An under-the-hood look to the

Online schema change

Some slides + master-class + future

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

- Application-time periods
- System versioning w/Alexey Midenok
- Virtual columns
  
  Online ALTER TABLE
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
Table writes are locked, selects are allowed.

Reads and writes are allowed.

Nothing is allowed.
Optimization: eliminate at-commit bottleneck

ALTER TABLE online applier

Per-transaction logs
Optimization 2: don’t wait for the copy end

- Rows to copy
- Rows copied
- Online buffer
  - DEL: mark for skipping
  - UPD: insert + mark
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