

What is dm-writeboost

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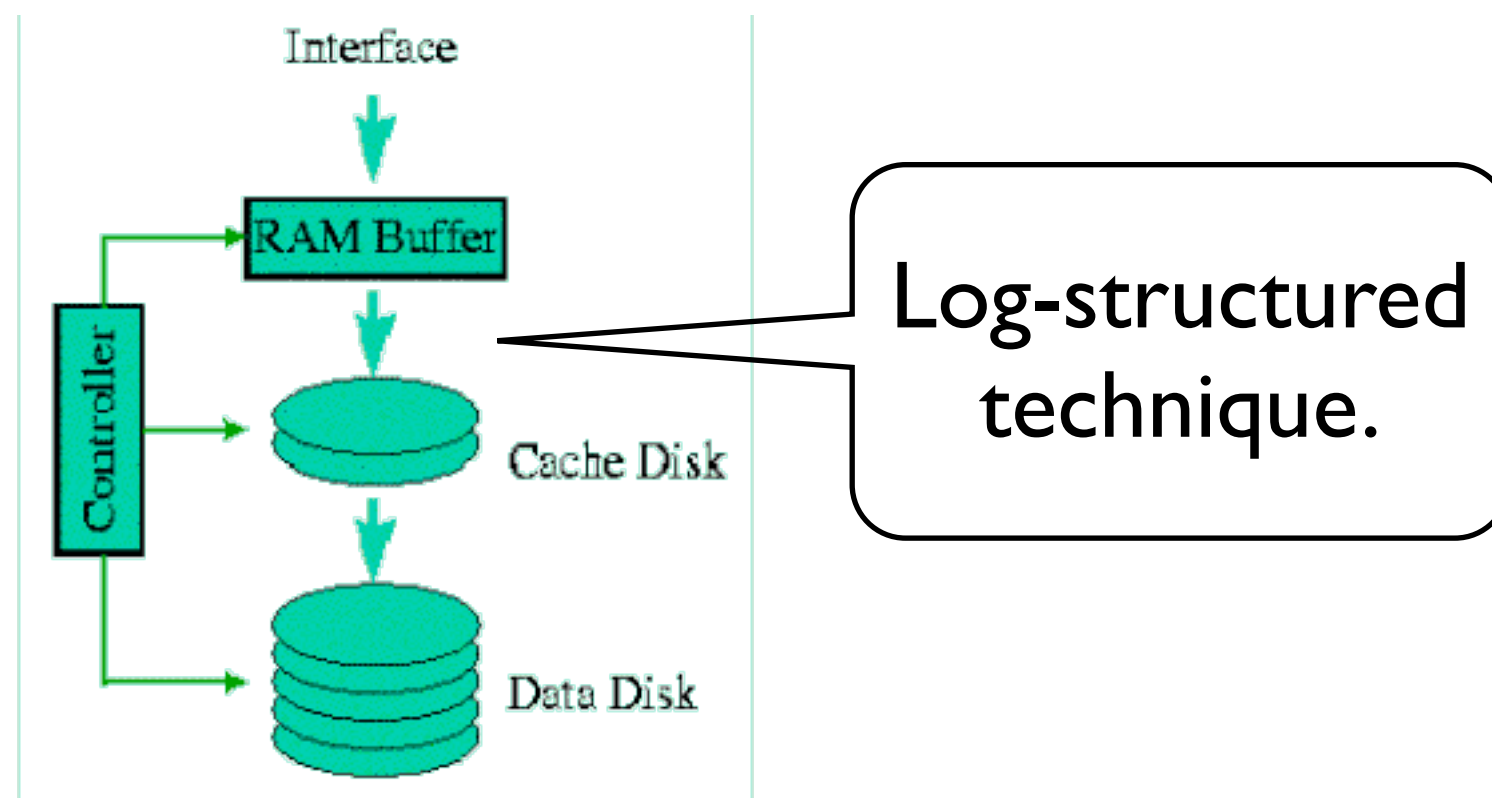
Development is real fun!

dm-writeboost?

- Cache module for Linux, based on Disk Caching Disk (DCD).
- caches ONLY writes.
- Small SSD cache can boost random writes of backing HDD.

