2 phase commit

Is a distributed transaction protocol designed to ensure atomicity across multiple database systems. Its main role is to guarantee that either transaction is fully committed on all participating nodes or fully aborted, preventing inconsistencies in distributed environments. The protocol operates in 2 phases, in the prepare phase, a coordinator ask all participants where they can commit. Each participants responds with a “yes” or “no” note after recording the necessary log entities. In the commit decision phase, if all participants vote “yes” the coordinator issues a commit command ; if any vote “no” or a failure occurs, an abort is broadcast. This ensures that no partial updates occur while 2PC enforces strong consistency, it has limitations such as being a blocking protocol - participants may remain uncertain if the coordinator crashes, despite this, it remains foundational in distributed database reliability (Anon., 2025)

# Bibliography

Anon., 2025. In: *distributed transaction and the two-phase commit mechanism .* s.l.:oracle docs.