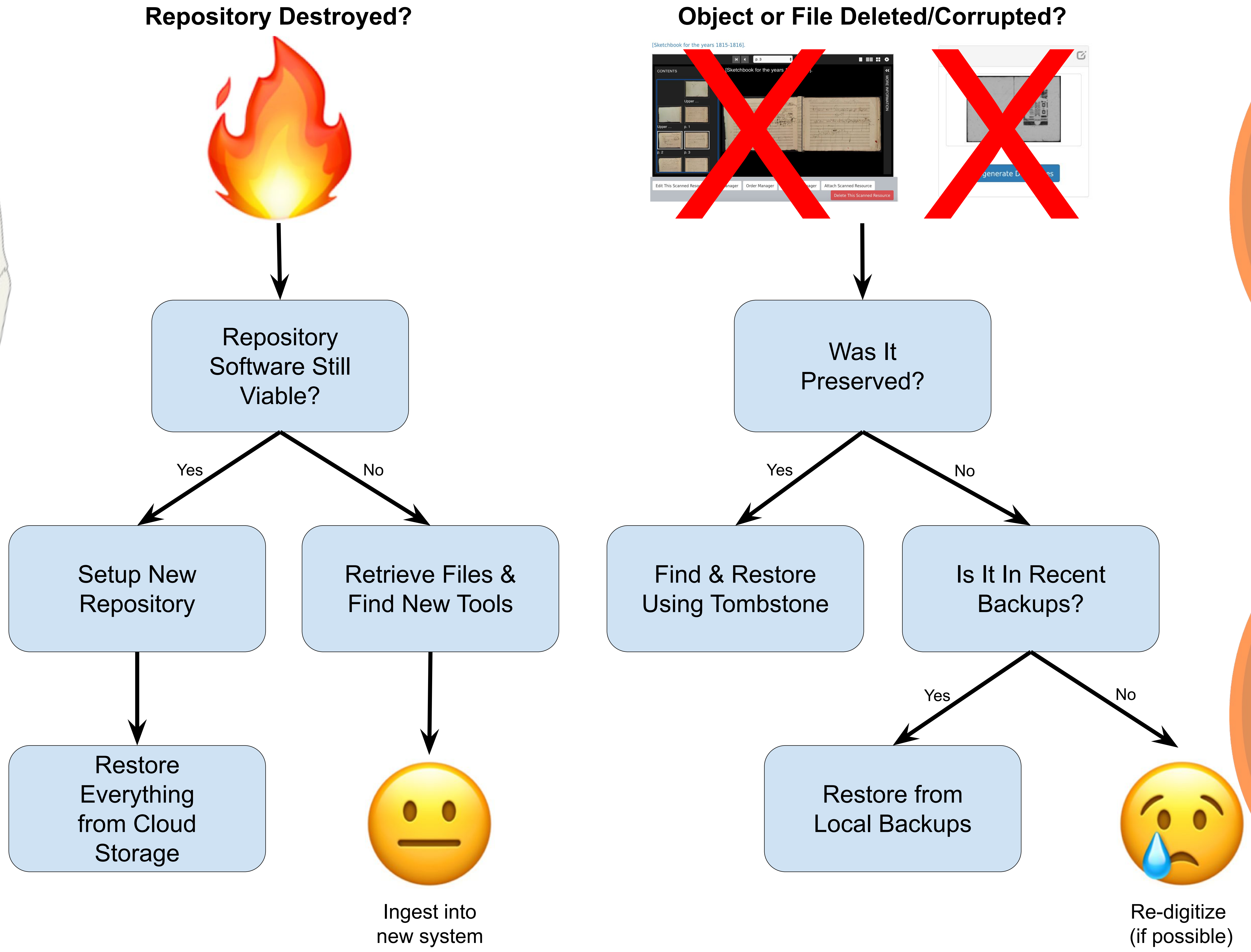
Strategy

- (Google) cloud storage
- Vendor-agnostic storage library (Shrine)
- Store data in 2 separate locations (NJ + OR)
- Automatically preserve everything that's been published, update when changes happen
- Standard preservation formats (e.g., TIFF)
- Package all of a "work" together
- Human-readable metadata in JSON
- Use popular packaging format (BagIt)

Complications

Multiple background workers result in contention on BagIt (or OCFL) manifest.
Solution: Deviate from BagIt spec by writing separate checksum files for each object and file.

