ORACLE

MySQL Heatwave for OLTP

Overview and What is New in the MySQL Database Service

Pre-FOSDEM Days

Brussels, February 2023

Who?

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Oracle

- Born and raised in Portugal
- Sports: Football, Basket, Karate, Running, Biking
- Physics, Astronomy
- Fault-Tolerance, High Availability, Computers
- Read, Travel, Being with People
- Long time MySQLer

Agenda

- Introduction
- MySQL HeatWave for OLTP
- What is New
- Conclusion
- Feedback?

Introduction

MySQL Heatwave for OLTP

Technology:

- MySQL is very popular, especially on the web.
- MySQL is a natural fit for the cloud.
- MySQL is a reliable database with replication built-in since its early life.

Cloud:

- MySQL integration with Heatwave makes OLTP and OLAP seamless to the end user.
- MySQL Heatwave for OLTP service is available on OCI and elsewhere.
- MySQL in OCI is a managed service with the latest and greatest MySQL developments available to users.

Manual management tasks consume resources

On-premises:

- Database management: provisioning, configuration, backup, HA, patching, security & more
- Operating system management: installation, patching, upgrades…
- Infrastructure management: purchase and maintenance of servers, storage
- Data center management: space, power, cooling, disaster recovery & more

In the cloud with a managed database service:

- Provisioning: right-sizing a database
- Data loading: optimizing load time, memory usage, encoding, data placement
- Query execution: performance tuning, prioritization of queries
- Failure handling: actions to handle an error recovery

