Generating Realistic Datasets for Deduplication Analysis

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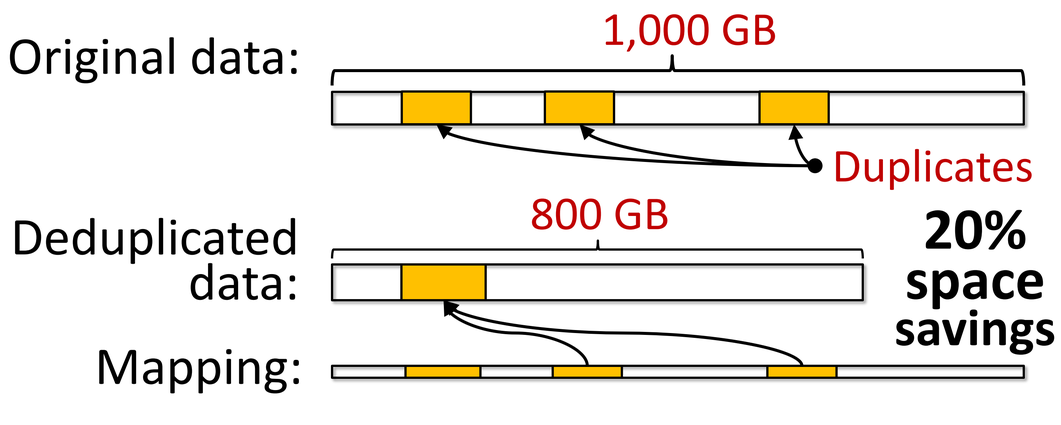
❶ Deduplication



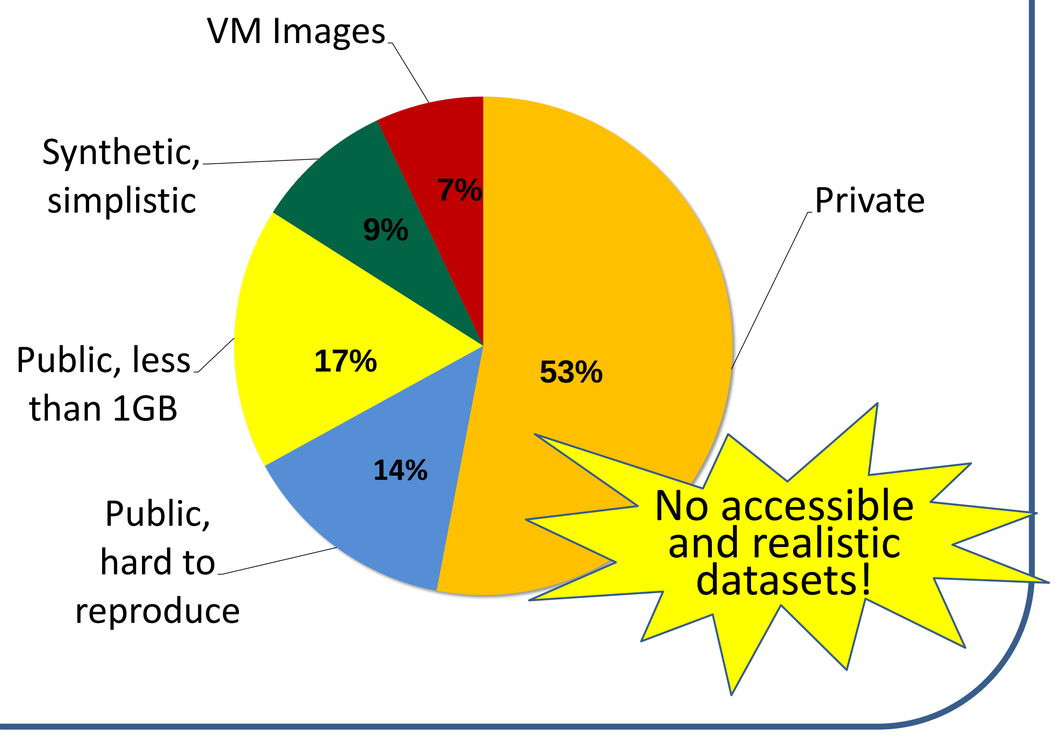
Typical Steps:

1. Chunking
   - Whole-file, Fixed, Variable size, …
2. Hashing
   - SHA256, MD5, Tiger, …
3. Indexing
   - Conventional databases
   - Specialized indexes
   - ….

