Replication

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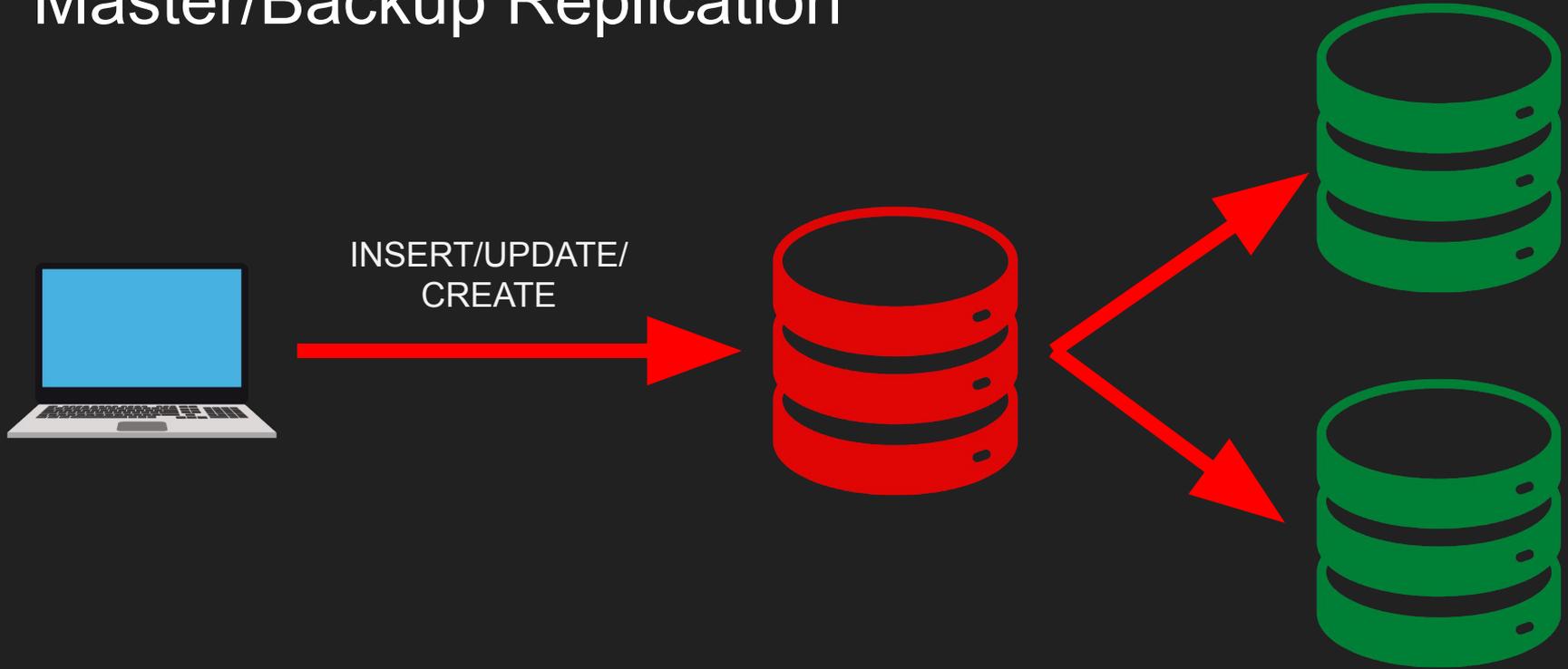
Database Replication Explained

