

ORACLE

Group Replication: Best Practices for Network Deploy

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MySQL, Group Replication Plugin

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Agenda

- 1 Distributed system resource usage
- 2 Why split network usage
- 3 Configuration
- 4 Improve without split network

Distributed system and usage of shared resources

- Group Replication is a distributed system

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Distributed system and usage of shared resources

- Group Replication is a distributed system
- All system components use resources
- Separation of resources usage improves system
- We will focus on Group Replication network usage

Network usage

- Group Replication
 - Group Communication System (GCS)
 - Point-in-time recovery on new member join
- Application usage

Why split network traffic

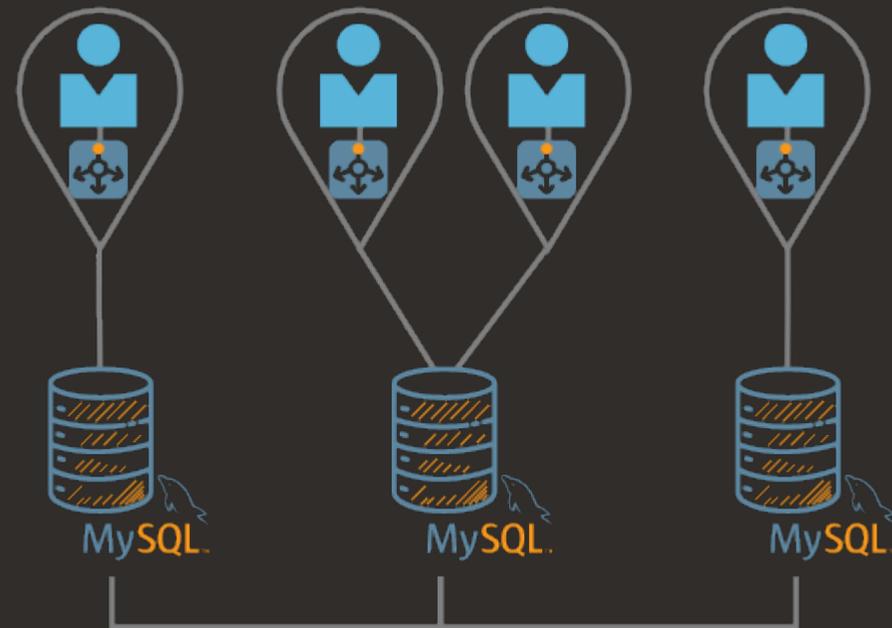
Splitting network traffic

- Internal network has lower latency
- Better performance from Group Replication
- Faster recovery on joining members