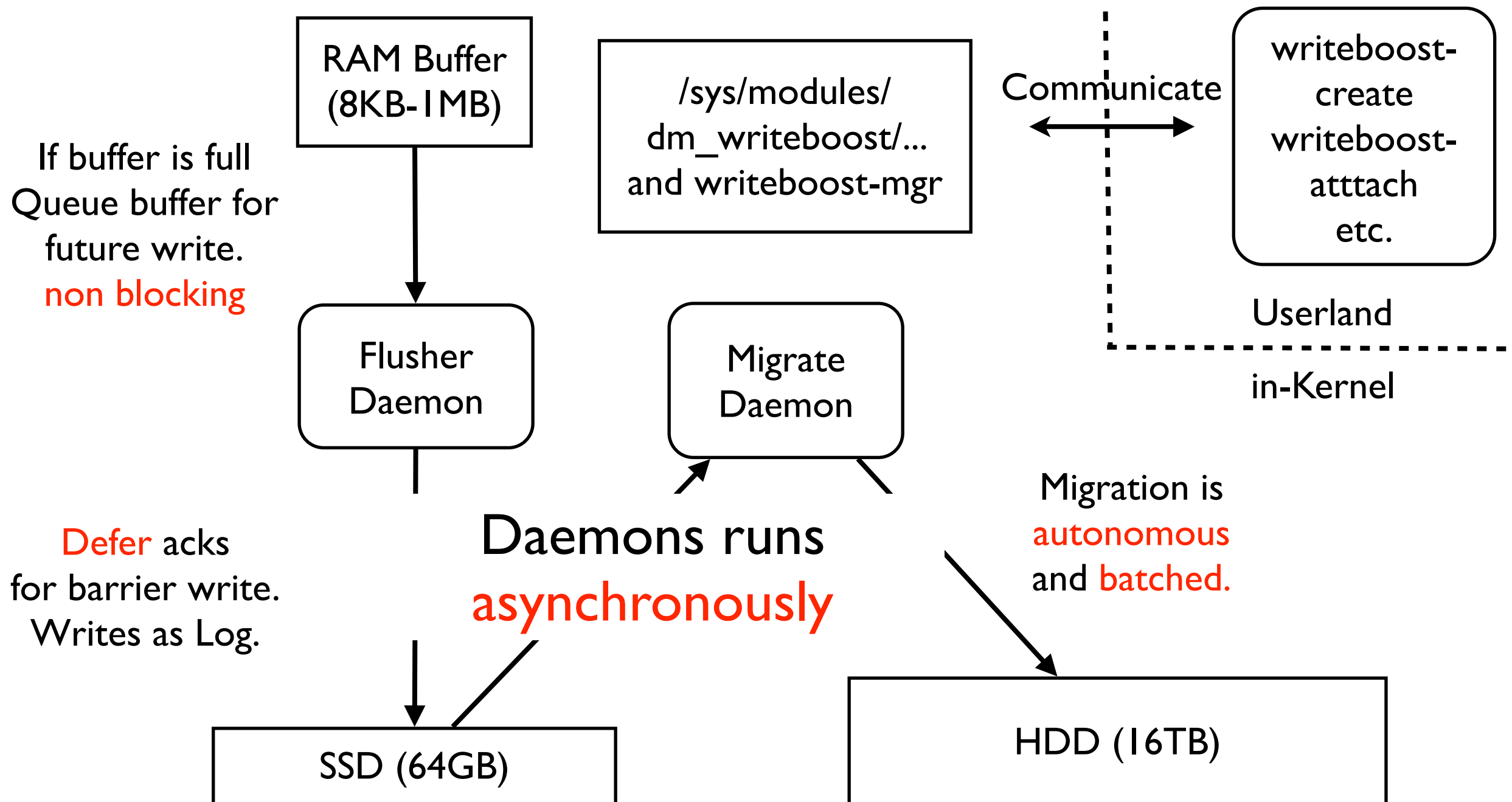
DCD?

- Log-structured filesystem in block layer.

