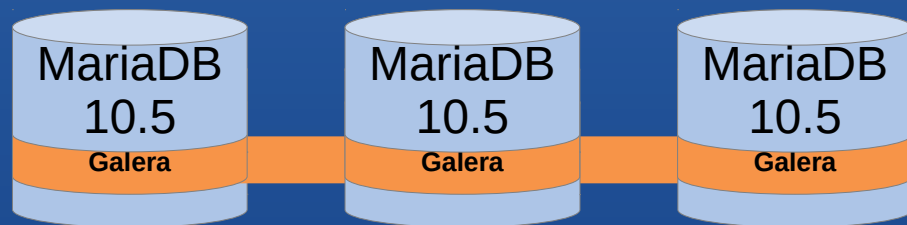
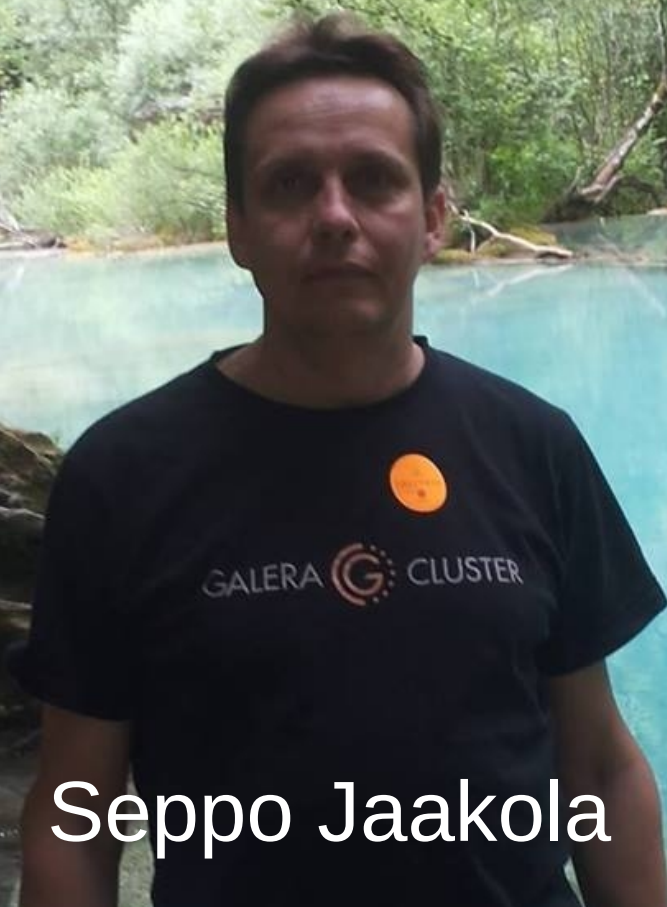


MariaDB 10.5 Galera Features

A sneak peek





- CEO Codership
- Developer role, 15 yrs with MySQL engineering
- Background:
 - DBMS Engineering
 - Data Security

Seppo Jaakola

Galera Cluster Team



Galera in 10.5

- GTID Consistency
- Cluster Error Voting
- XA Transactions in Cluster
- Non Blocking DDL
- Black Box

GTID Compatibility

- By: Mario Karuza
- For 10.4 and 10.5
- Store and show only MariaDB format GTID
- Store GTID from MariaDB master in cluster binlogs

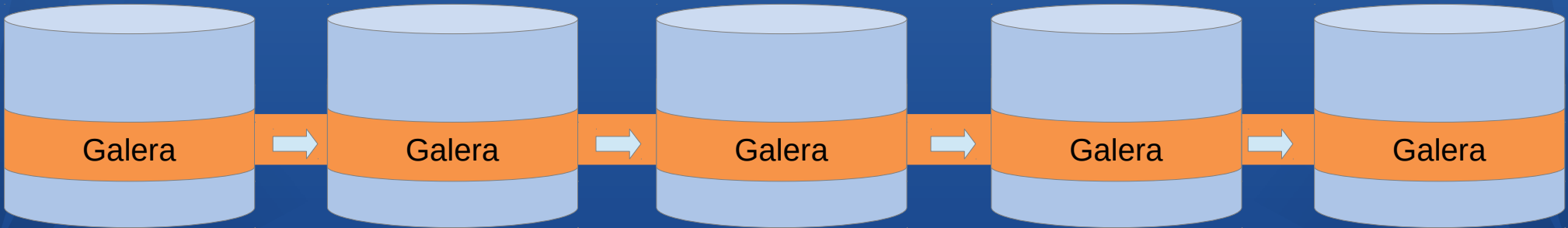
Cluster Error Voting

- By: Alexey Yurchenko
- Protocol for nodes to decide how cluster will react to problems in replication