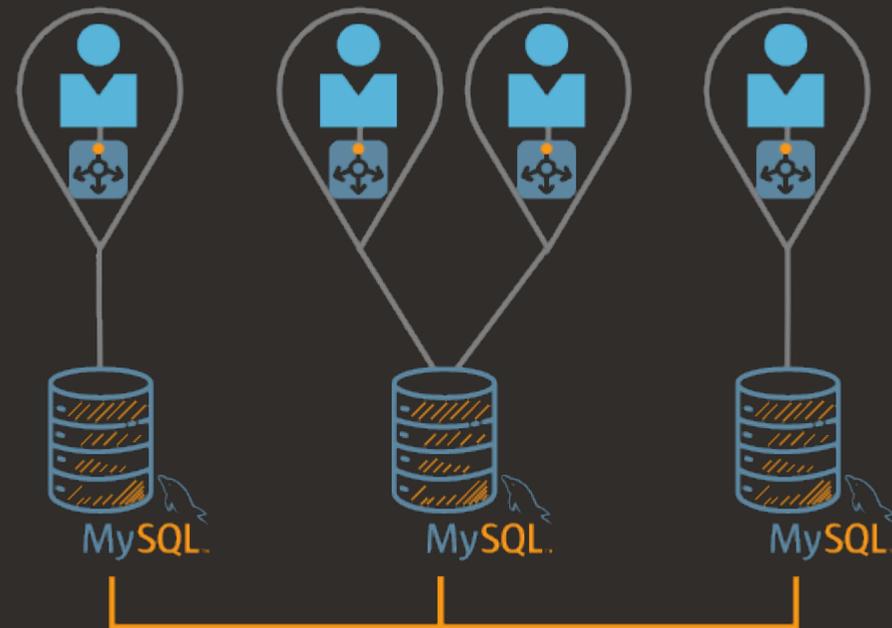
If not possible to split

- Quality of Service (QoS) rules to privilege internal replication traffic

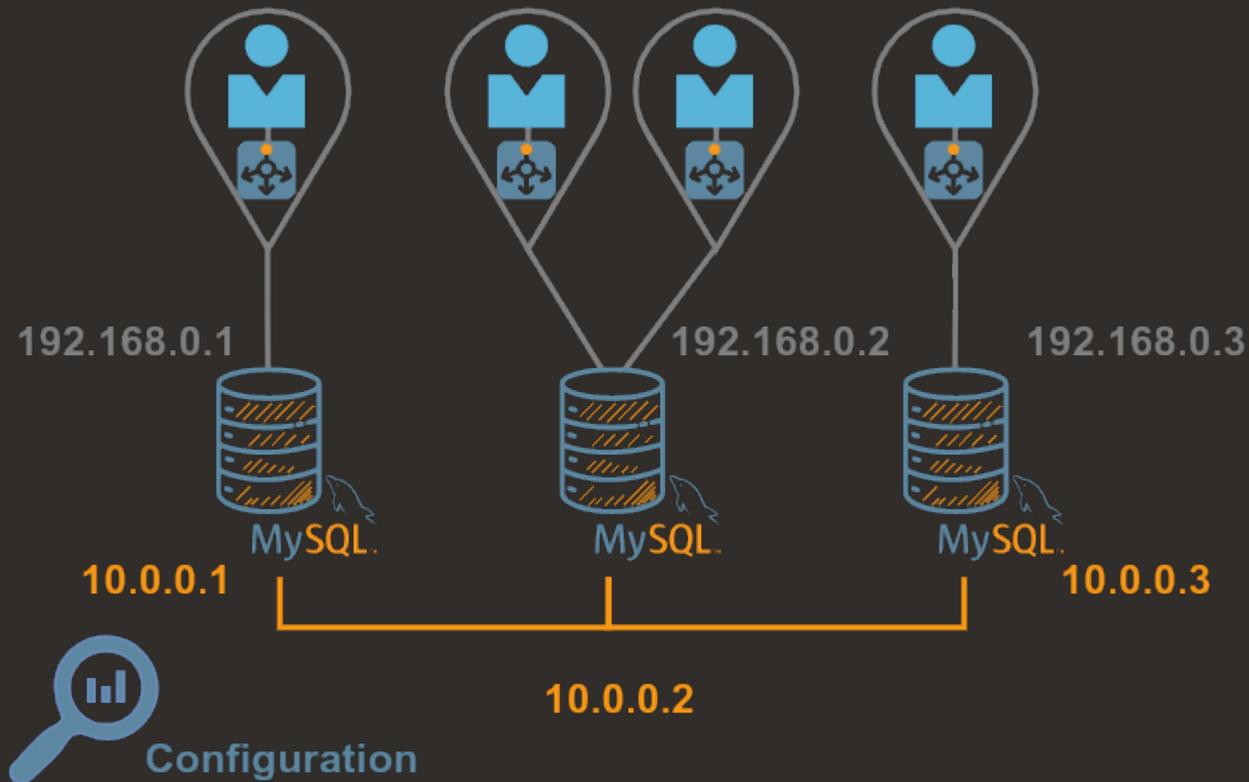
Basic Setup



Group Replication using internal network



Group Replication configuration



Group Replication configuration

Group Communication System

- `group_replication_local_address`
- `group_replication_group_seeds`

Group Replication configuration

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Recovery

- `group_replication_advertise_recovery_endpoints`

Group Replication configuration

Group Communication System

- SET GLOBAL group_replication_local_address = "10.0.0.1:33061"
- SET GLOBAL group_replication_group_seeds = "10.0.0.1:33061,10.0.0.2:33061,10.0.0.3:33061"

Recovery

- SET GLOBAL group_replication_advertise_recovery_endpoints = "10.0.0.1:3306"
- bind_address must contain both network addresses or wildcard

Group Replication configuration

Group Communication System

- SET GLOBAL group_replication_local_address = "10.0.0.1:33061"
- SET GLOBAL group_replication_group_seeds = "10.0.0.1:33061,10.0.0.2:33061,10.0.0.3:33061"

