

Page cache

problem

too many small I/O operations

solution

batching

problem

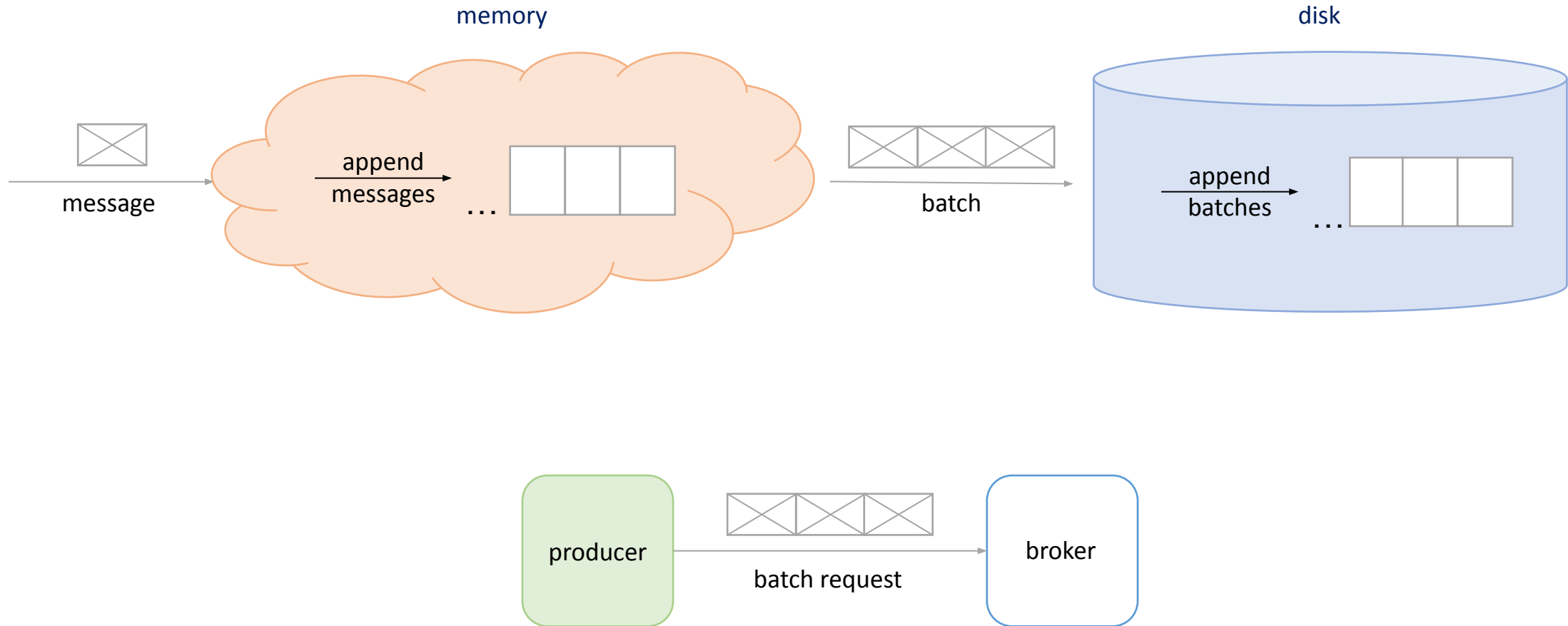
excessive byte copying

solution

zero-copy read

Page cache

batching

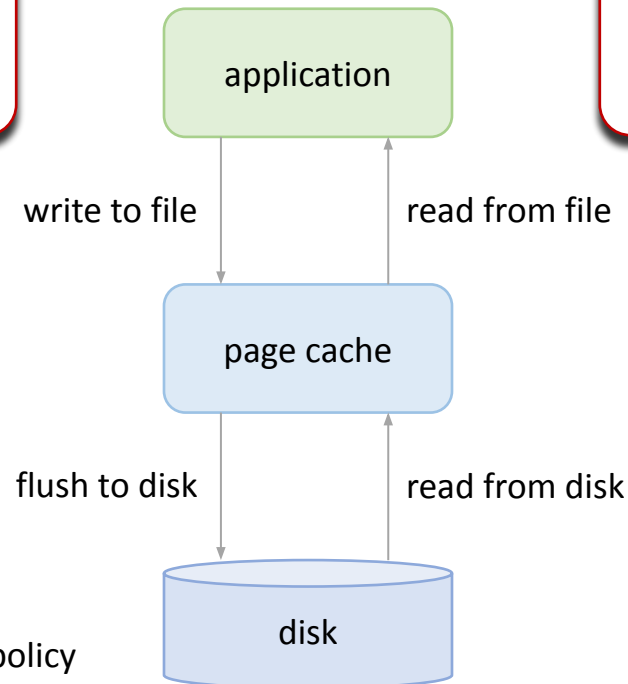


Page cache

page cache

all physical memory not directly allocated to applications is typically used by the OS for the page cache

