Transaction scheduling previously performed by the FIFO algorithm is now performed by the CATS algorithm.

A `TRX_SCHEDULE_WEIGHT` column was added to the `INFORMATION_SCHEMA.INNODB_TRX` table, which permits querying transaction scheduling weights assigned by the CATS algorithm.

The following `INNODB_METRICS` counters were added for monitoring code-level transaction scheduling events:

- `lock_rec_release_attempts`

  The number of attempts to release record locks.

- `lock_rec_grant_attempts`

  The number of attempts to grant record locks.

- `lock_schedule_refreshes`

  The number of times the wait-for graph was analyzed to update transaction schedule weights.

For more information, see Section 15.7.6, “Transaction Scheduling”.

- As of MySQL 8.0.21, to improve concurrency for operations that require access to lock queues for table and row resources, the lock system mutex (`lock_sys->mutex`) was replaced in by sharded latches, and lock queues were grouped into table and page *lock queue shards*, with each shard protected by a dedicated mutex. Previously, the single lock system mutex protected all lock queues, which was a point of contention on high-concurrency systems. The new sharded implementation permits more granular access to lock queues.

  The lock system mutex (`lock_sys->mutex`) was replaced by the following sharded latches:

  - A global latch (`lock_sys->latches.global_latch`) consisting of 64 read-write lock objects (`rw_lock_t`). Access to an individual lock queue requires a shared global latch and a latch on the lock queue shard. Operations that require access to all lock queues take an exclusive global latch, which latches all table and page lock queue shards.

  - Table shard latches (`lock_sys->latches.table_shards.mutexes`), implemented as an array of 512 mutexes, with each mutex dedicated to one of 512 table lock queue shards.

  - Page shard latches (`lock_sys->latches.page_shards.mutexes`), implemented as an array of 512 mutexes, with each mutex dedicated to one of 512 page lock queue shards.

  The Performance Schema `wait/synch/mutex/innodb/lock_mutex` instrument for monitoring the single lock system mutex was replaced by instruments for monitoring the new global, table shard, and page shard latches:

  - `wait/synch/sxlock/innodb/lock_sys_global_rw_lock`

  - `wait/synch/mutex/innodb/lock_sys_table_mutex`

  - `wait/synch/mutex/innodb/lock_sys_page_mutex`

- As of MySQL 8.0.21, table and table partition data files created outside of the data directory using the `DATA DIRECTORY` clause are restricted to directories known to `InnoDB`. This change permits database