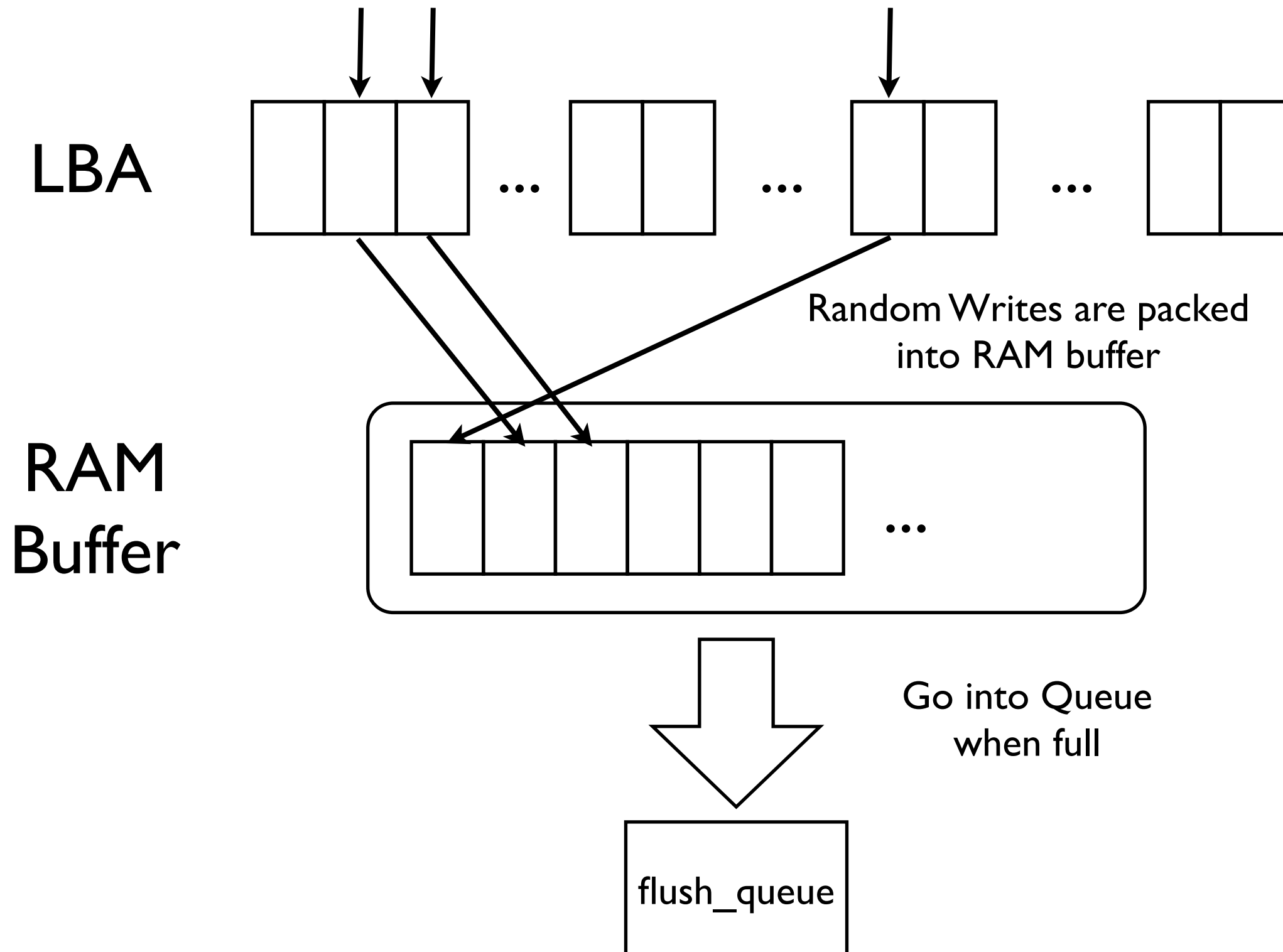


<http://www.ele.uri.edu/research/hpcl/DCD/DCD.html>

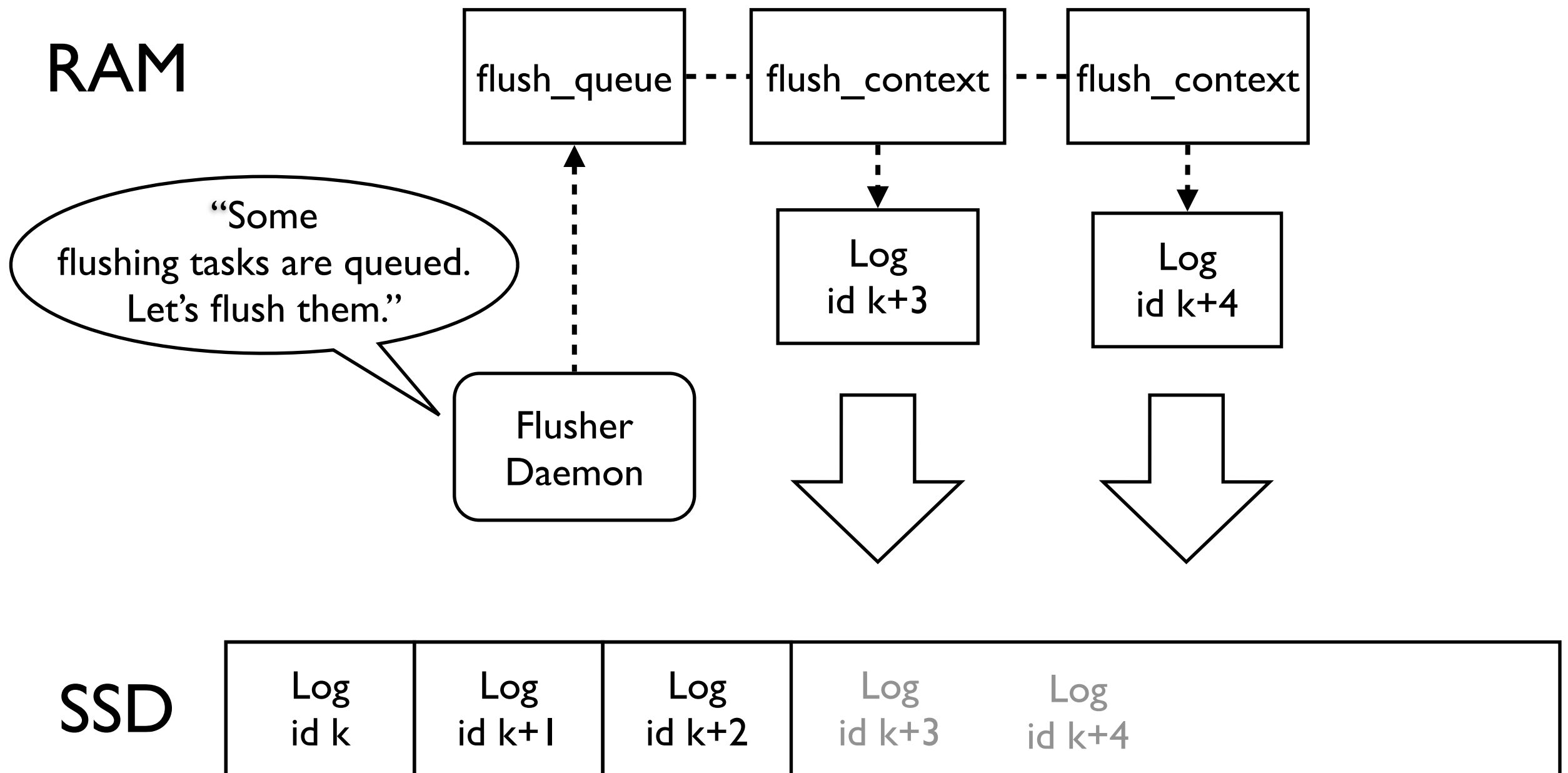
