An under-the-hood look to the

Online schema change

Some slides + master-class + future

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whoami

- Senior software engineer @ MariaDB plc
- Developing MariaDB Server from **2018**

- Application-time periods
- System versioning w/Alexey Midenok
- Virtual columns
- ➡ Online ALTER TABLE

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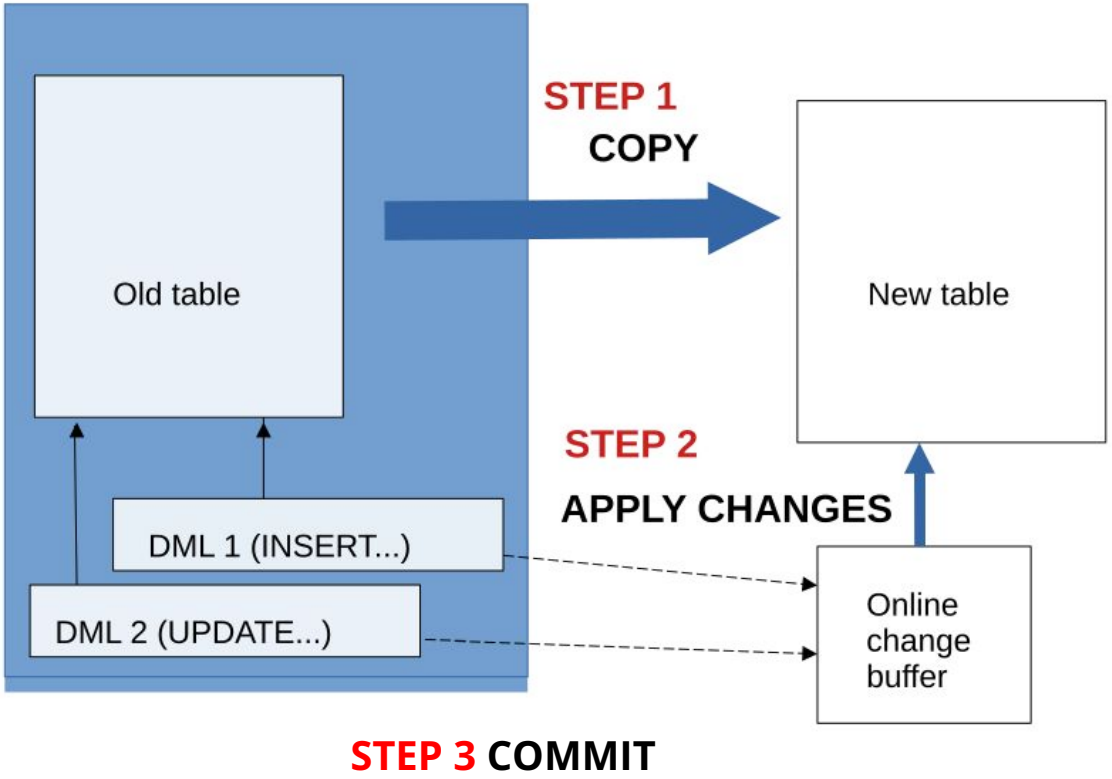
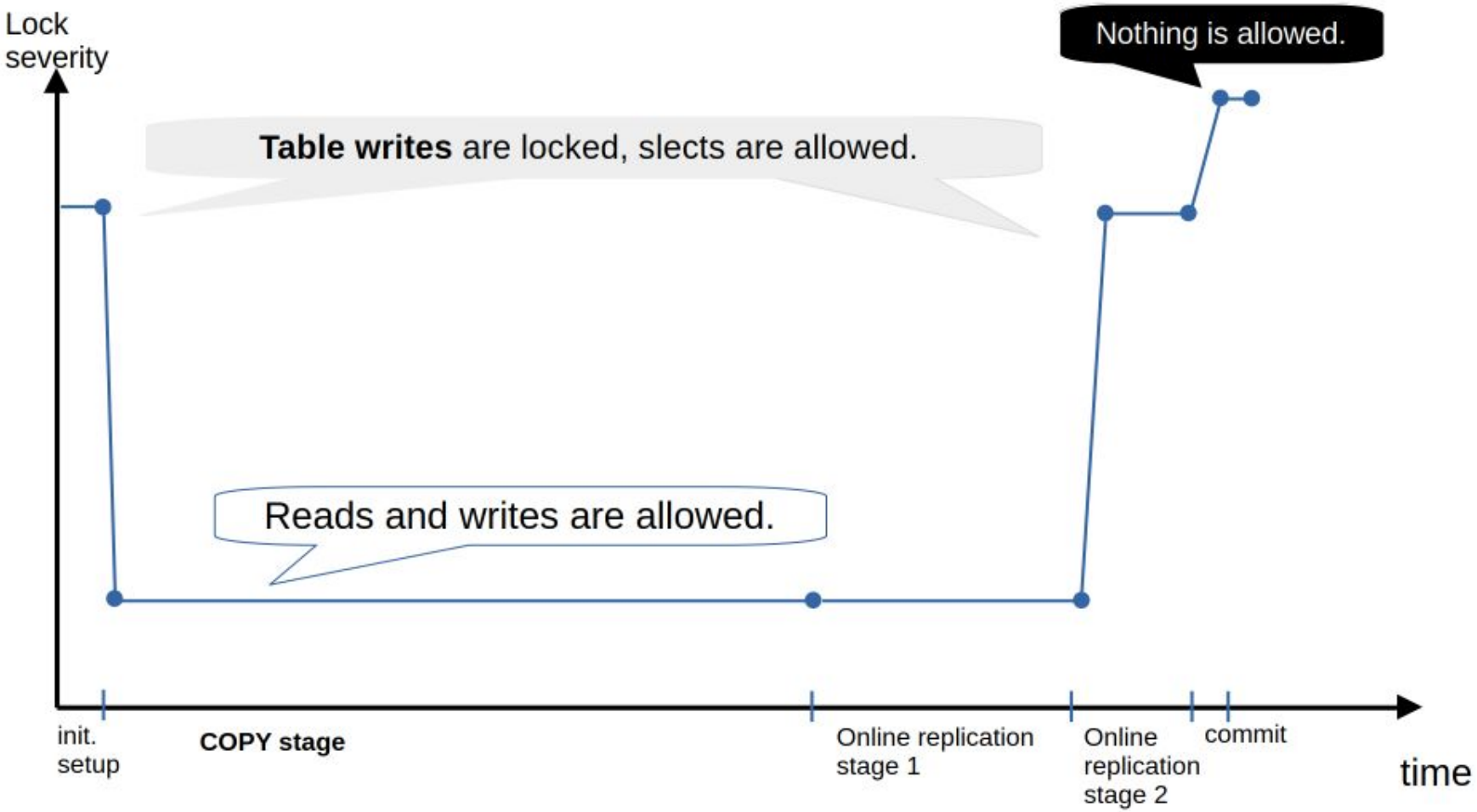
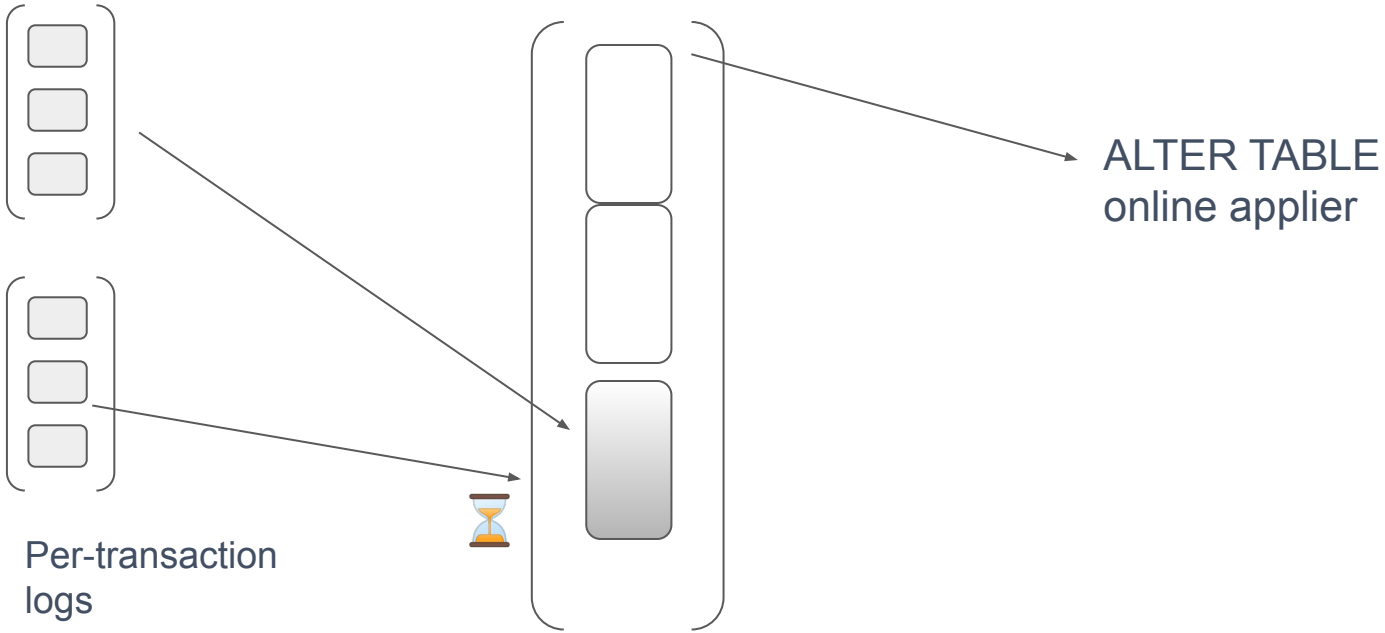


