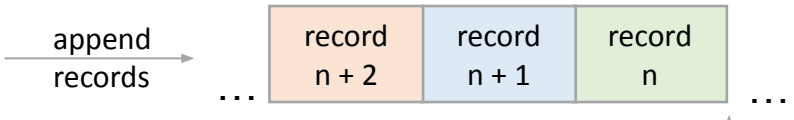
Simple key-value database

Create



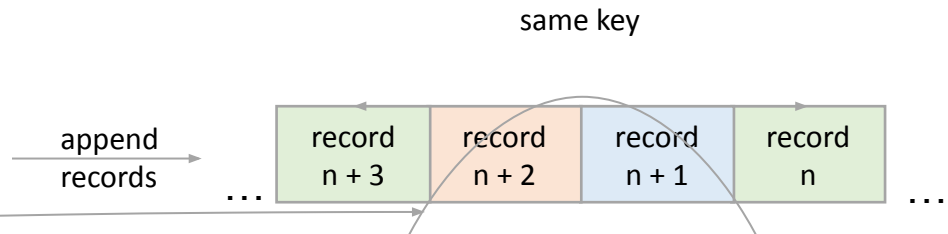
record = (key, value, timestamp, key length, value length, …)

Read

key	position
record n key	1152
record n + 1 key	3056
record n + 2 key	5078

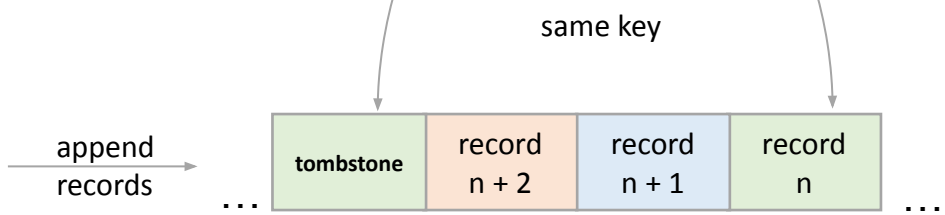
Update

key	position
record n key	~~1152~~ 7951
record n + 1 key	3056
record n + 2 key	5078



Delete

key	position
record n key	~~1152~~ 7951
record n + 1 key	3056
record n + 2 key	5078



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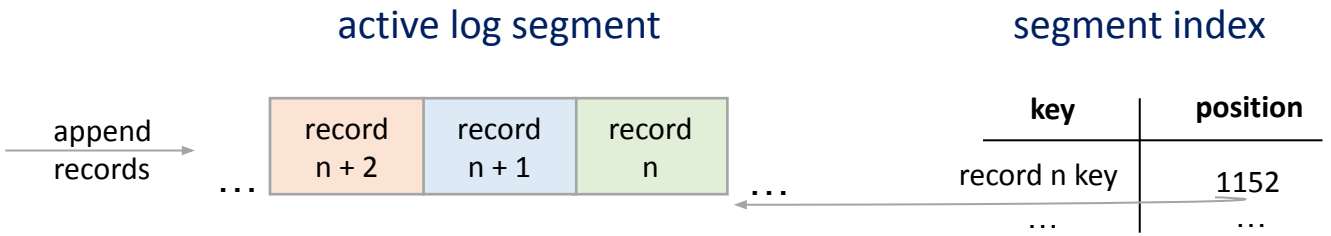
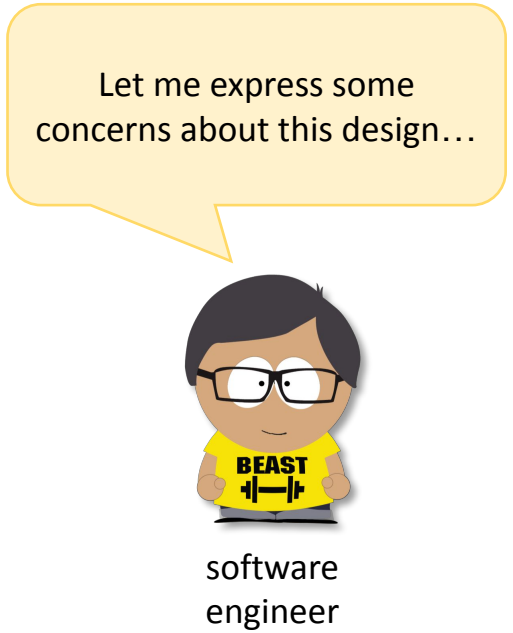




software engineer

1. records are constantly appended

   Potential problem: not enough disk space.

2. we may not have enough memory to store the entire index

   Potential problem: high query latency because indexes must be loaded from disk.

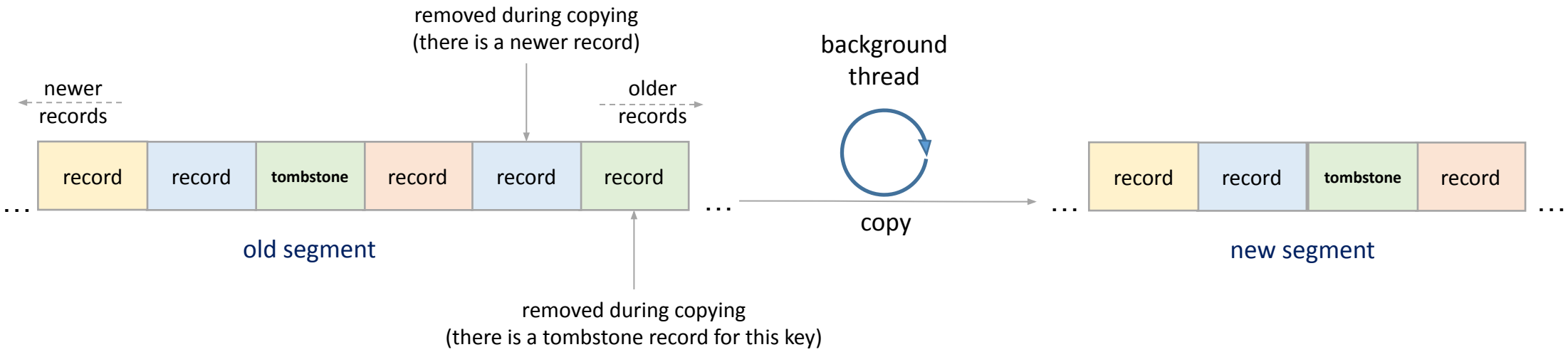
3. poor support for range queries

Simple key-value database

log compaction

the most recent record for a key is retained,
while older records for the same key are deleted

The default storage engine in Riak, a distributed NoSQL key-value data store, is based on ideas discussed in this video.



- old (bigger) segment is replaced by the new (smaller) segment
- several smaller segments can be merged together into one segment