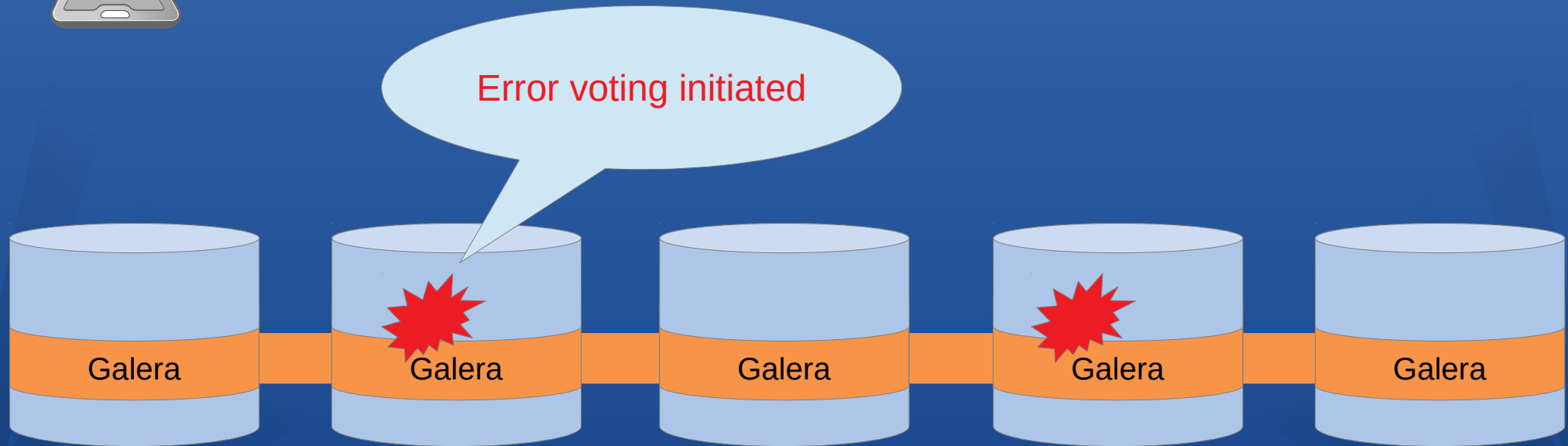
Cluster Error Voting



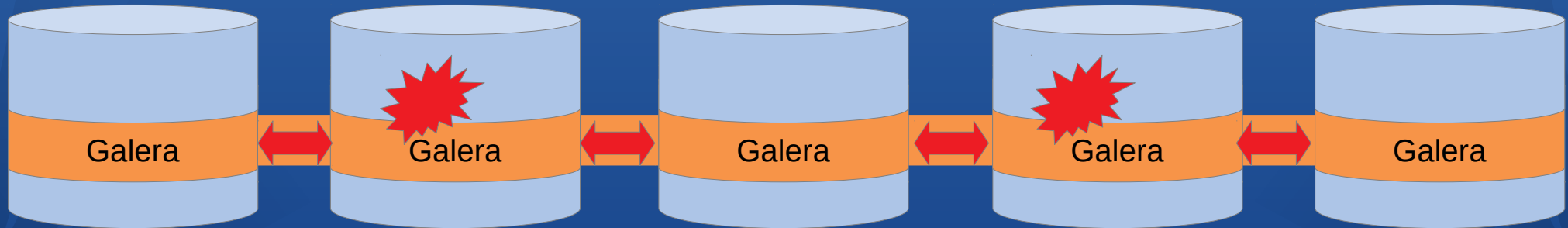
commit



Cluster Error Voting



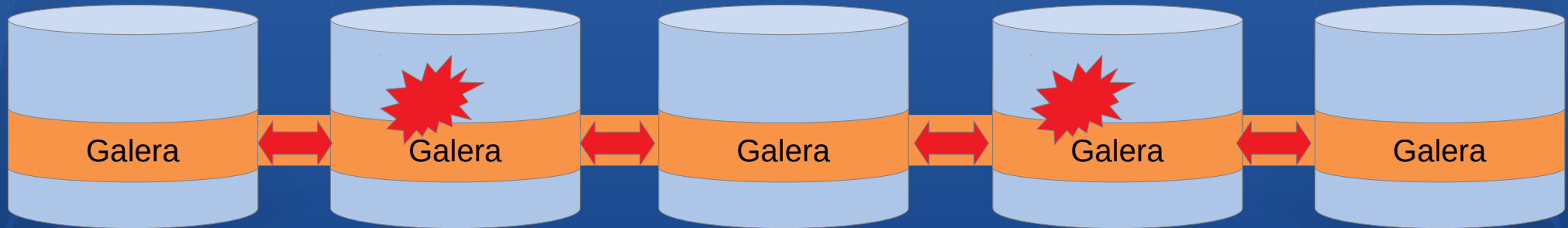
Cluster Error Voting



Cluster Error Voting



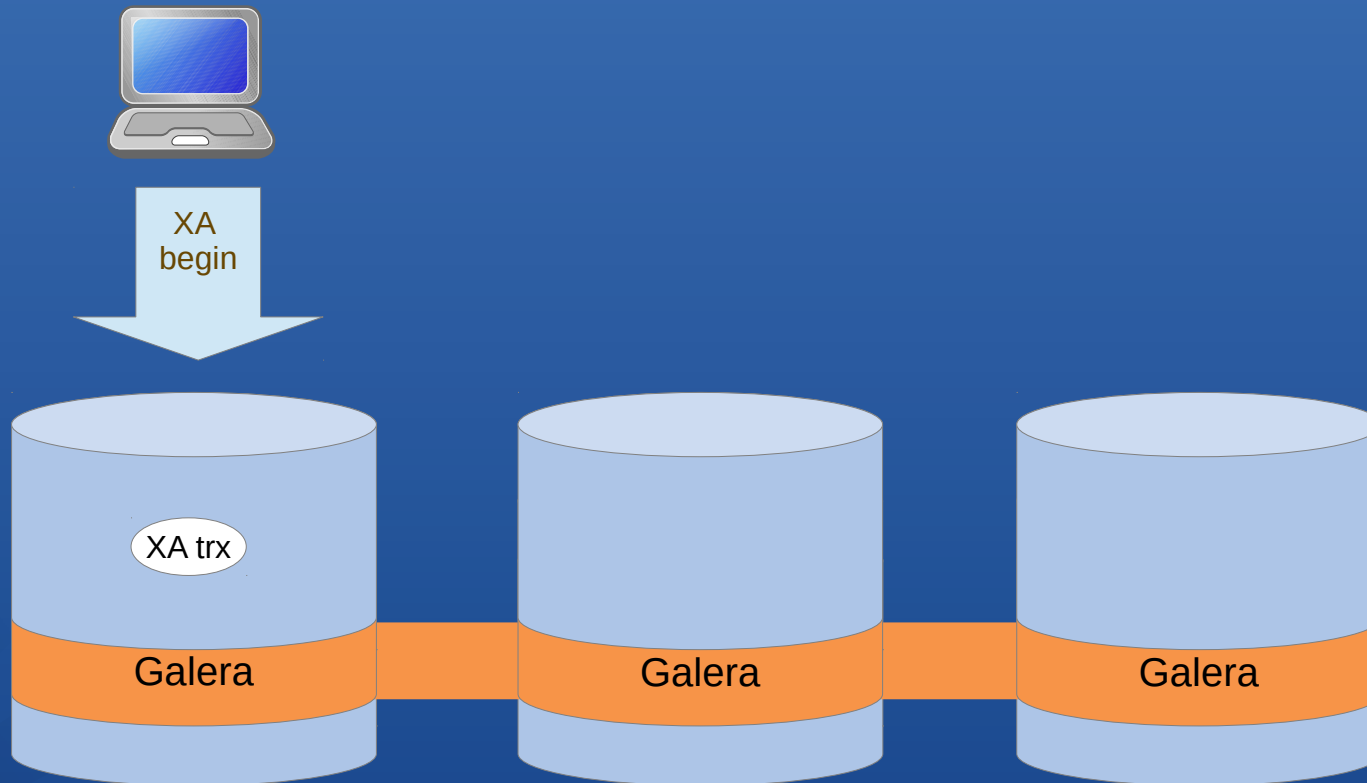