Architecture



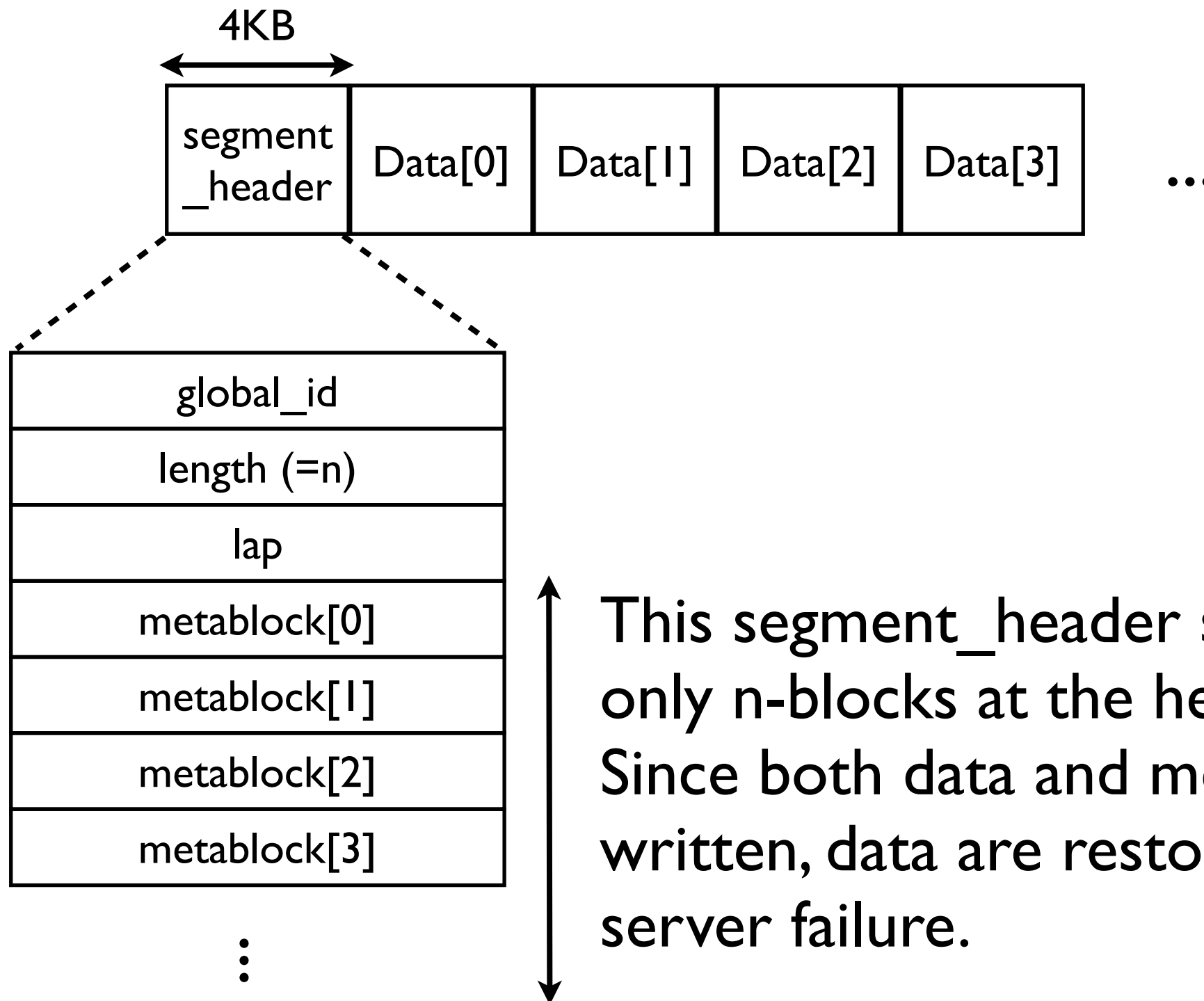
RAM Buffer



Queue and Flush