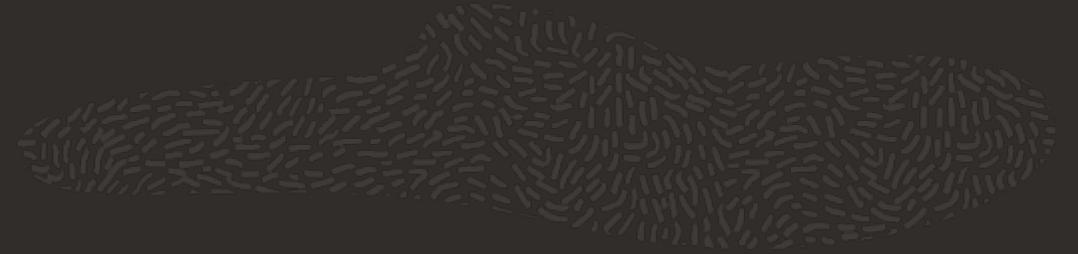
Recovery - we can completely split network using admin_address and admin_port

- group_replication_advertise_recovery_endpoints must use admin_port
 - SET GLOBAL group_replication_advertise_recovery_endpoints = "10.0.0.1:33062"
- Implies admin_address and admin_port must be set
 - admin_address= 10.0.0.1
 - admin_port= 33062
- Privilege SERVICE_CONNECTION_ADMIN must be granted to the recovery user
 - GRANT SERVICE_CONNECTION_ADMIN ON *.* TO "user";

Internal network not feasible

Some features that can help

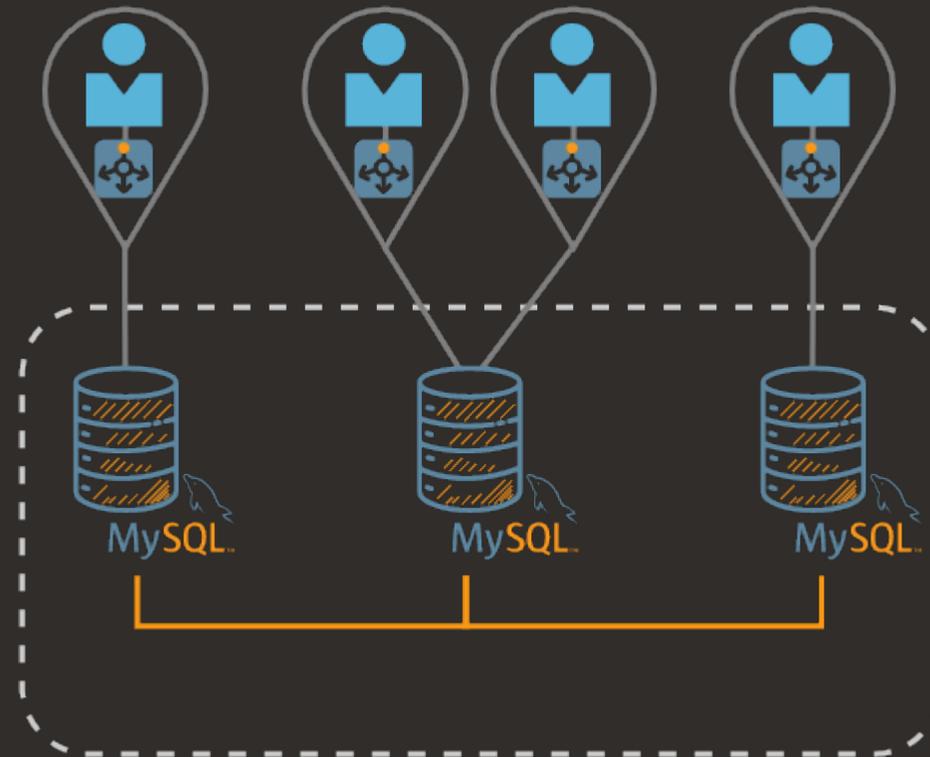
- Group Replication member expel timeout
- Auto-rejoin



