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

$M_a$ 0 1 2 3 4 5

$M_b$ 0 1 2 3 4 5

pointer to consistent version

a
Insert and Update (as in Shadow Storage)

version a

file

version b

\[ M_a \]

\[ M_b \]

pointer to consistent version
Insert and Update (MOW)

version a

file

version b

pointer to consistent version