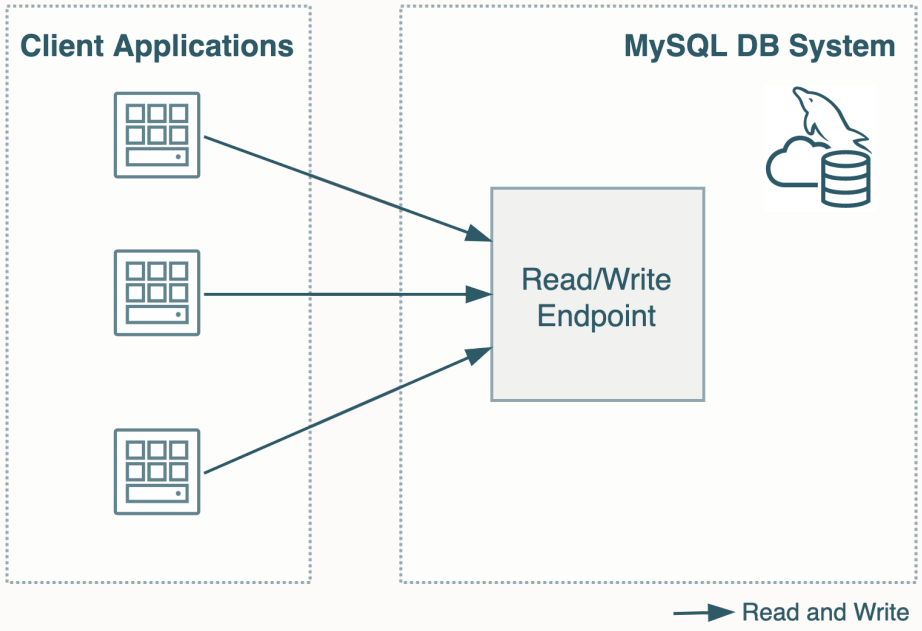
MySQL HeatWave for OLTP

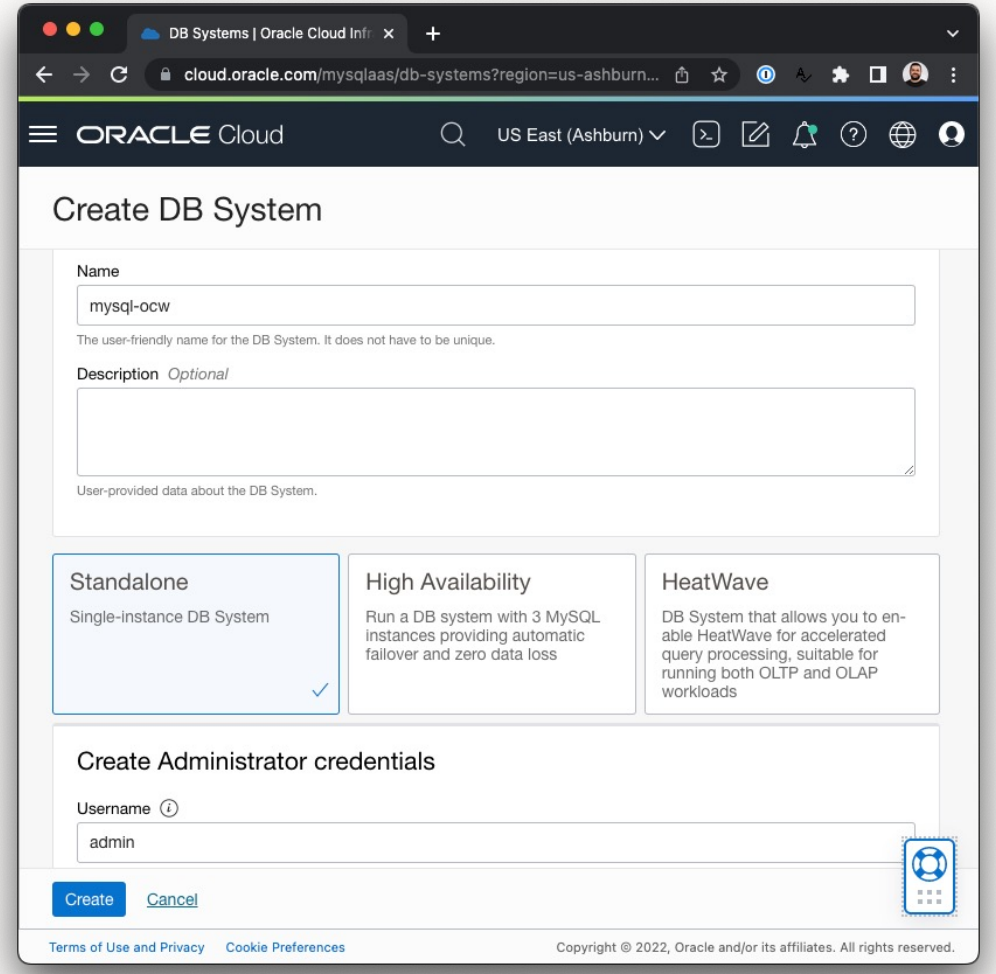
Features

- Managed Service with latest MySQL
- Easy provisioning & SLA
- Automation via Terraform, CLI, SDK, API
- One click:
  - High Availability
  - Manual, Automatic Backups
  - Point-in-time Recovery
  - Inbound and Outbound Replication
  - OLAP and OLTP together in one database