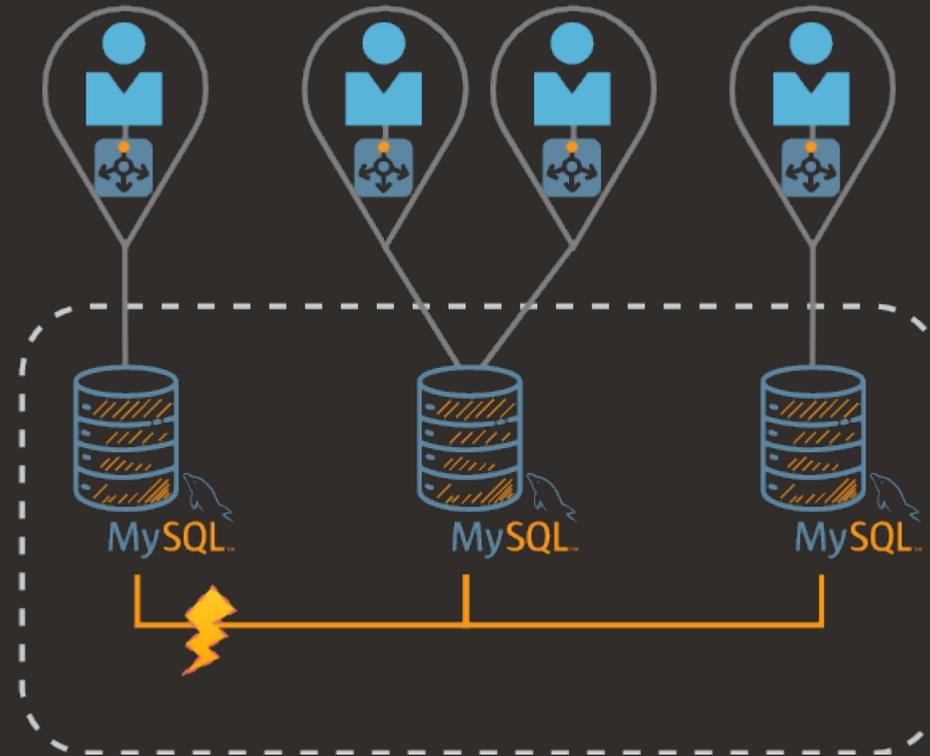
Member expel timeout

- Nodes will wait 5 second without contact from member to start expel process
- During expel timeout, node will be UNREACHABLE
- After expel timeout, node will be removed from group
- SET GLOBAL group_replication_member_expel_timeout=<seconds>