commit



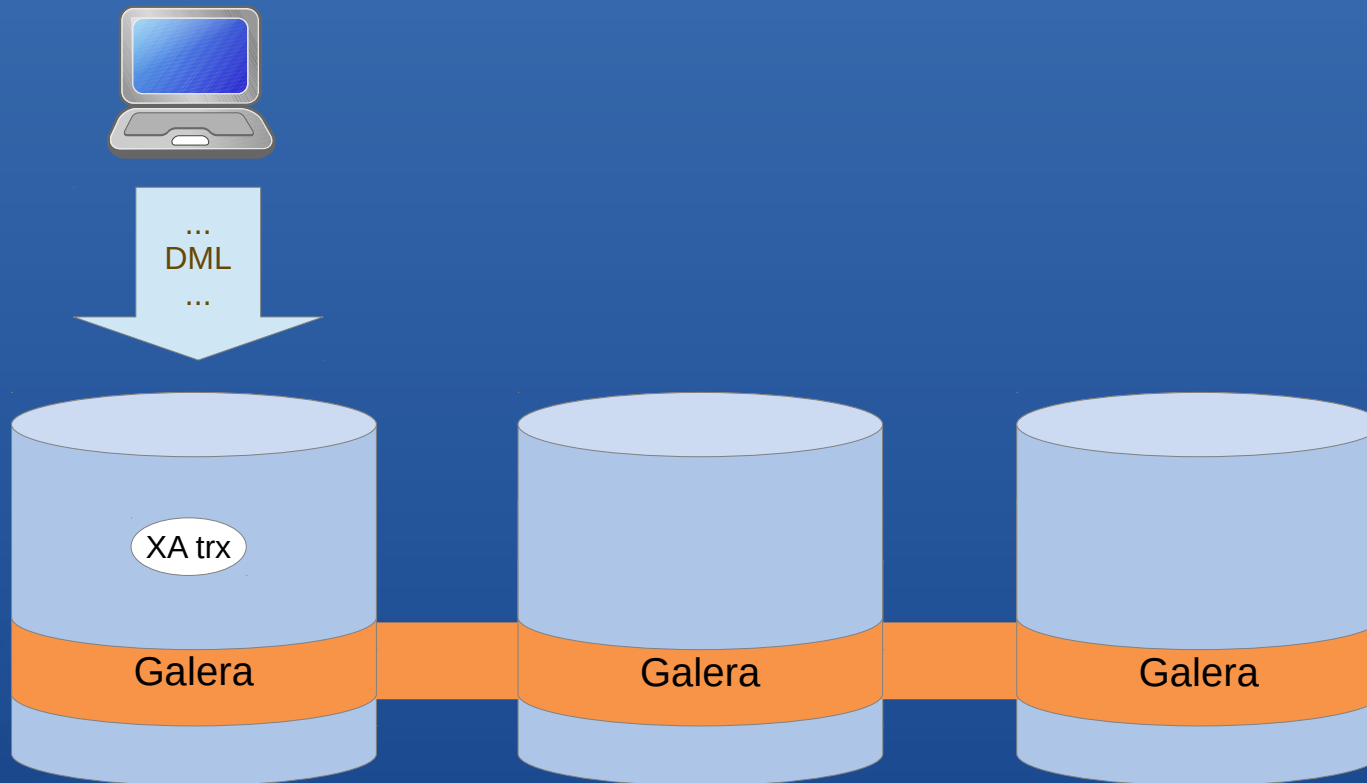
XA Transaction Support

- By: Daniele Sciacchia and Leandro Pacheco de Sousa
- 10.5 pipeline has refactoring for XA transaction support
- XA transactions can be supported in cluster through 10.4 Streaming Replication

