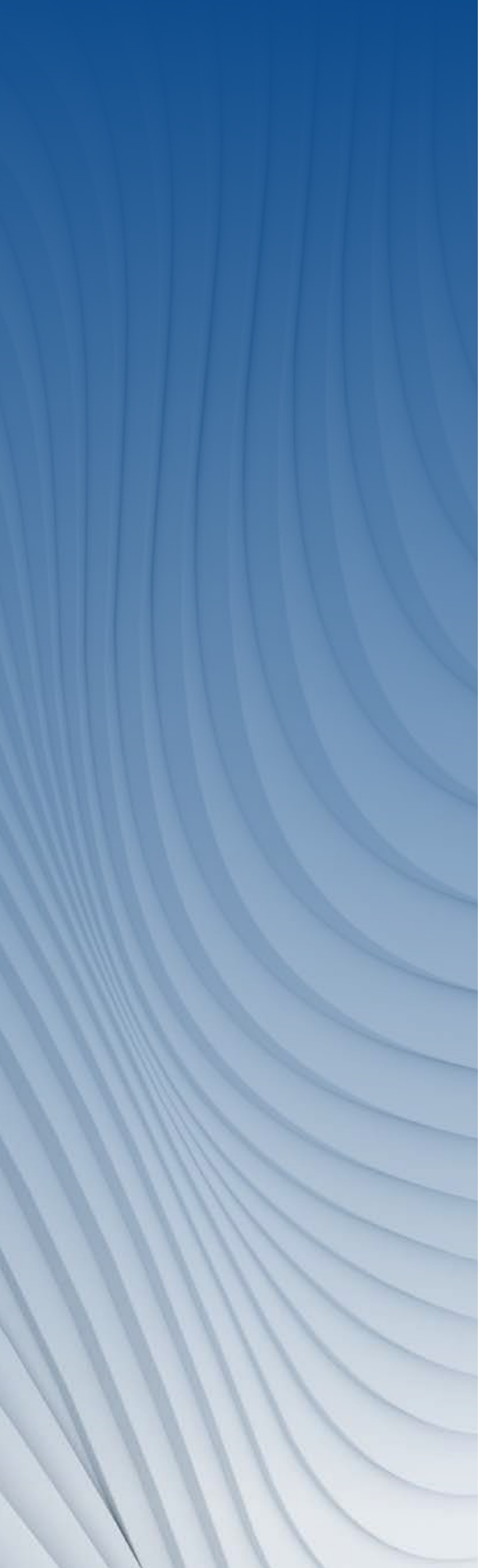
Solution Brief



Get Up And Running:

Using Percona Server For MySQL®

This solution brief outlines setting up a MySQL® database on-premises using Percona Server for MySQL. It includes failover and basic business continuity components..

Best fit for:

- Low to moderate usage websites with sporadic traffic peaks
- Low-cost environments
- Supporting applications with relatively flexible business requirements

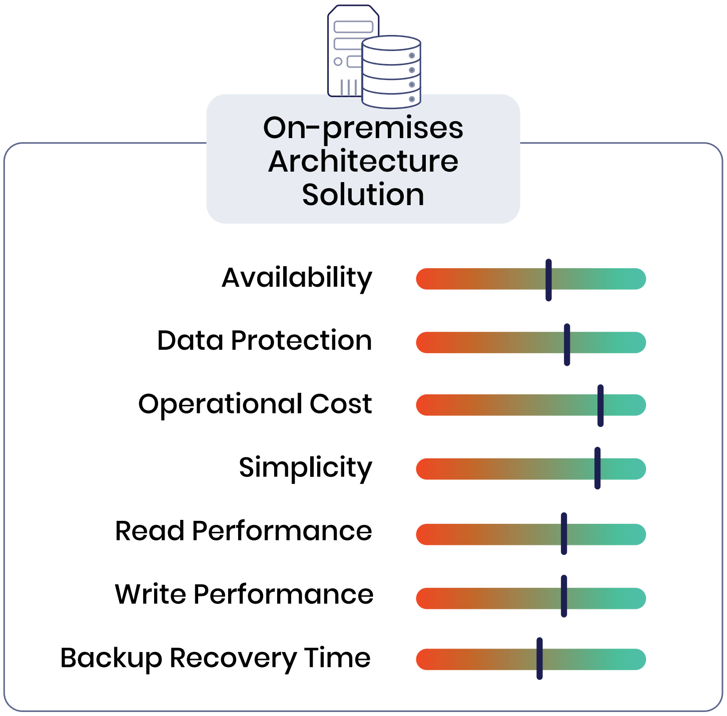
Summary

Running a MySQL server is relatively easy, but running a MySQL database architecture in production can pose some technical challenges. The need to deploy a second database instance to perform failover, and ensuring proper backups are being performed, are necessary to ensure that even the most flexible business requirements are met. This solution looks at the least complex implementation for any audience, independent of prior MySQL knowledge. This document describes a proven entry-level MySQL database architecture that is easy to set up and includes failover and basic business continuity components. This solution is based on Percona Server for MySQL and is best suited for on-premises environments.

Use case

Specific business environments where a single MySQL instance environment in production is the right fit.

Environments with lower uptime requirements, and without the need to guarantee that no data is lost during failover.