If we store objects by their opaque identifiers, how do we find them to restore them?
Solution: Create "tombstones" to track deleted objects and files with just enough information to restore them



Repository Destroyed?

Repository Software Still Viable?

Yes: Setup New Repository → Restore Everything from Cloud Storage

No: Retrieve Files & Find New Tools → Ingest into new system

Object or File Deleted/Corrupted?

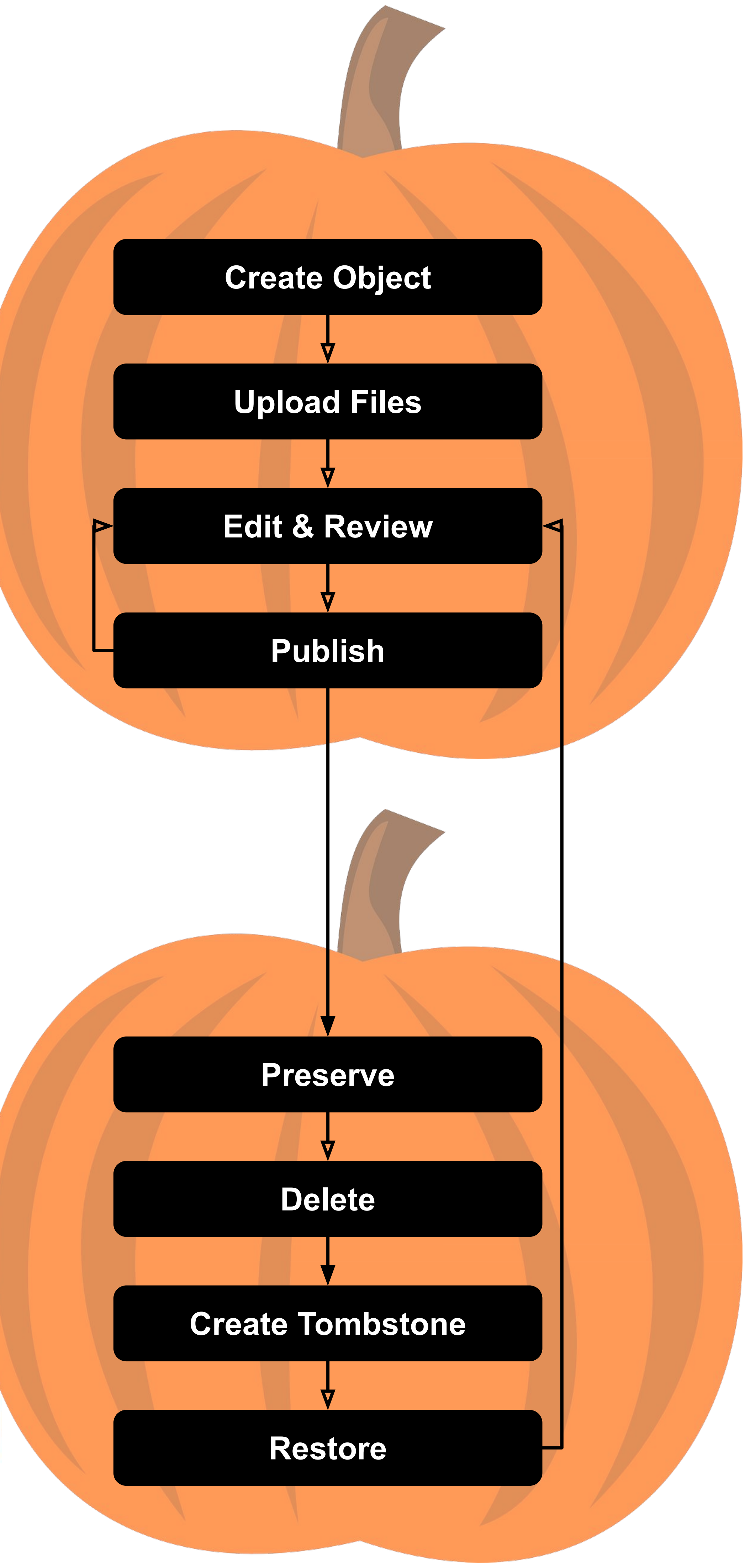
Was It Preserved?