Database
DB System

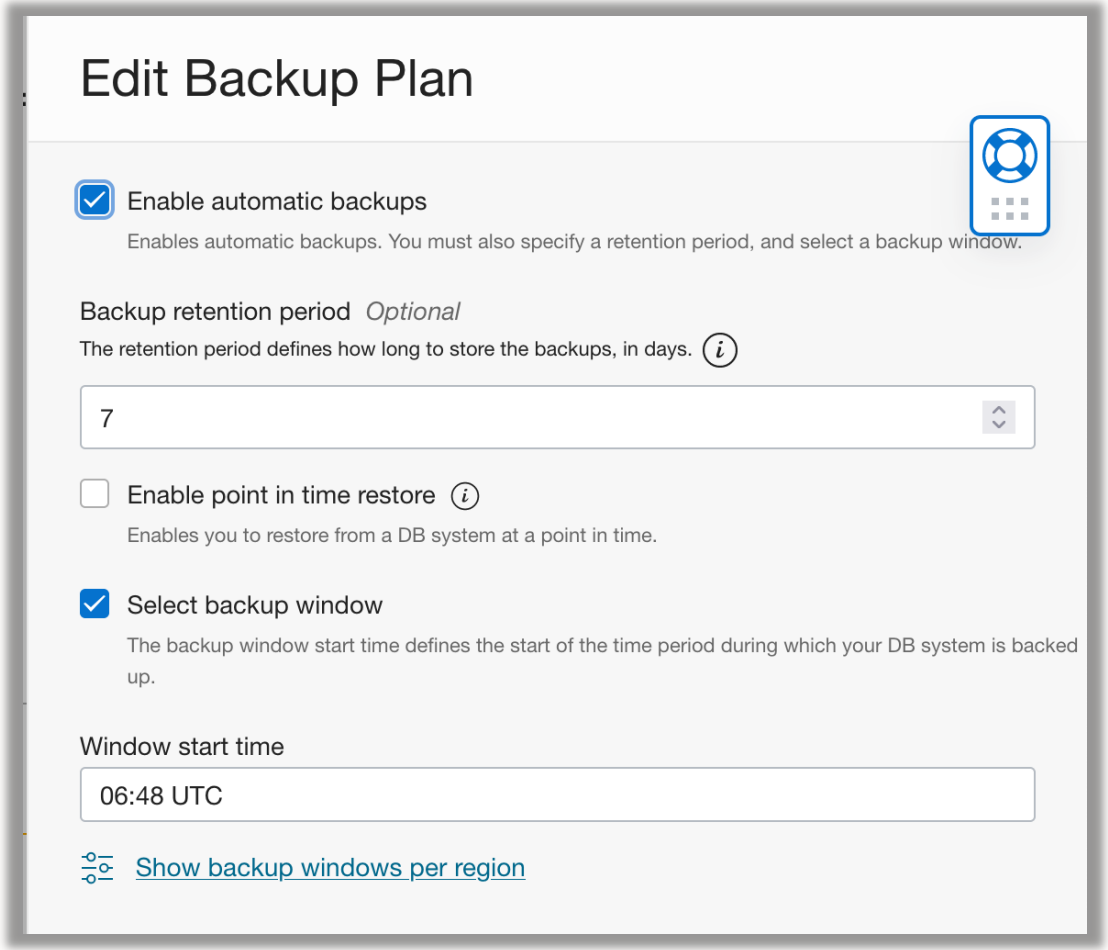
One-click DB System creation





Backups
Manual or Automatic

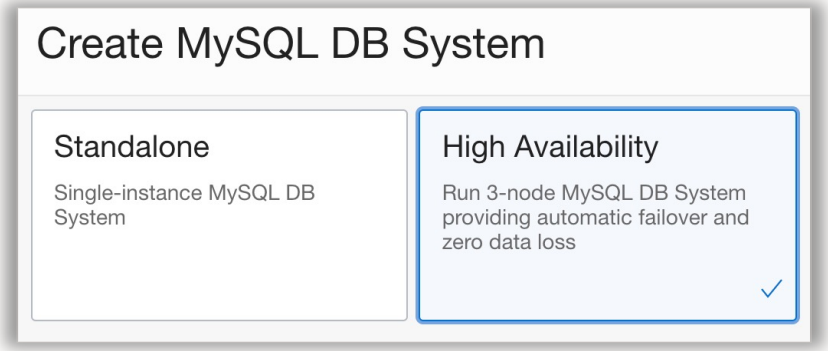
- Retention Period
- When to Backup
- Full or Incremental
- Point-in-Time Recovery (only non-HA DB Systems)