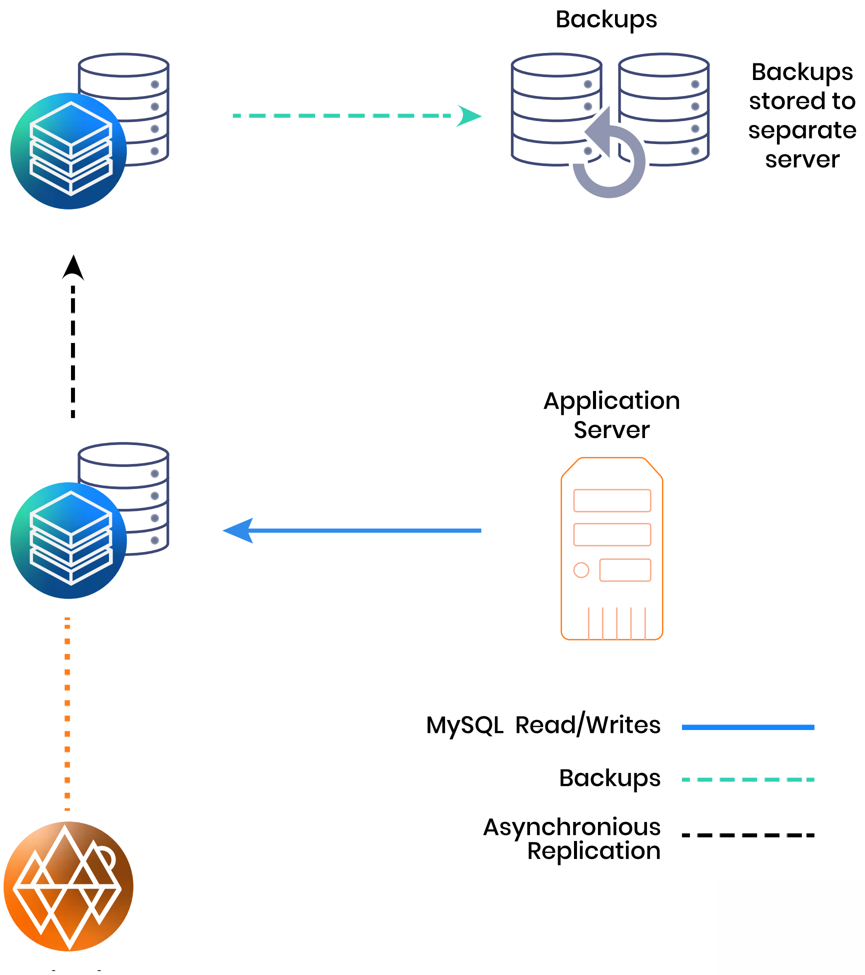
Pros

- Simple to set up and get running.
- Low cost.
- Greater control over the performance of bare metal hardware.
- Full control over software versions and upgrade schedule.
- Complete control over maintenance windows, with limited impact on applications.
- Full visibility into operating system and infrastructure.

Cons

- No automatic failover.
- Downed databases must be manually restored.
- Minimal data protection.
- Backups and backup strategy must be manually implemented.
- Failover to a new database takes place in minutes rather than seconds.

ARCHITECTURE DIAGRAM



Architecture

With two database servers, you can set up using standard asynchronous replication in active—passive mode. You can perform manual failover to promote the passive primary when the active node fails.

Components

At least three server instances are required: two database instances and a backup and monitoring instance.

- **Percona Server for MySQL**
- MySQL asynchronous replication using Global Transaction IDs (GTIDs)
- Physical backups taken with **Percona XtraBackup**
- Monitoring with **Percona Monitoring and Management (PMM)**
- Disk level encryption as required (using LUKS)

* Enabling encryption is recommended for storagev

Failover

External tools that facilitate and automate MySQL failover such as MHA and Orchestrator can help reduce recovery time, but they also increase the number of false positives and the complexity of the solution. Therefore, Percona does not recommend the use of these tools for entry-level environments. Manual failover can be done using a series of steps and with relative ease with the use of GTIDs.

Monitoring

For query analytics and time-based database performance information, the **Percona Monitoring and Management** platform is highly recommended. This should be **installed** on a third host, either by using the Docker container images, Open Virtual Appliance (OVA) or through the **Amazon Marketplace**. This architecture relies on failover using GTIDs. It is important that the monitoring implemented includes checking for errant transactions.

Dealing with growth

An entry-level environment can have increased read and write performance by using larger instance types or better hardware. Once the workload grows beyond what a single server can use, we recommend the use of read/write splitting or proxy caching solutions, depending on the need.

Backups

Backups should be taken at regular intervals. MySQL ships with mysqldump, which makes logical backups of the database environment. However, the recovery time of a logical backup grows exponentially as the dataset gets larger. It is therefore strongly recommended to use the open source tool Percona XtraBackup, which takes physical backups of the dataset that are much faster to restore.

Reducing the Recovery Point Objective

The frequency of backups is determined by the business requirement of the Recovery Point Objective (RPO). The RPO can be reduced to nearly no data loss by continuously backing up binary logs to the backup server.

Testing backups

Backups are not automatically tested. It is strongly recommended that backups are frequently tested to validate the backup and restore process.

Percona can help

Managing your organization's database operations, on-premises or in the cloud, requires in-depth knowledge of potential issues plus diligent, dedicated practice. Being aware of the issues above will help protect your organization's data-based applications when working with a MySQL database. It will also significantly enhance both performance and scalability to deliver a better user experience.

Support services are accessible 24x7x365 online or by phone to ensure that your database installation is running optimally. We can also provide onsite or remote **Percona Consulting** for current or planned projects, or in emergency situations. Every engagement is unique, and we will work with you to create the most effective solution for your business.

Percona Managed Services can support your existing database infrastructure whether it is hosted on-premises or at a colocation facility or if you purchase services from a cloud provider or database-as-a-service provider.

To learn more about how Percona can help, and for pricing information, please contact us at **+1-888-316-9775** (USA), **+44 203 608 6727** (Europe), or email us at **sales@percona.com**.