Performance depends on dataset!

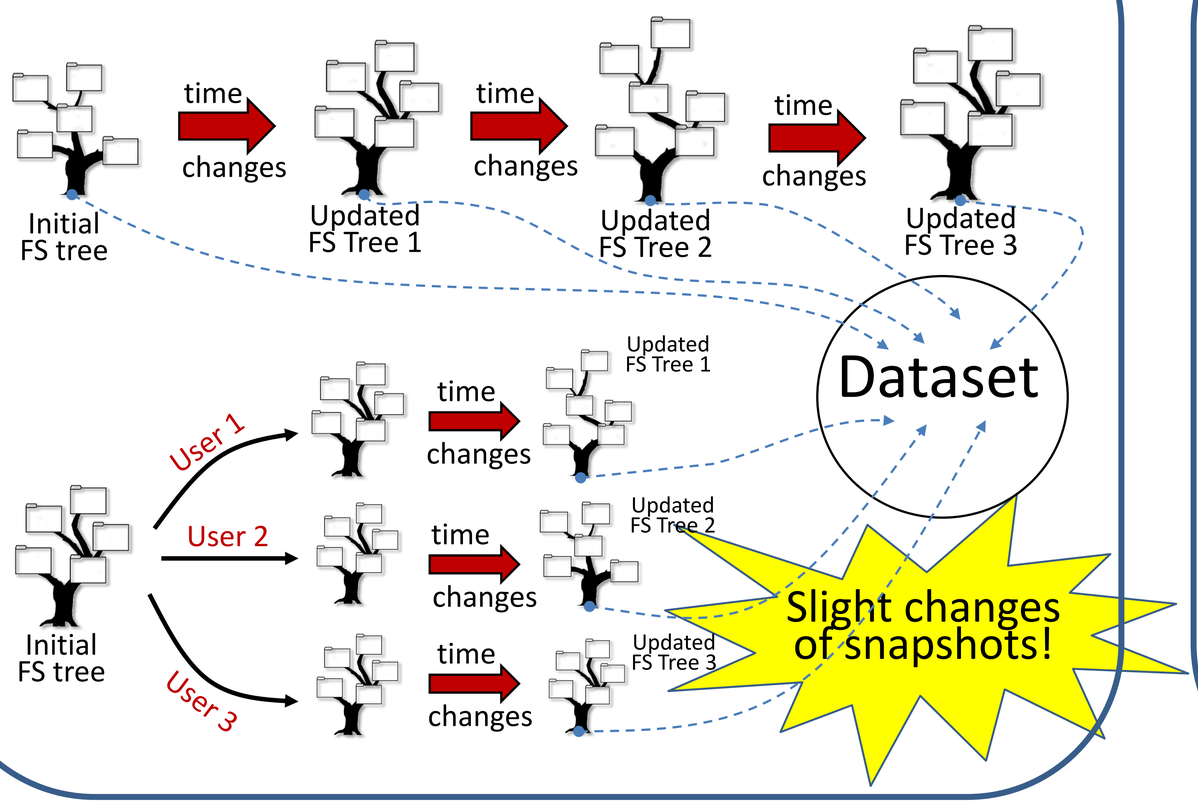
❷ Previous Datasets

120 datasets, 29 papers from, e.g., FAST, ATC conferences



No accessible and realistic datasets!