Mechanism

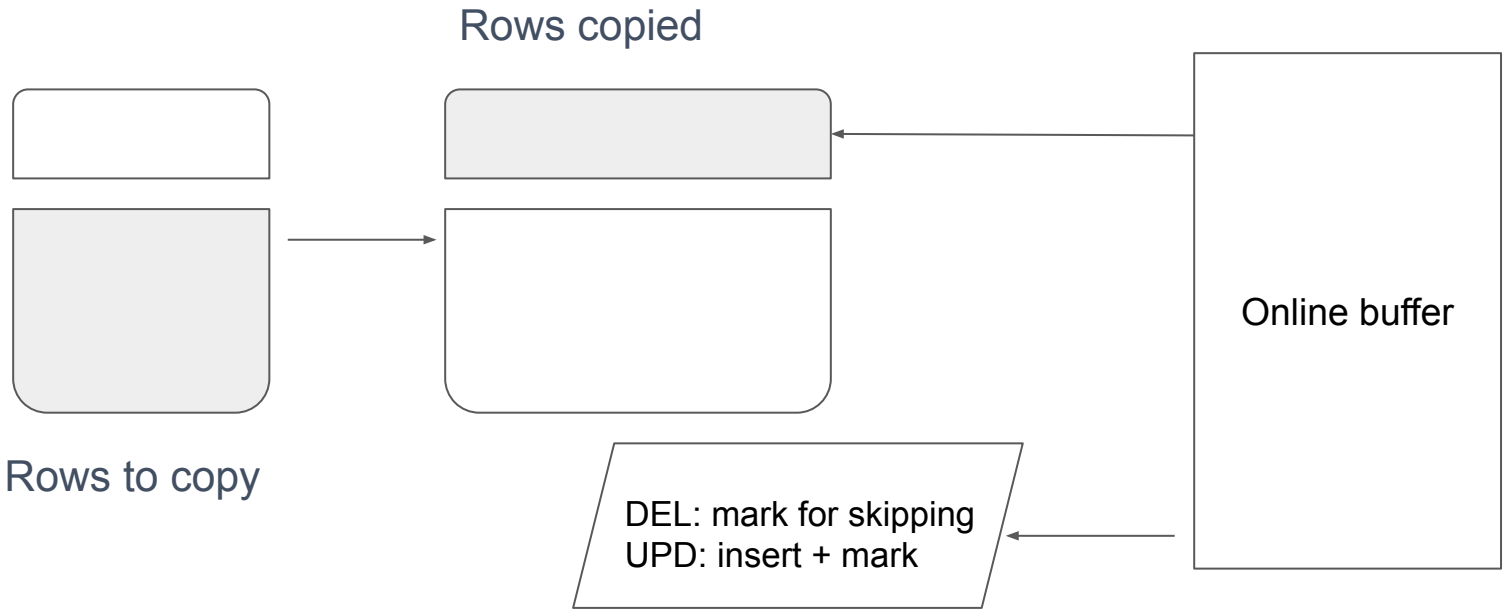
- Only the **old** table is visible until **STEP 3**
- DMLs are replicated to *Online change buffer*
- **old** and **new** tables are atomically swapped during **STEP 3**


Lock severity
Nothing is allowed.
Table writes are locked, slects are allowed.
Reads and writes are allowed.
init. setup
COPY stage
Online replication stage 1
Online replication stage 2
commit
time

Optimization: eliminate at-commit bottleneck



Optimization 2: don’t wait for the copy end



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Optimization 3: non-blocking commit

- Hard!
- But possible
- We should catch a good moment for enabling a new table
- The transactions will have to wait until the changes are applied to the new table