The Merge on Write Pattern (MOW)

given:

some physical memory partitioned into units, e.g. blocks

allocate/write/update-operations on units

solution:

hide physical addresses, e.g. LBA

make users share the data (without them even noticing)

deduplicate physically only at write/update-time
The Merge on Write Pattern (MOW)

advantages:

saves considerable storage space

drawbacks:

managing overhead for tables

fragmentation

use-cases:

deduplication, file systems, information integration
Example

version a

file

version b
Insert and Update (as in Shadow Storage)

version a

file

version b

pointer to consistent version
Insert and Update (MOW)

version a

diagram

file

version b

pointer to consistent version