Lethe: A Tunable Delete-Aware LSM-Based Storage Engine

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log-structured merge-tree
log-structured merge-tree

get(5)

buffer

fence pointers
Bloom filters

L1
L2
L3

val

What about deletes?
poor read perf.
space amplification

scenario 1

user X: delete my order history

L1

L2

L3

L4

delete(10025)
delete(11567)
scenario 1

- poor read perf.
- space amplification

L1

L2

L3

L4

user X: delete my order history *within 5 days*

data privacy
scenario 2

query: delete all entries older than 7 days
scenario 2

query: delete all entries older than 7 days

latency spikes

superfluous I/Os
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KiWi

L1

L2

L3

L4
Lethe

FADE

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