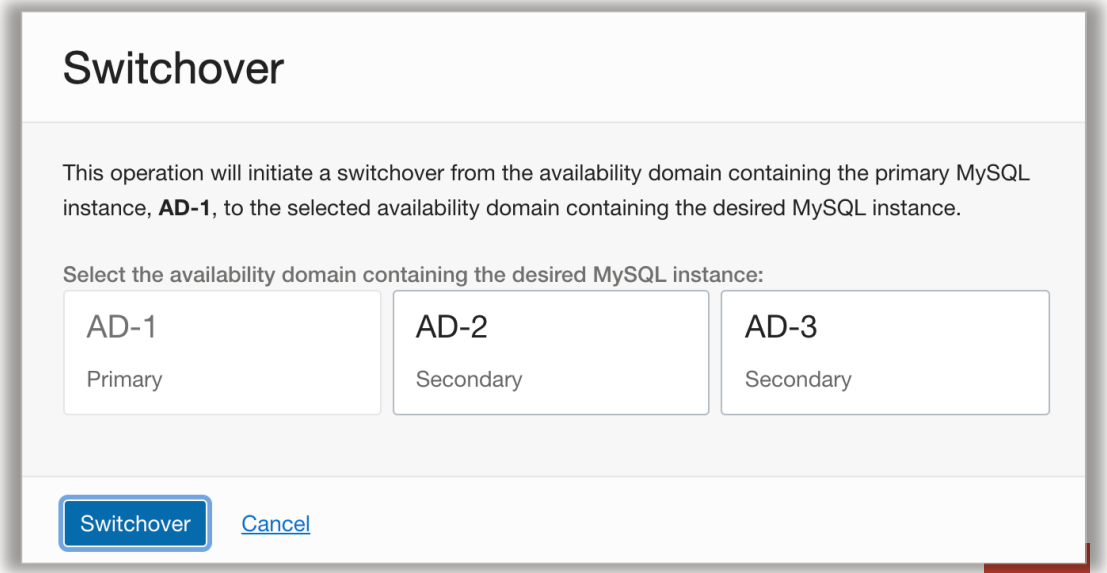


High Availability

RTO and RPO

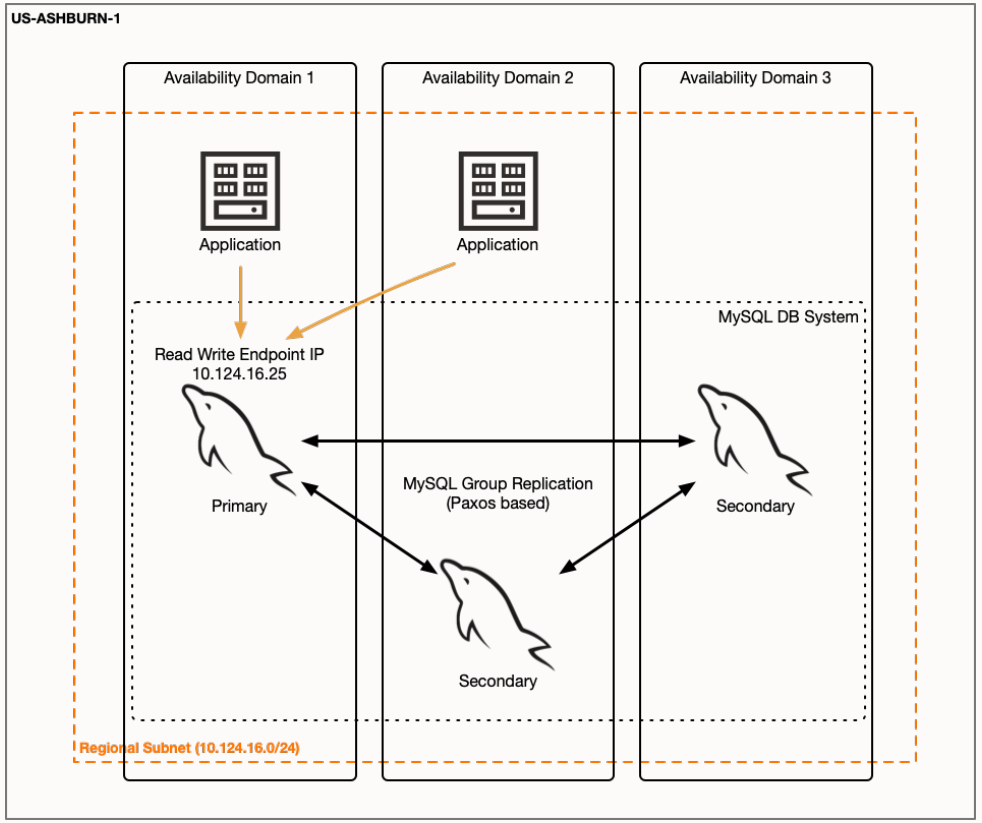
- Single click High Availability
- Automatic Failover
- Planned Switchover
- Increase Uptime
- Reduce Downtime during a failure event (RTO: Minutes)
- Zero Data Loss during a failure event (RPO: Zero)

