see documentation for case 4i to get to this point (case 4i slide 11)

Root Directory

dd1M (deleted)

aa3M (deleted)
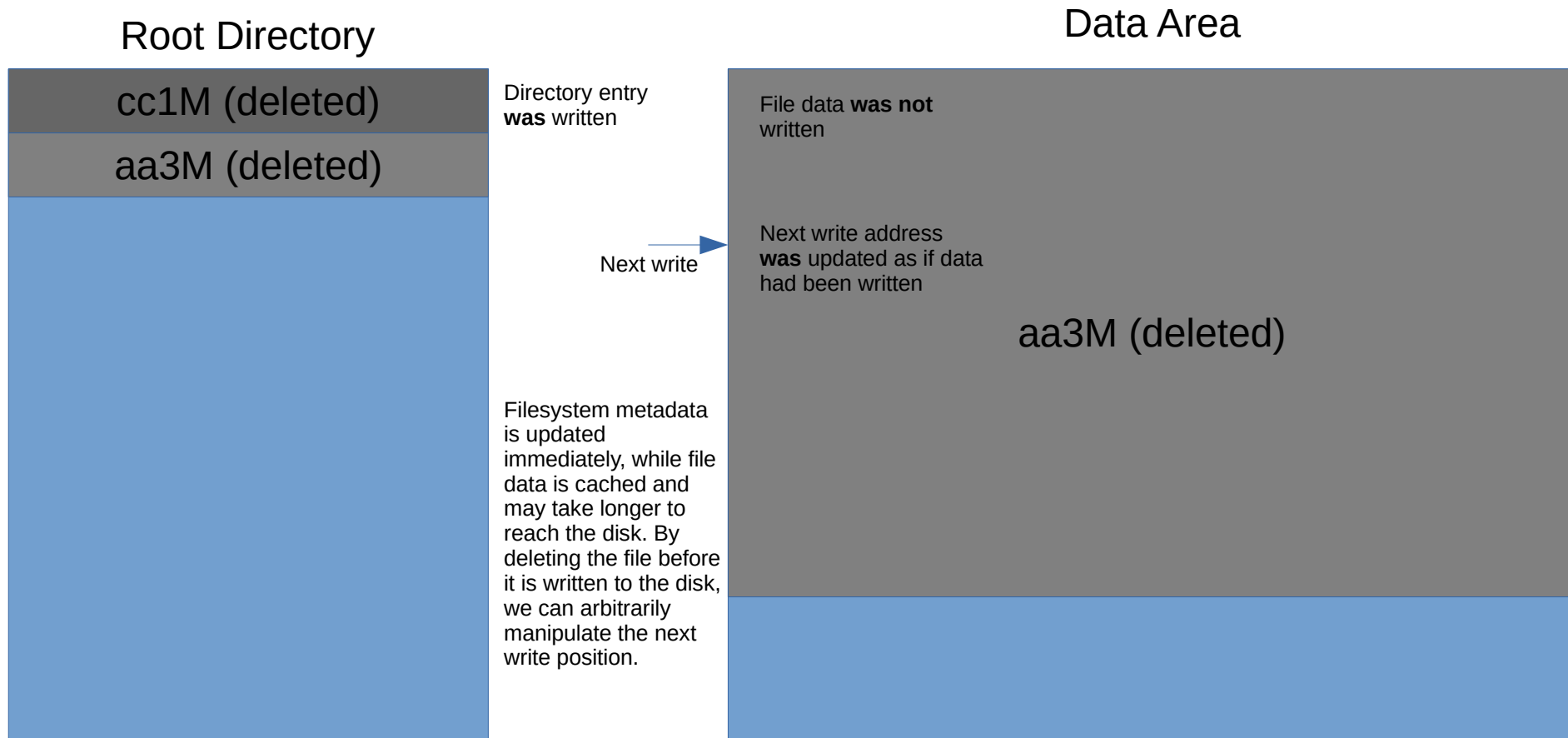
Data Area

Next write

aa3M (deleted)
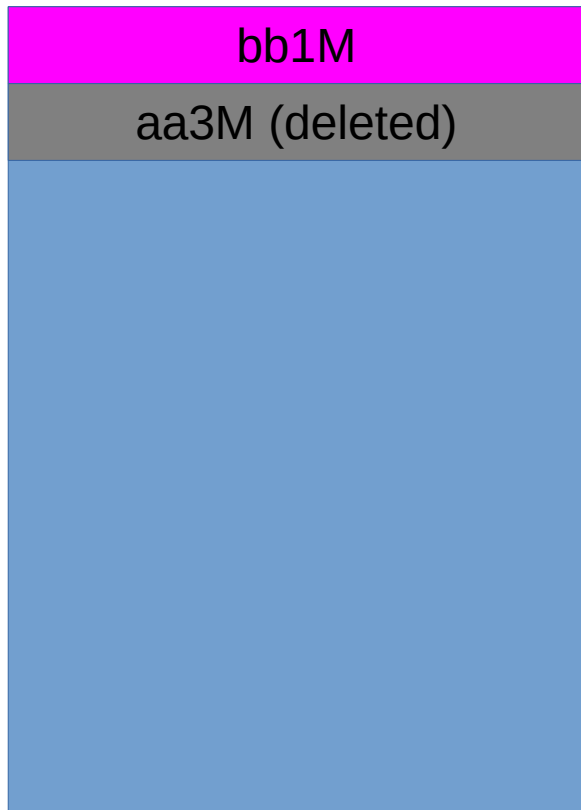
```
> cp test_files/cc1M /mnt
> rm /mnt/cc1M          # delete immediately, before sync
> sync
```

Root Directory

Data Area

cc1M (deleted)

aa3M (deleted)

Directory entry **was** written

File data **was not** written

Next write

Next write address **was** updated as if data had been written

aa3M (deleted)

Filesystem metadata is updated immediately, while file data is cached and may take longer to reach the disk. By deleting the file before it is written to the disk, we can arbitrarily manipulate the next write position.

```
> cp test_files/bb1M /mnt
> umount /mnt
```

Root Directory

| bb1M |
| aa3M (deleted) |
| |

Data Area

| aa3M (deleted) |
| bb1M |
| aa3M (deleted) |
| |

Next write