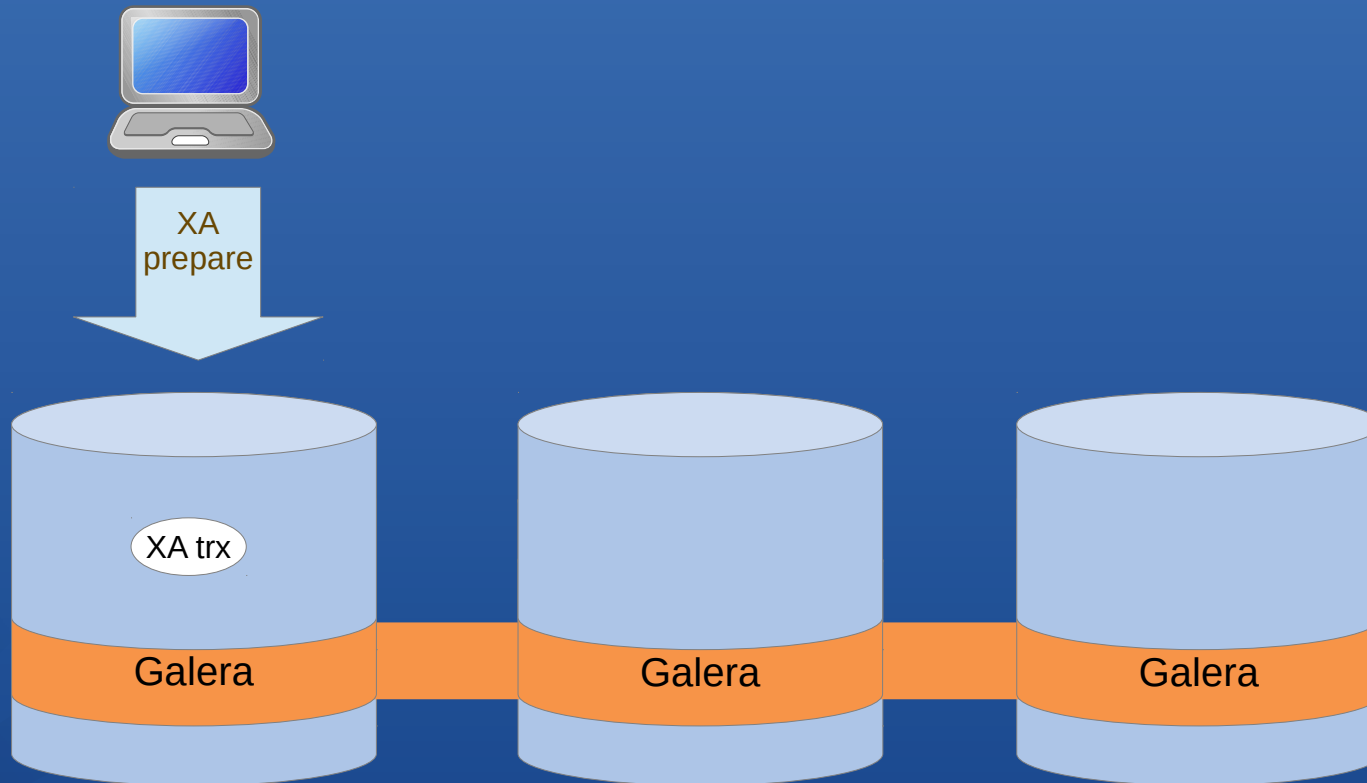
XA Transaction Support



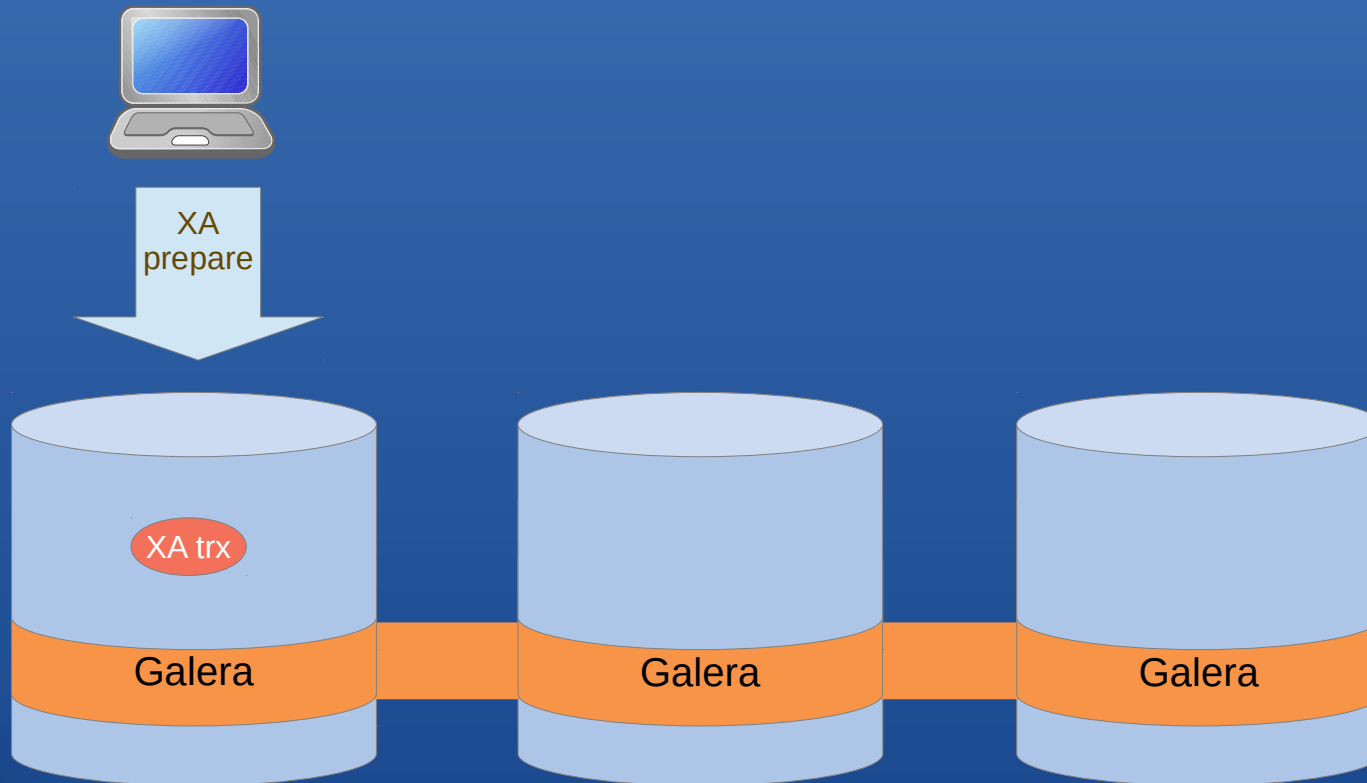
XA Transaction Support