Agenda

- Master-Backup vs Multi-Master Replication

- Synchronous vs ASynchronous Replication

- Demo with Postgres
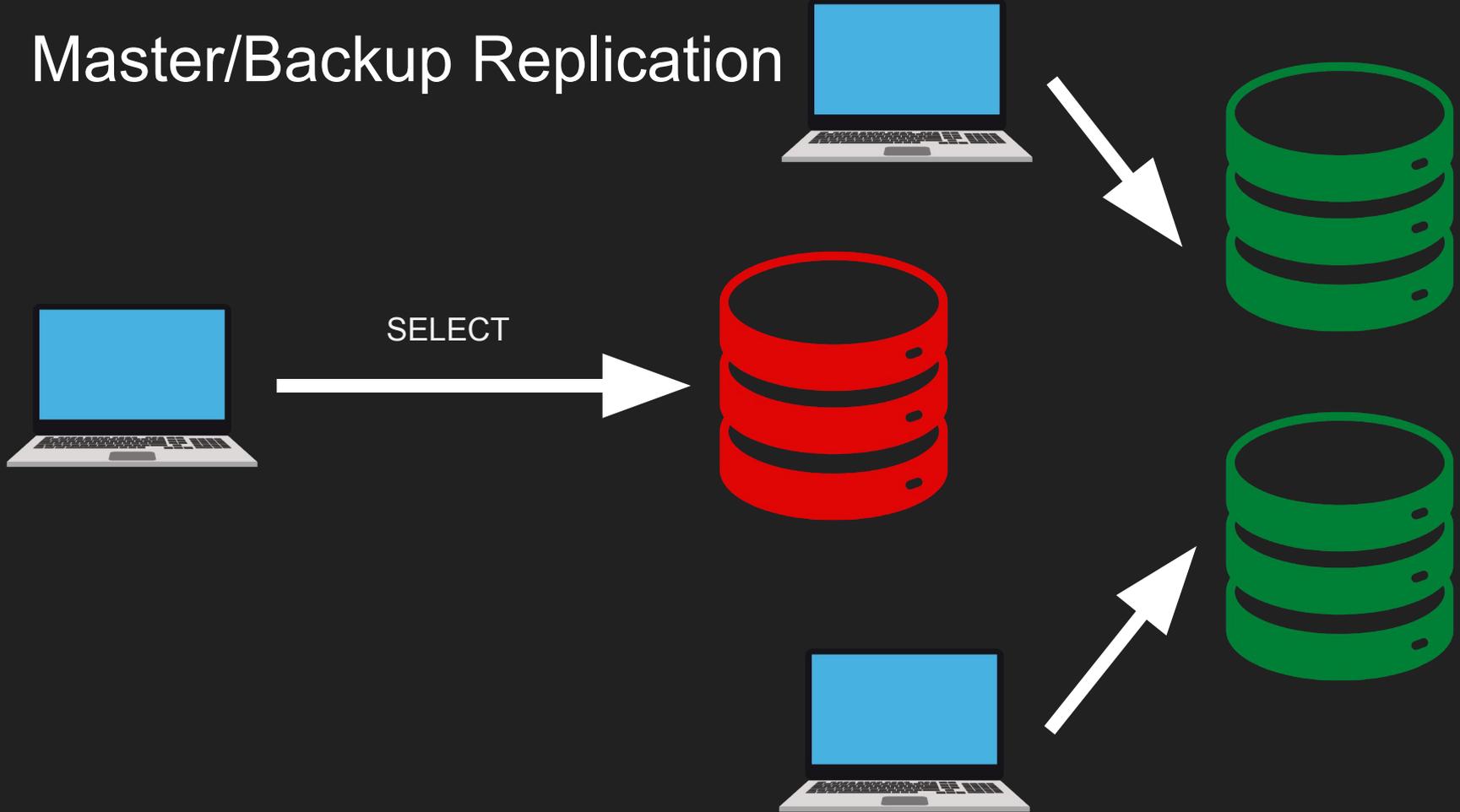
- Pros & Cons

- Summary

Master/Backup Replication

- One Master/Leader node that accepts writes/ddls

- One or more backup/standby nodes that receive those writes from the master

- Simple to implement no conflicts

Master/Backup Replication

INSERT/UPDATE/
CREATE

Master/Backup Replication

SELECT

Multi-Master Replication

- Multiple Master/Leader node that accepts writes/ddls

- One or more backup/follower nodes that receive those writes from the masters

- Need to resolves conflict

Synchronous vs Asynchronous Replication

- Synchronous Replication, A write transaction to the master will be blocked until it is written to the backup/standby nodes
    - First 2, First 1 or Any
- ASynchronous Rep, A write transaction is considered successful if it written to the master, then asynchronously the writes are applied to backup nodes

Demo - Example with Postgres 13

- Spin up two postgres instance with docker

- Make one master another one standby

- Connect standby to master

- Make master aware of the standby

Pros & Cons of Replication

- Pros

  - Horizontal Scaling

  - Region based queries - DB per region

- Cons

  - Eventual Consistency

  - Slow Writes (synchronous)

  - Complex to Implement (multi-master)

Summary

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