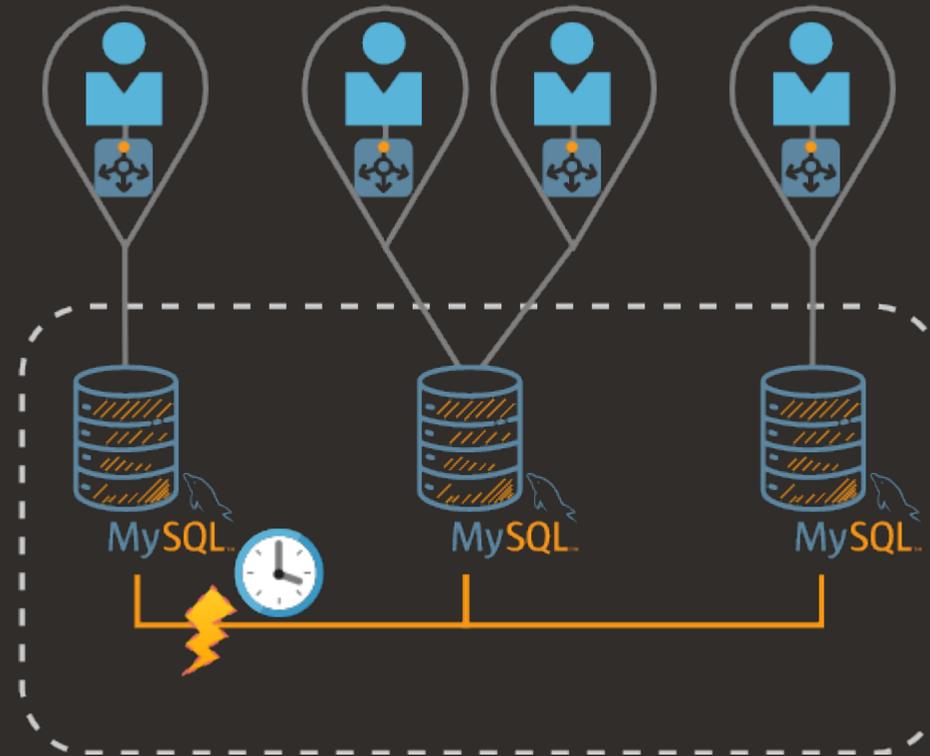
Member expel timeout



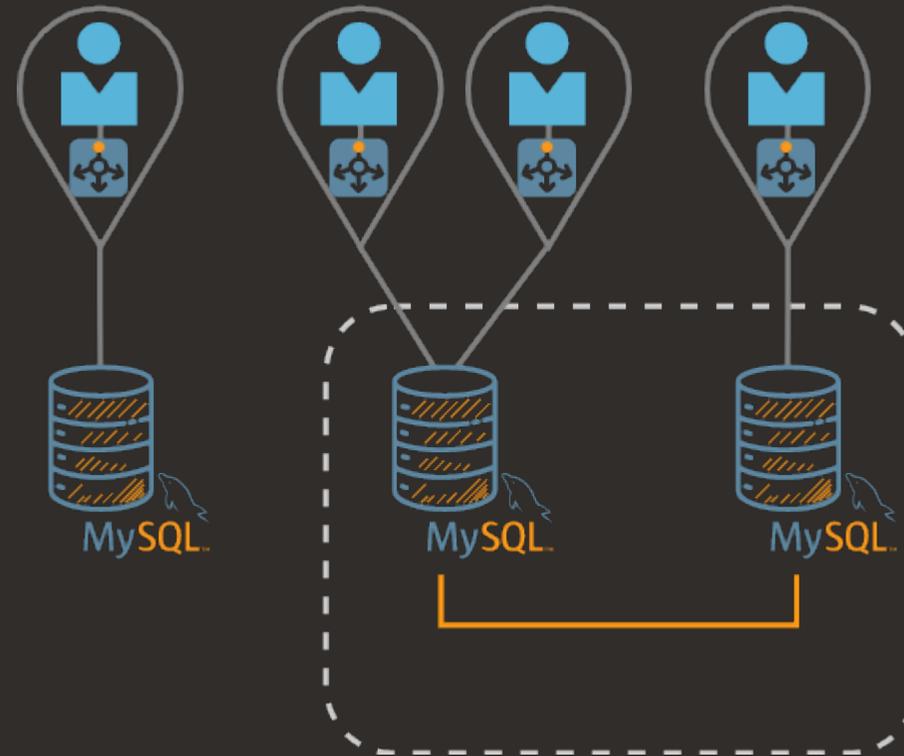
Member expel timeout



Member expel timeout



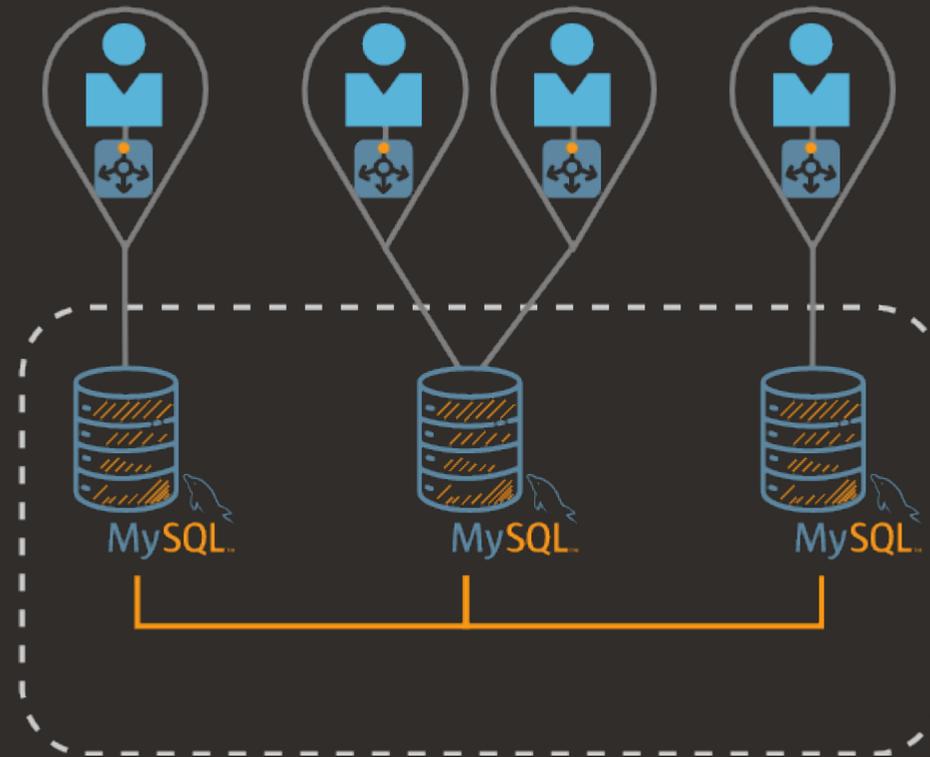
Member expel timeout



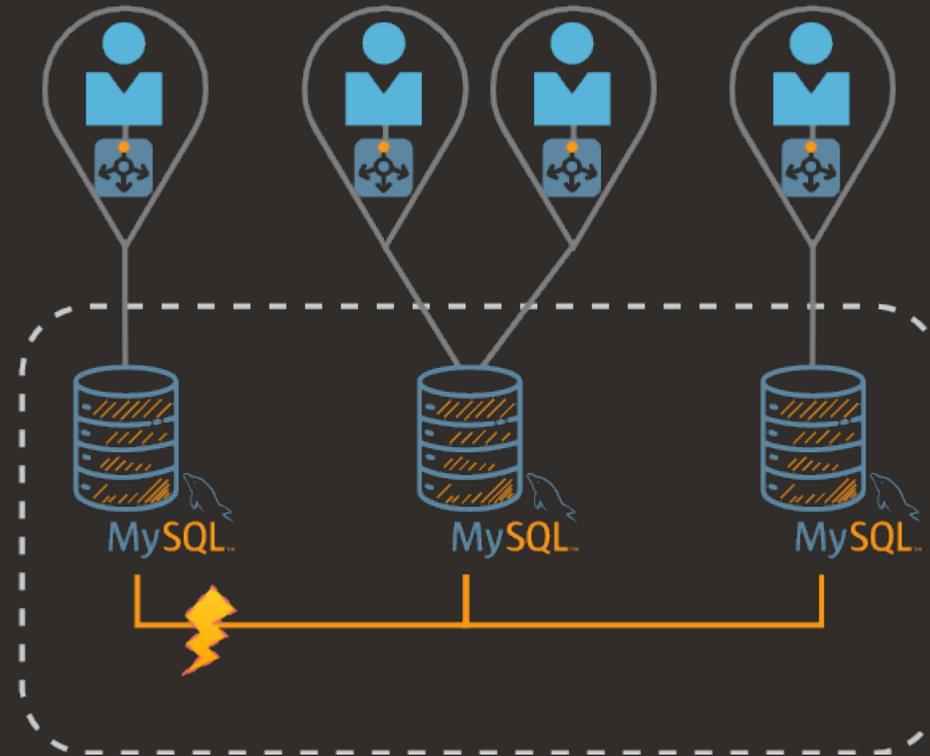
Auto-rejoin

- Node is expelled if not detected for some time by other members
- Due to a network split or high network latency
- On quick network reestablishment the node can reconnect to group
- SET GLOBAL group_replication_autorejoin_tries = <number>