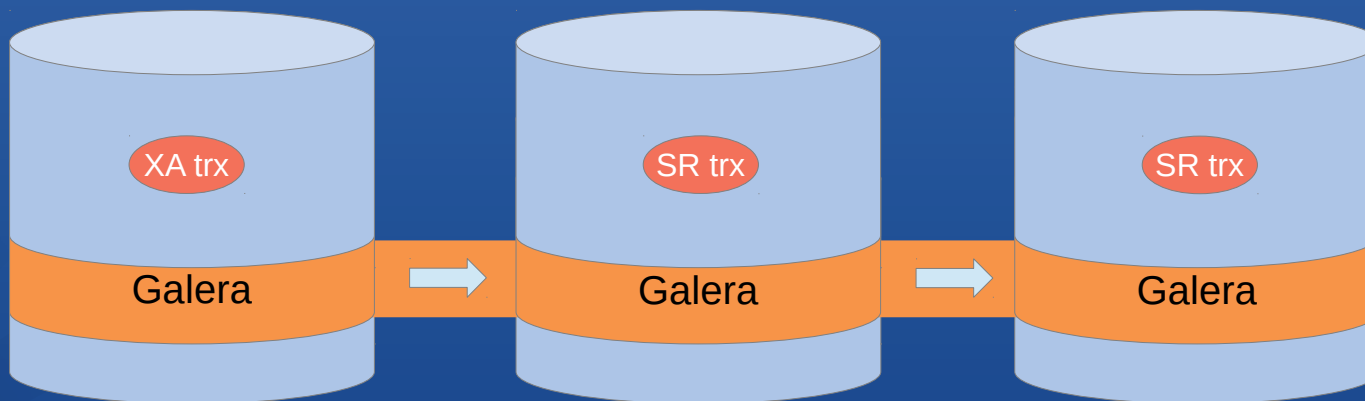
XA Transaction Support



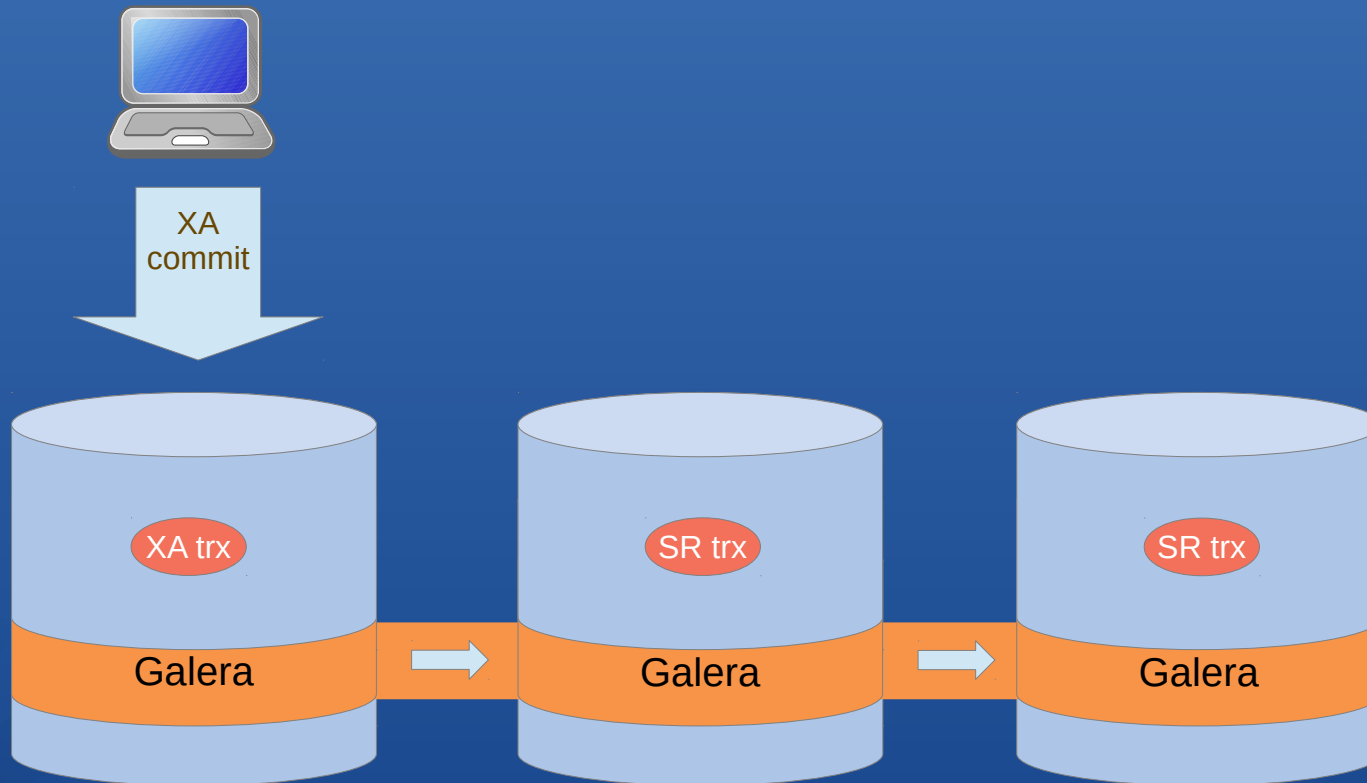