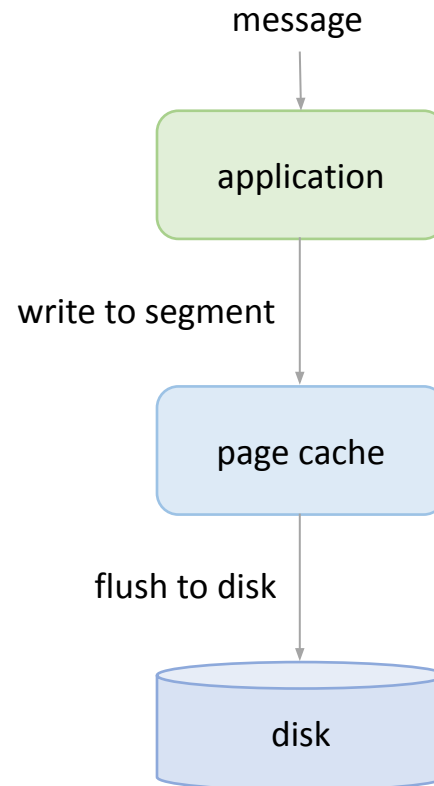
when the OS needs more memory for applications it deletes data from the page cache



- when application explicitly requests to flush
- when OS decides to flush based on its own flush policy

Page cache

write messages to disk



- OS batches together consecutive small writes into bigger physical writes

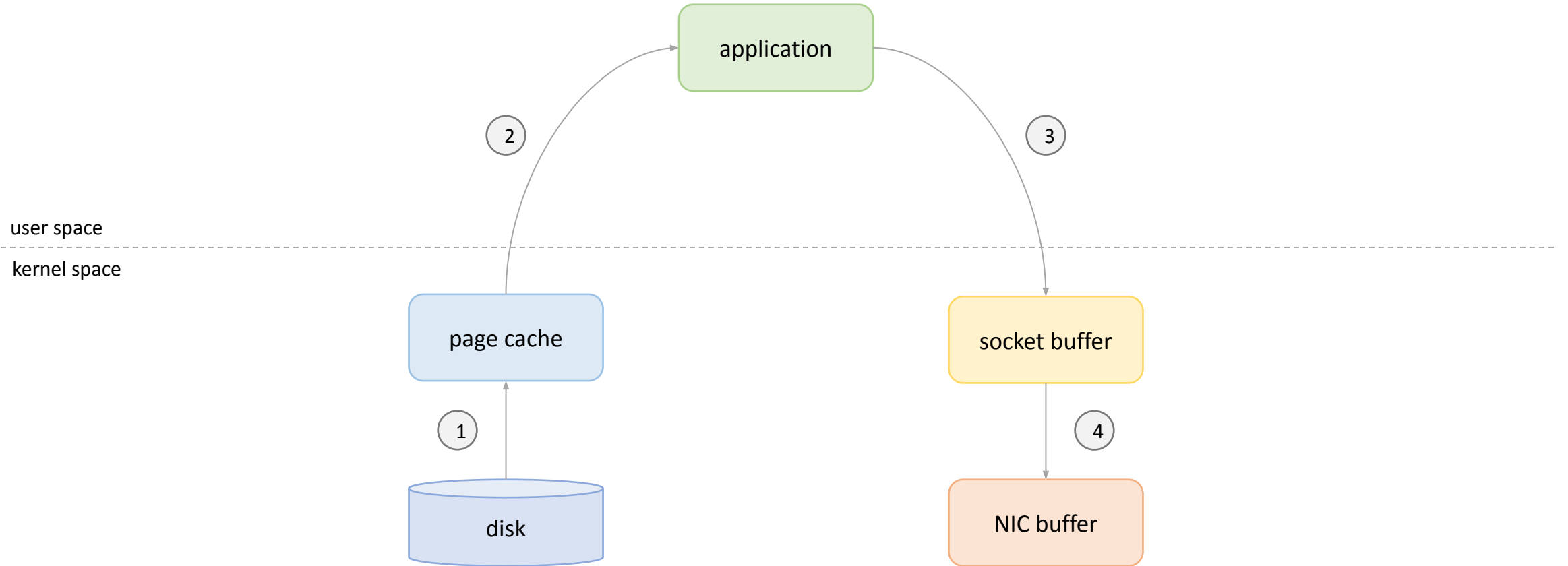
- OS attempts to re-sequence writes to minimize movement of the disk head

alternatively, we can use any local in-memory cache

- flush to disk every few seconds
- or flush to disk when a certain number of messages accumulate in the page cache

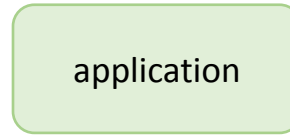
Page cache

read messages from disk



Page cache

zero-copy read



user space

kernel space

