LFS - Crash recovery

The check-point region (CR) must be updated atomically

➡ LFS keeps two CRs and writing a CR is done in 3 steps

    1. writes out the header with a timestamp #1

    2. writes the body of the CR

    3. writes one last block with another timestamp #2

✓ Crash can be detected if timestamp #1 is after #2

✓ LFS will always choose the most recent and valid CR

✓ All logs written after a successful CR update will be lost in case of a crash

LFS - Disk Cleaning (a.k.a Garbage Collection)

LFS leaves old version of file structures on disk

➡ LFS keeps information of the version of each segment and runs a disk cleaning process

- A cleaning process removes old versions by compacting contiguous blocks in memory

- That cleaning process runs when the disk is idle or when running out of disk space