XA Transaction Support



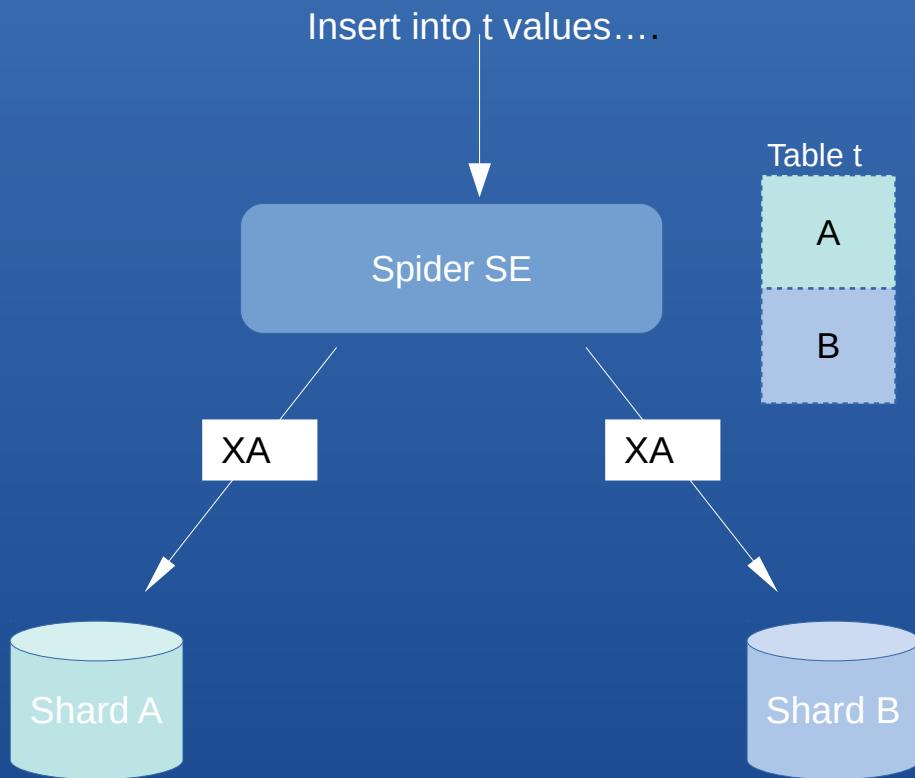
XA Transaction Support



XA Transaction Support