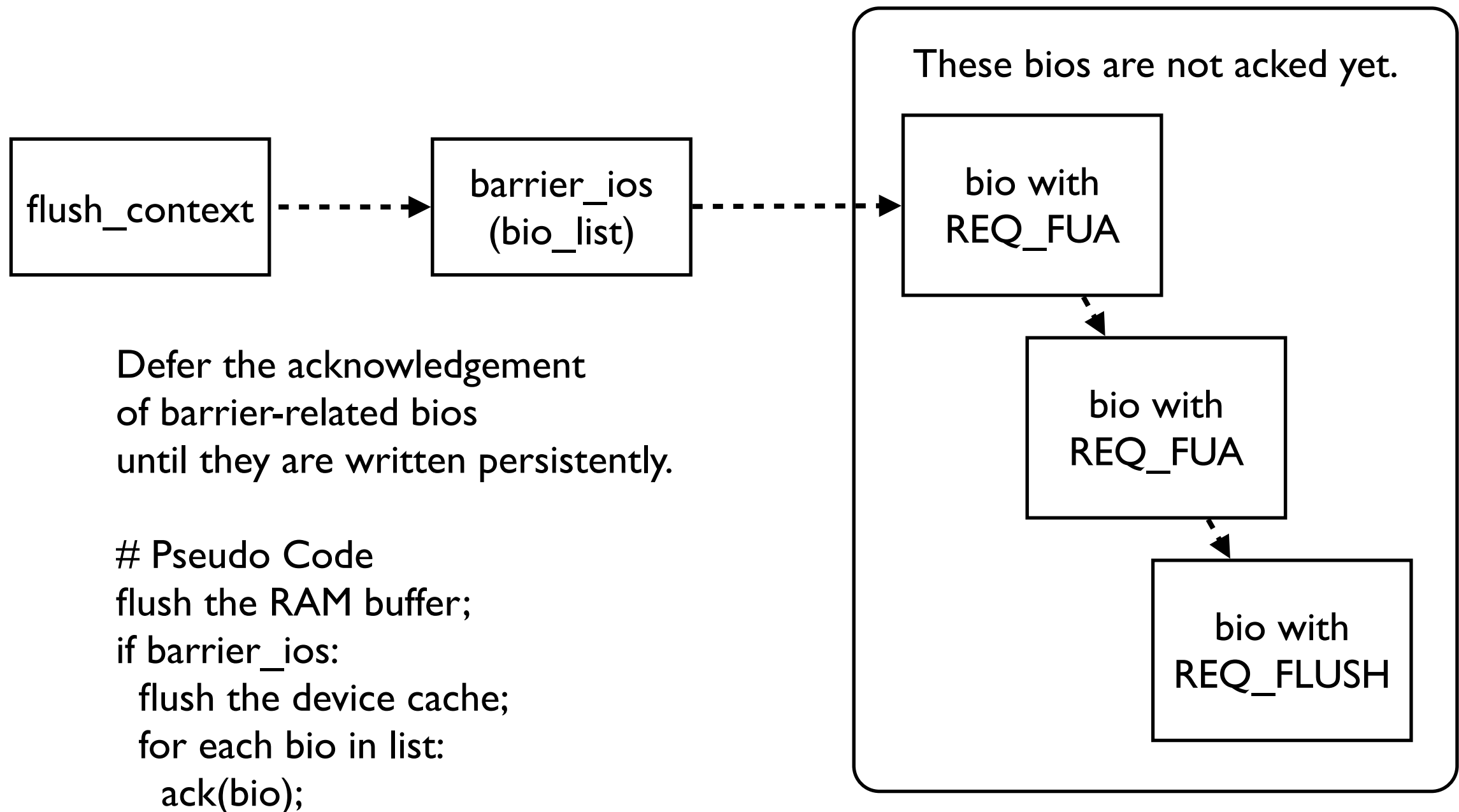


Log Format

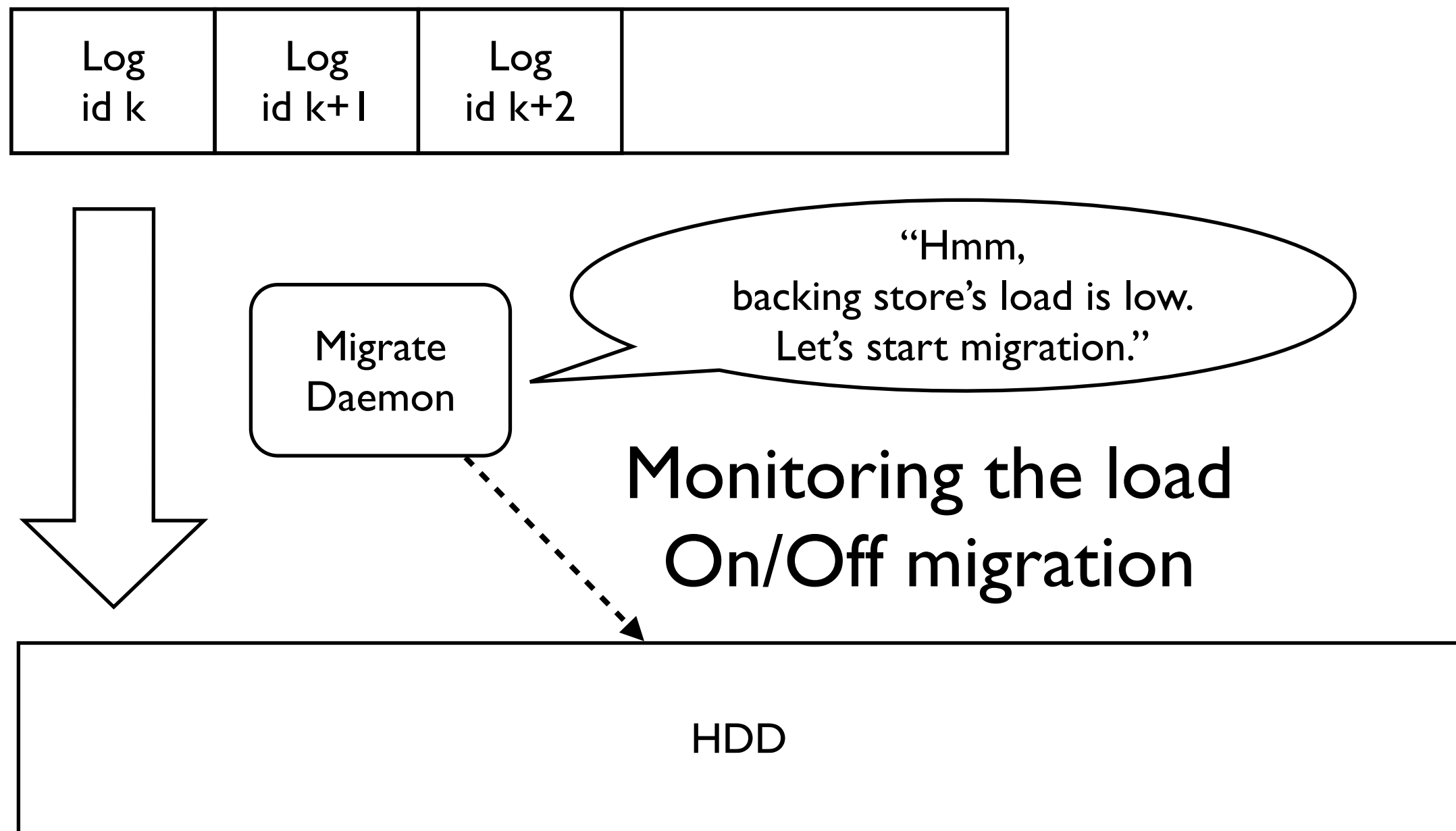


This `segment_header` says that only `n`-blocks at the head are dirty. Since both data and metadata is written, data are restored after any server failure.