Yes: Find & Restore Using Tombstone

No: Is It In Recent Backups?

Yes: Restore from Local Backups

No: Re-digitize (if possible)



Create Object

Upload Files

Edit & Review

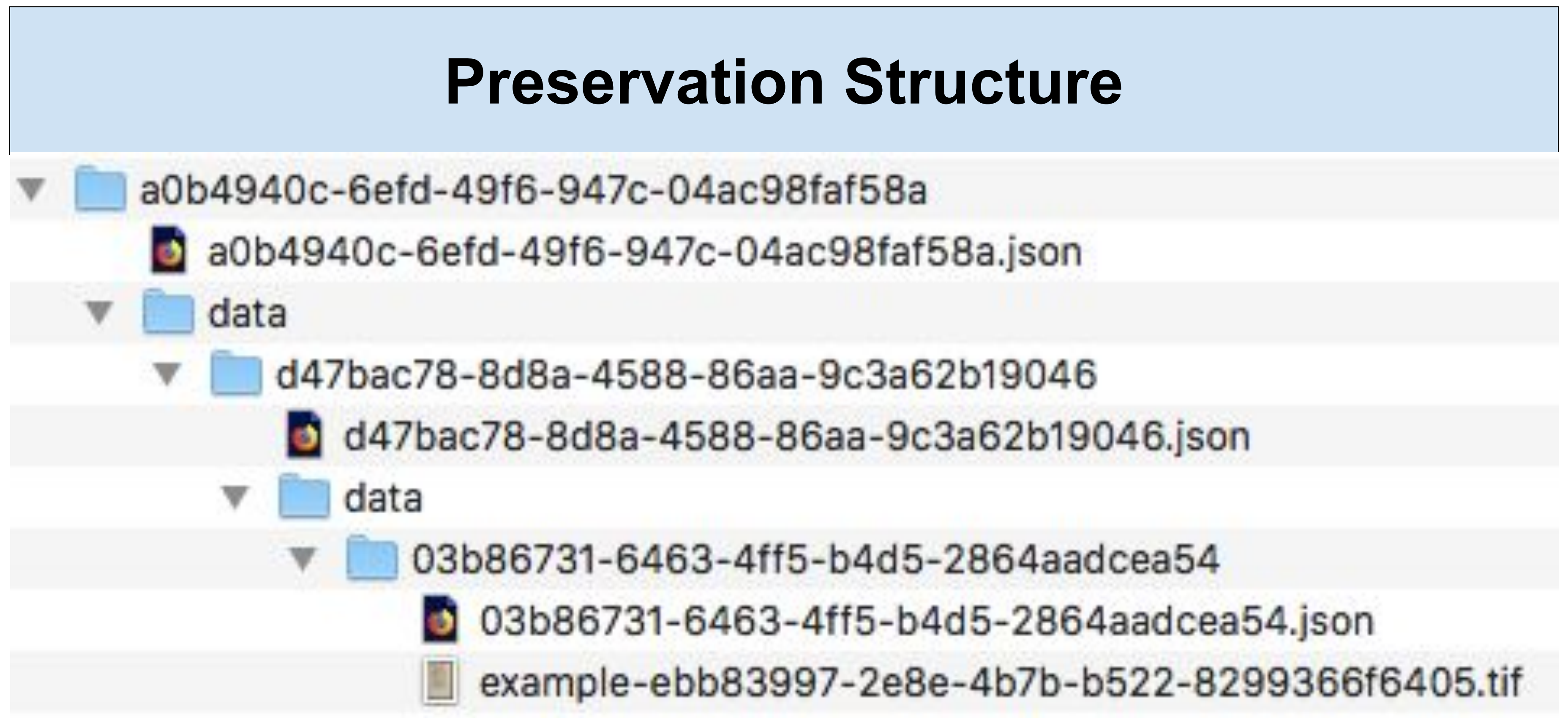
Publish

Preserve

Delete

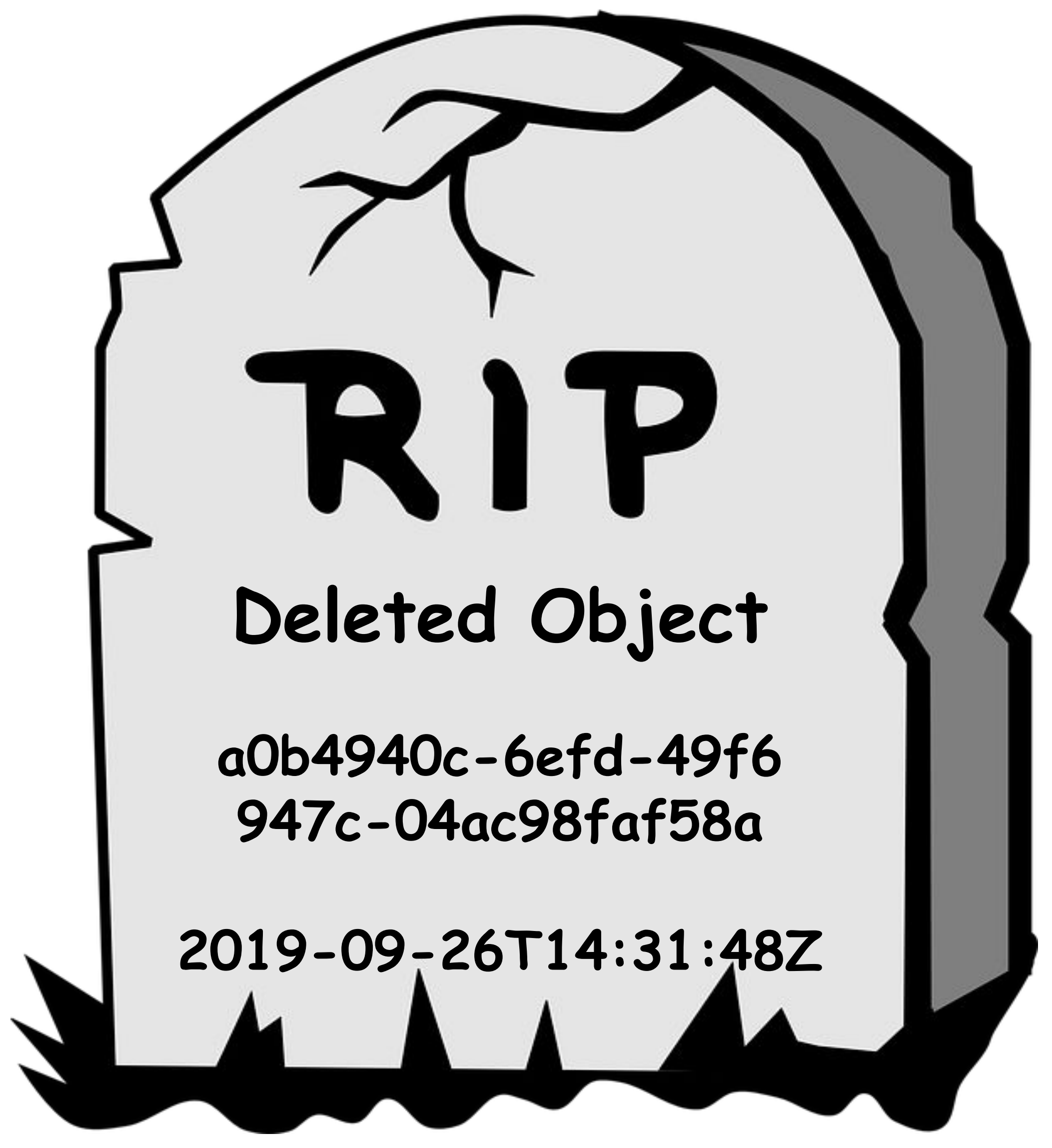
Create Tombstone

Restore



Preservation Structure

```
▼ a0b4940c-6efd-49f6-947c-04ac98faf58a
    a0b4940c-6efd-49f6-947c-04ac98faf58a.json
  ▼ data
    ▼ d47bac78-8d8a-4588-86aa-9c3a62b19046
        d47bac78-8d8a-4588-86aa-9c3a62b19046.json
      ▼ data
        ▼ 03b86731-6463-4ff5-b4d5-2864aadcea54
            03b86731-6463-4ff5-b4d5-2864aadcea54.json
            example-ebb83997-2e8e-4b7b-b522-8299366f6405.tif
```



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