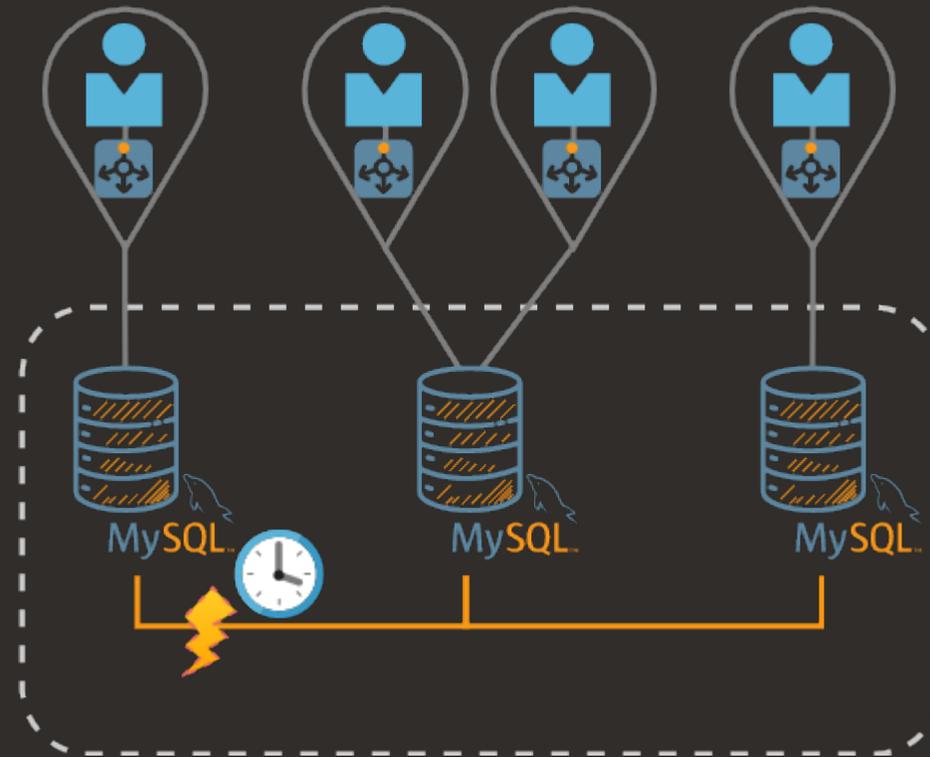
Auto-rejoin



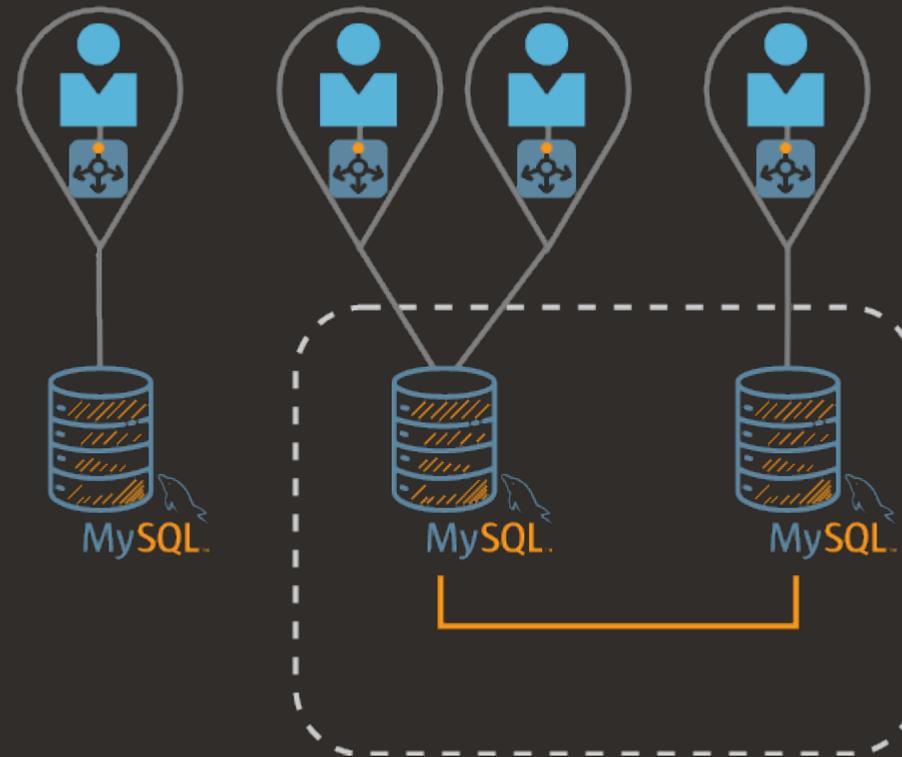
Auto-rejoin



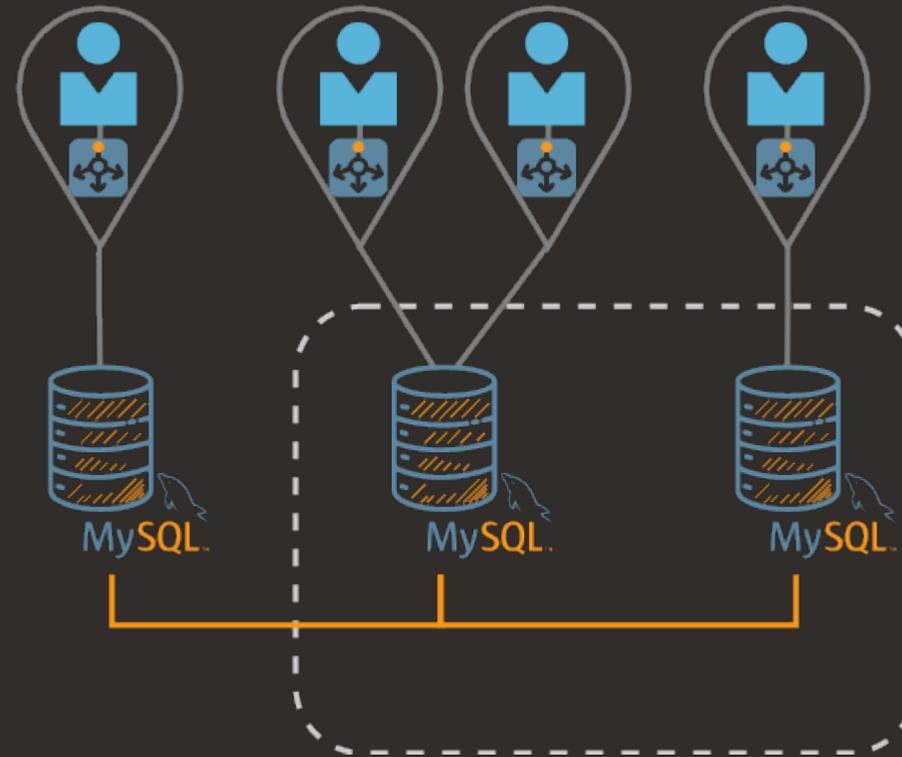
Auto-rejoin