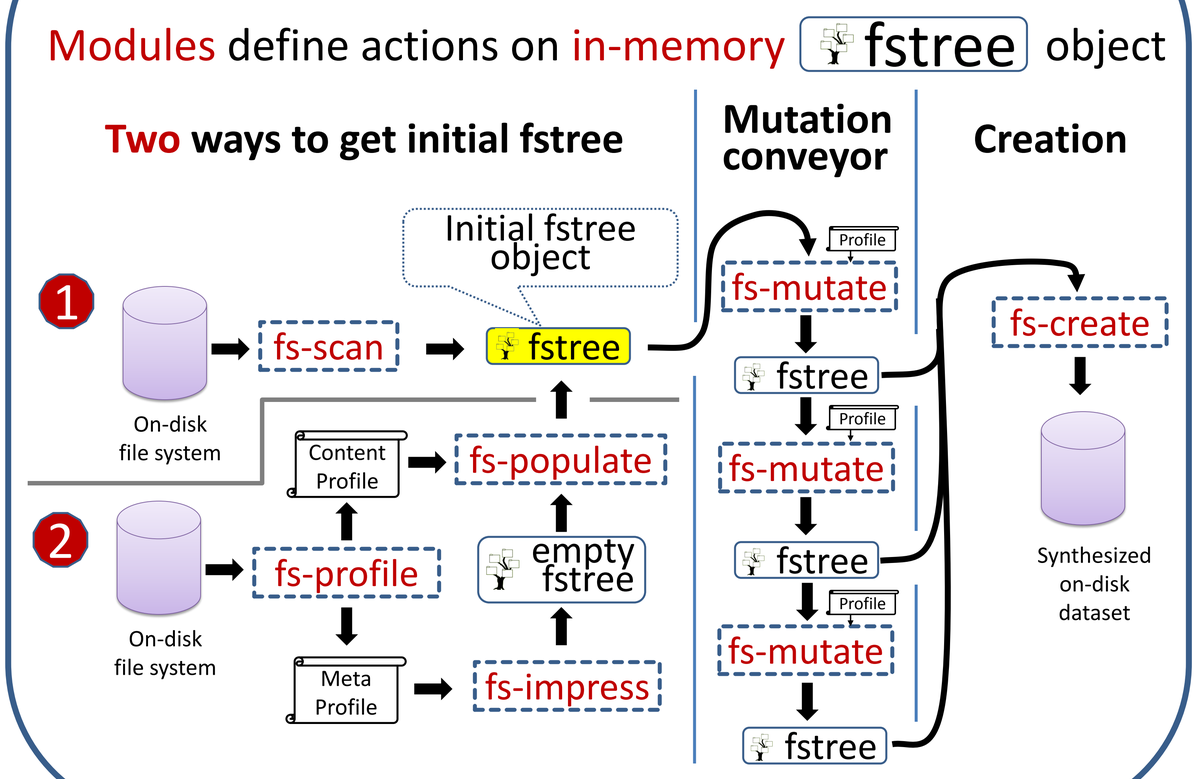
❸ Dataset Formation



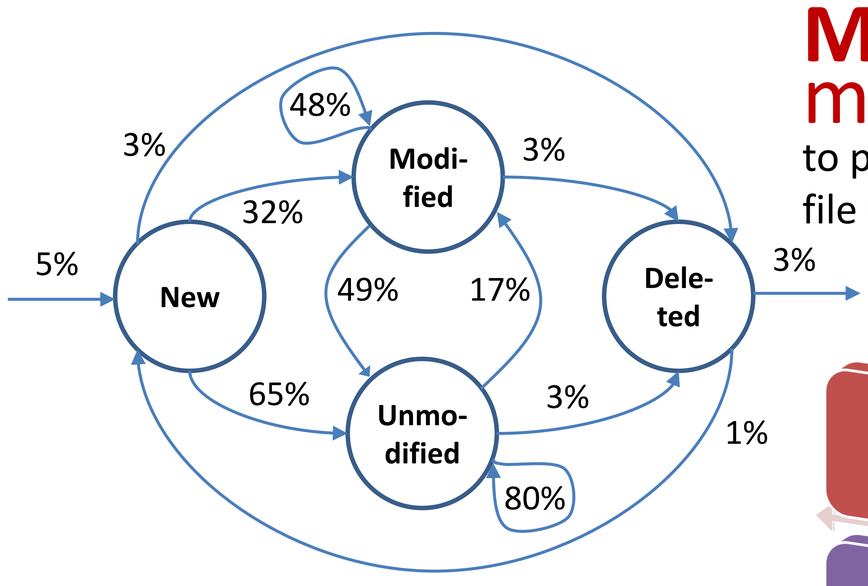
Slight changes of snapshots!