Deferred ack for write barriers

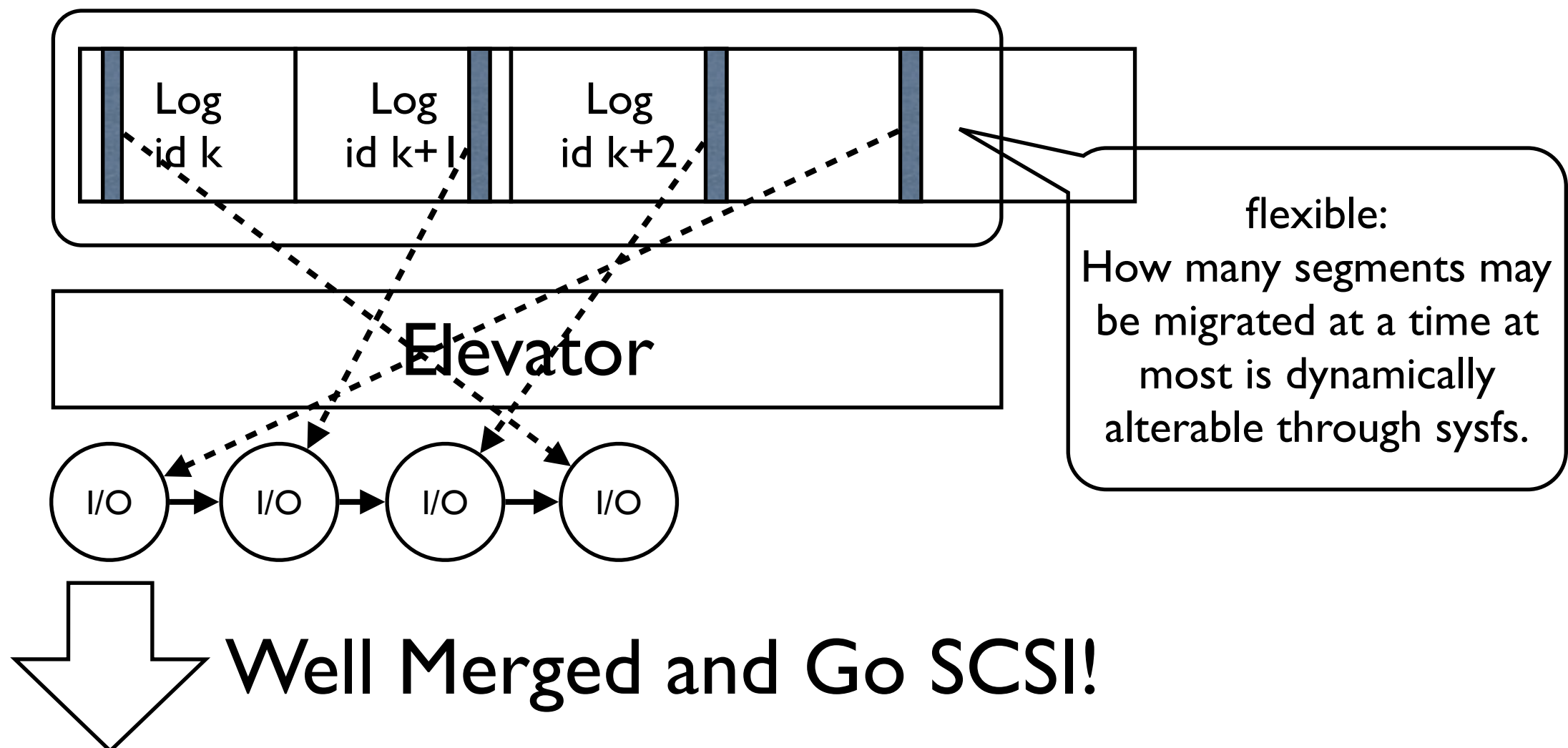


Autonomous Migration



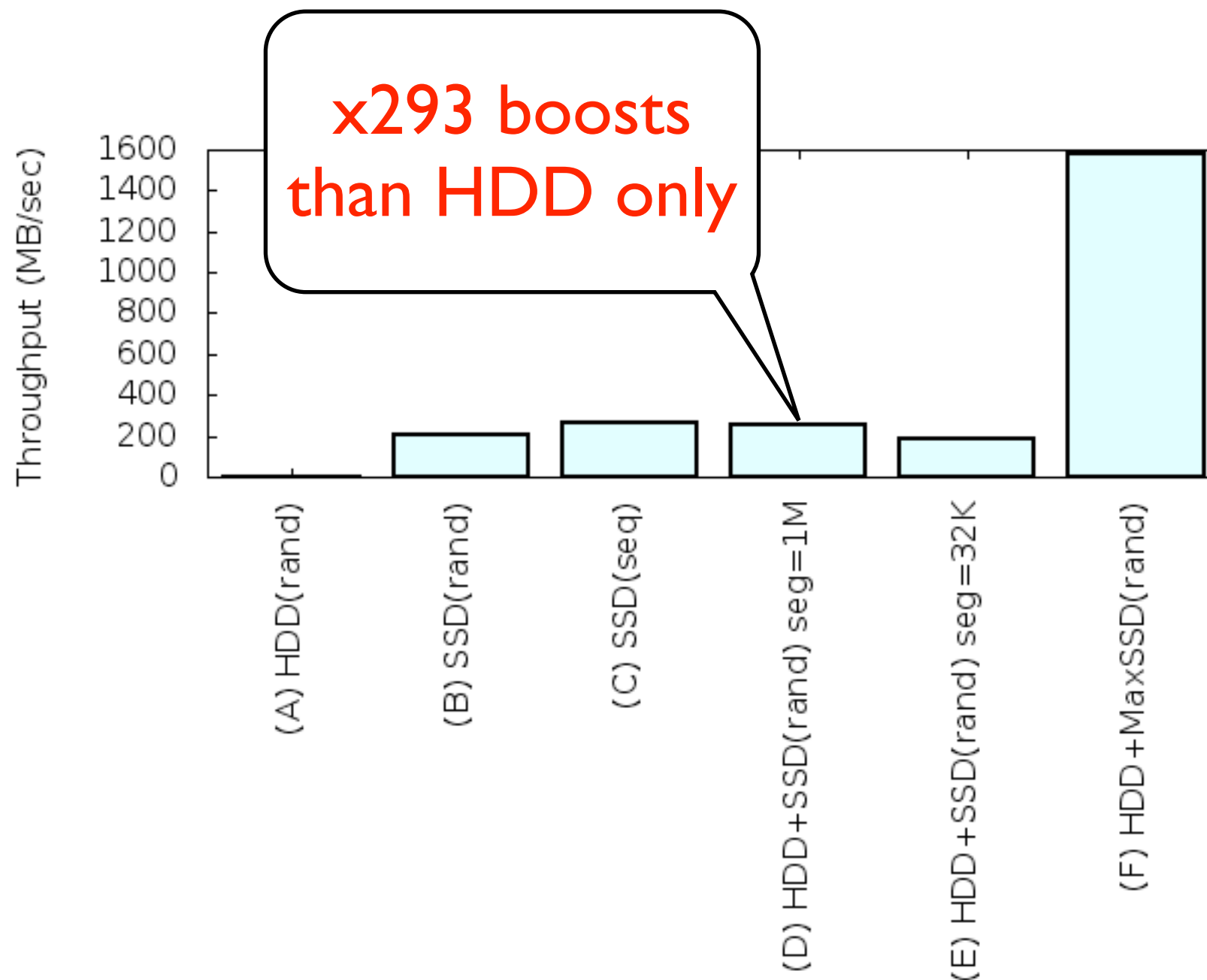
Batched Migration

- Multiple segments are migrated at a time and bios are likely to be merged even if they are so distant in time space that they could not be merged without dm-writeboost's buffering aid.



Performance

<https://github.com/akiradeveloper/dm-writeboost/tree/develop/performance>



We continue developing
dm-writeboost

Thank you for reading!



Any question or discussion is
welcome either on dm-devel or via
personal e-mails.