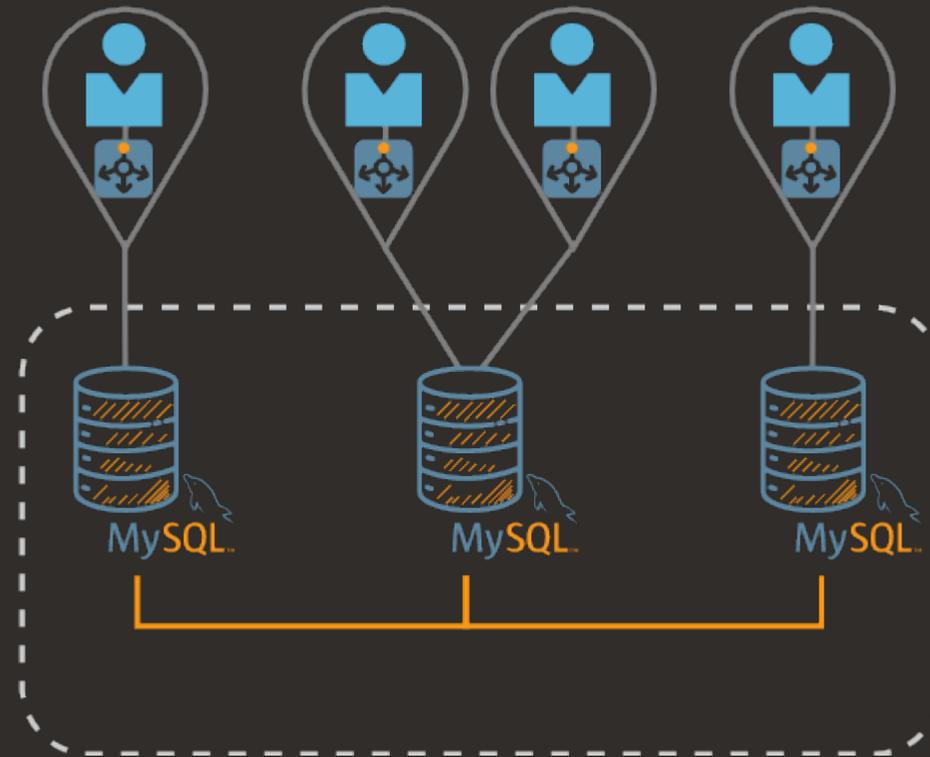
Auto-rejoin



Auto-rejoin



Auto-rejoin



Thank You

<https://mysqlhighavailability.com>



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