❹ Action Modules

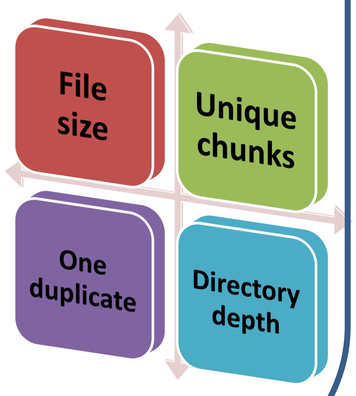
Modules define actions on in-memory fstree object



❺ M&D Model

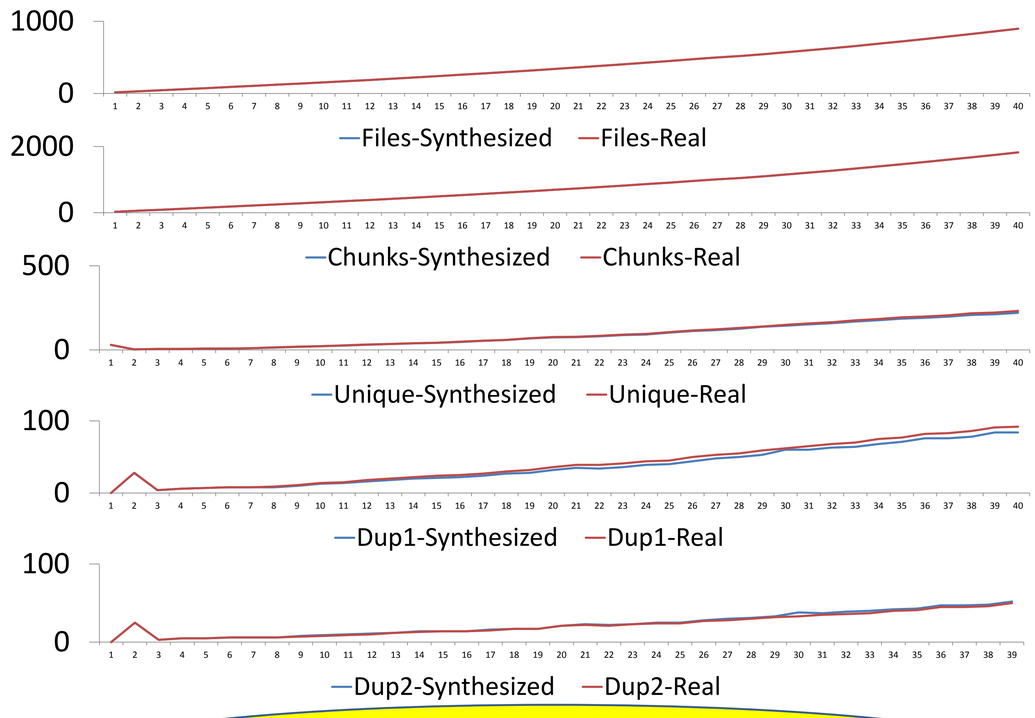


Markov model
to preserve active file set history



Multi-dimensional distribution
to select file and perform appropriate action on it

❻ Preliminary Results



2.6.0 – 2.6.39 Kernels dataset: within 10% accuracy!

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