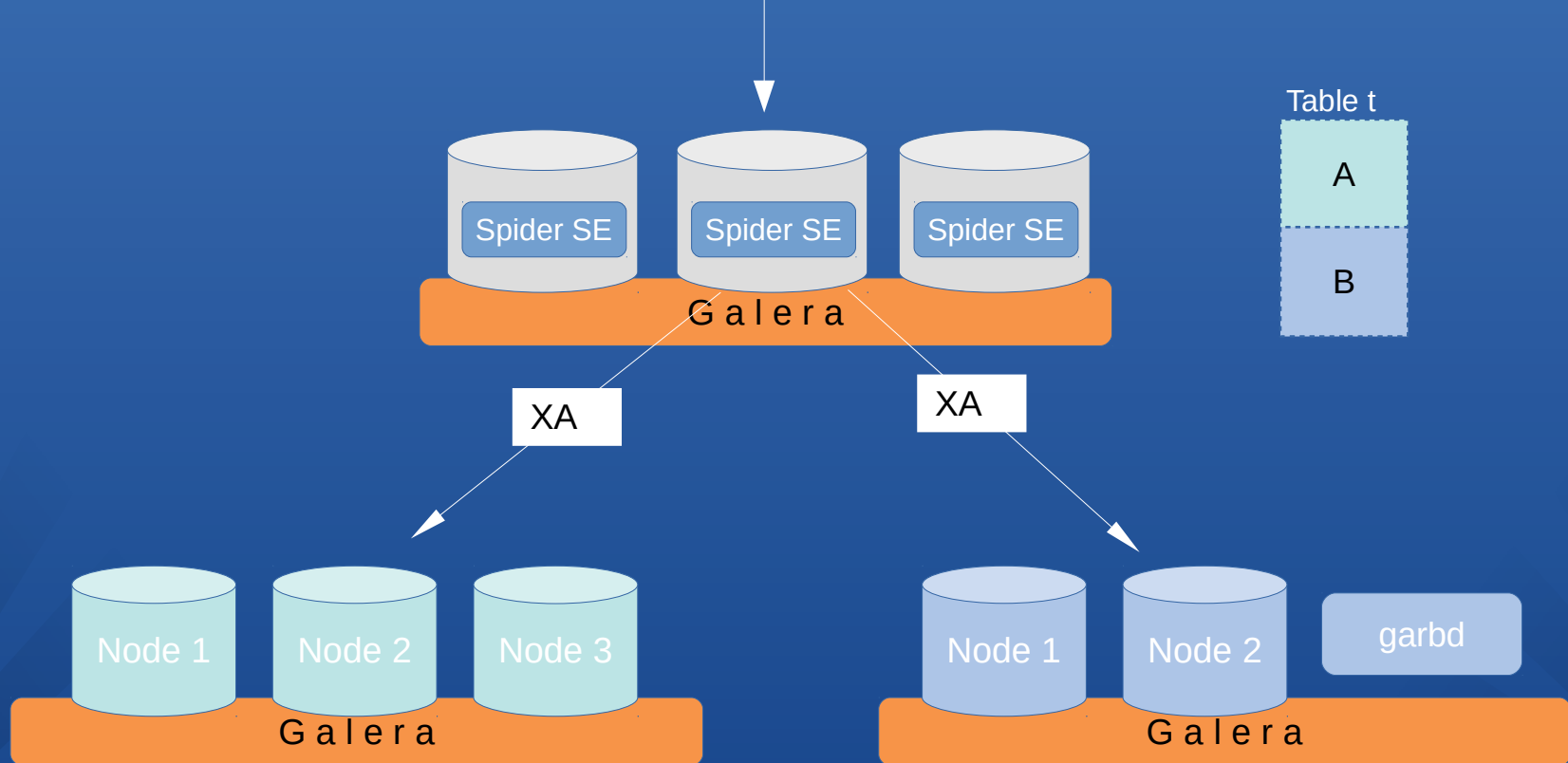


Spider



Spider Cluster

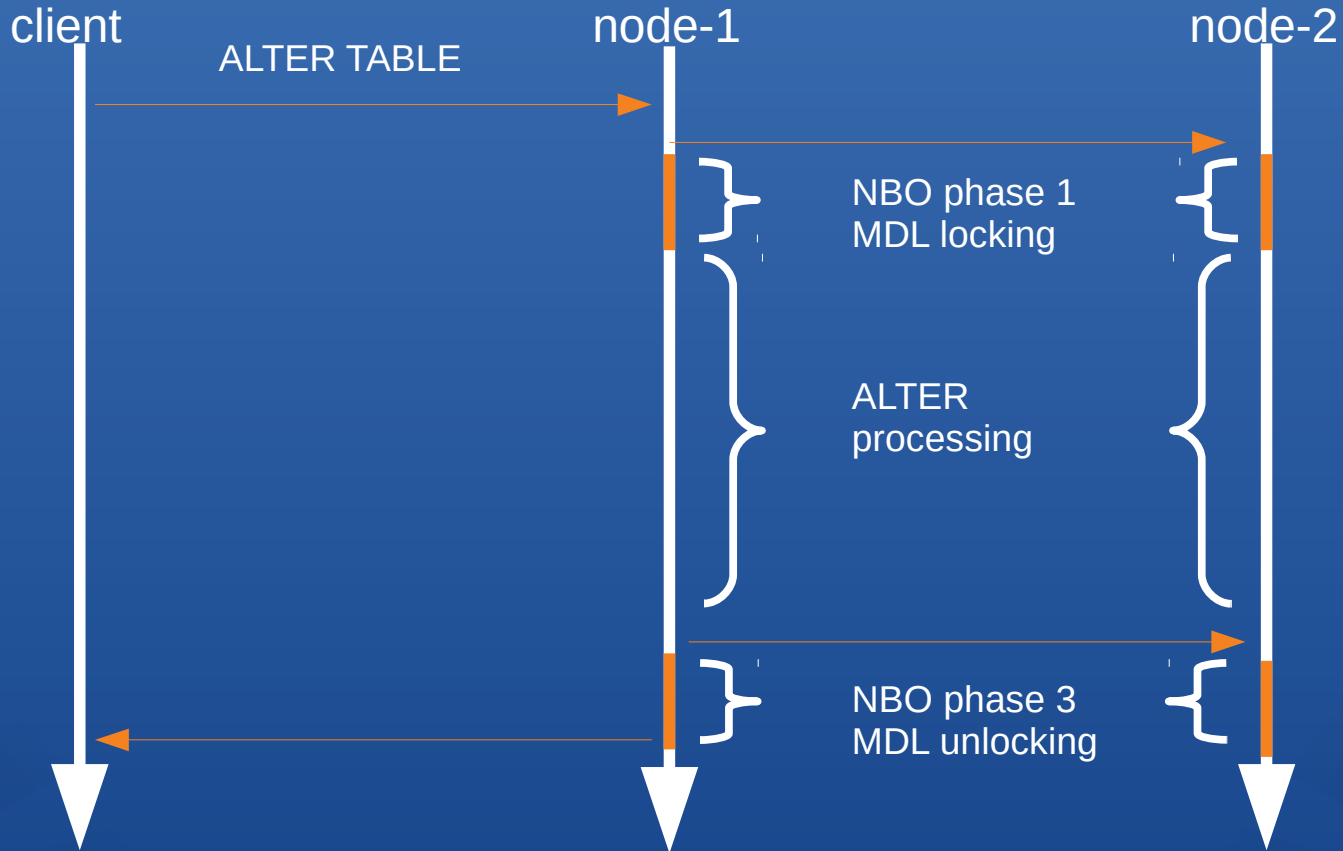
Insert into t ... values.



Non Blocking DDL

- By: Teemu Ollakka
- DDL execution in three phases
 - Phase 1: replicate MDL lock request for the operation
 - Phase 2: execute the DDL natively, with the MDL protection
 - Phase 3: replicate MDL lock release
- `wsrep_osu_method = TOI | RSU | NBO`

NBO Replication



Black Box

- By: Pekka Lampio
- Debug message storage in main memory (shm) ring buffer
- Posix shm API used
- Helps in troubleshooting a crashed server
- Helps in cluster testing

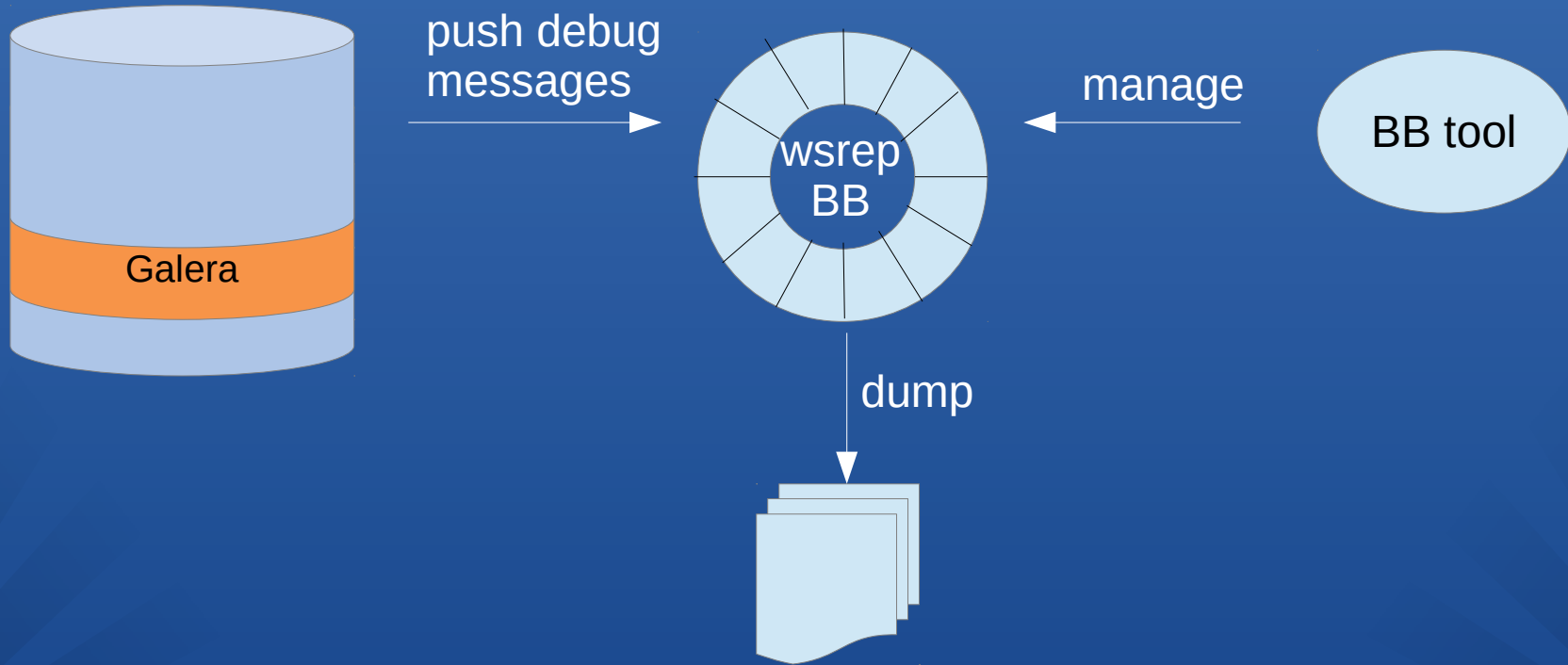
Black Box

- Configured by:
 - `wsrep_black_box_name`
 - `wsrep_black_box_size`
- Black box is truncated at graceful shutdown
- If mysqld crashes, BB ring buffer remains in shm
- If BB is not empty at startup, BB contents are written in dump file before server startup
- BB should not affect transaction throughput

Black Box

- BB should not affect transaction throughput
 - << 5% performance drop requirement in SRS
- Black Box tool = command line tool for managing and querying black box contents

Black Box



Thank You

- www.galeracluster.com