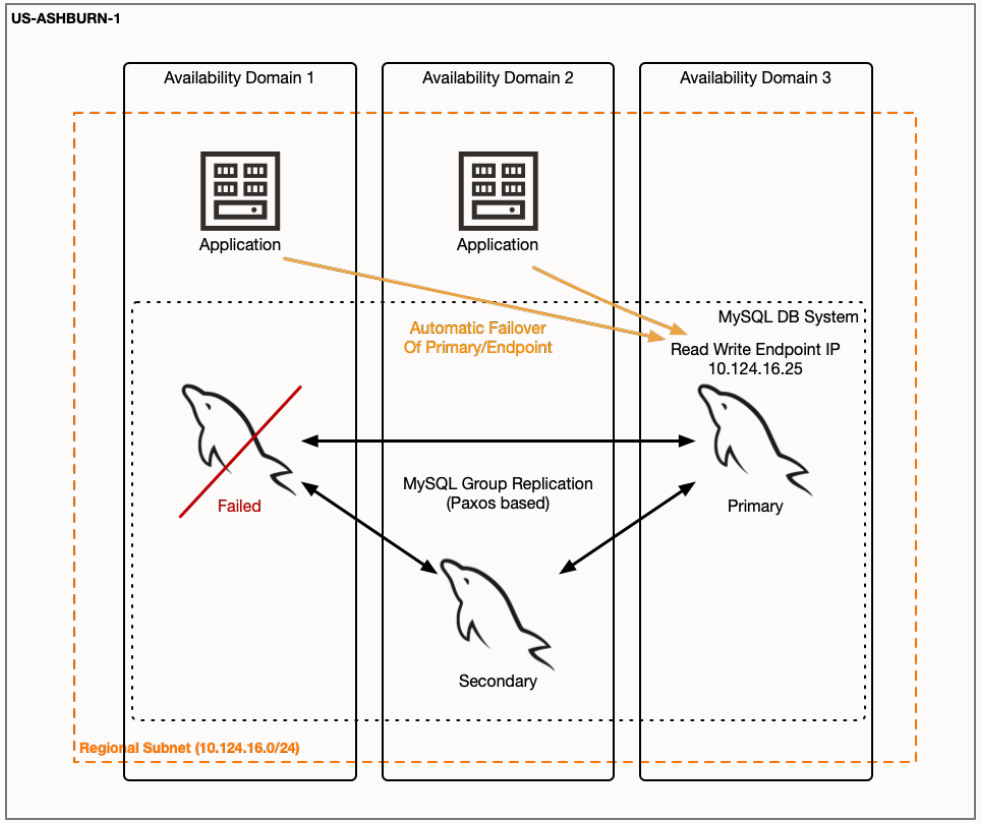




High Availability

Automatic Application Failover





Inbound and Outbound Replication

Hybrid Deployments and Migrations

Hybrid deployments

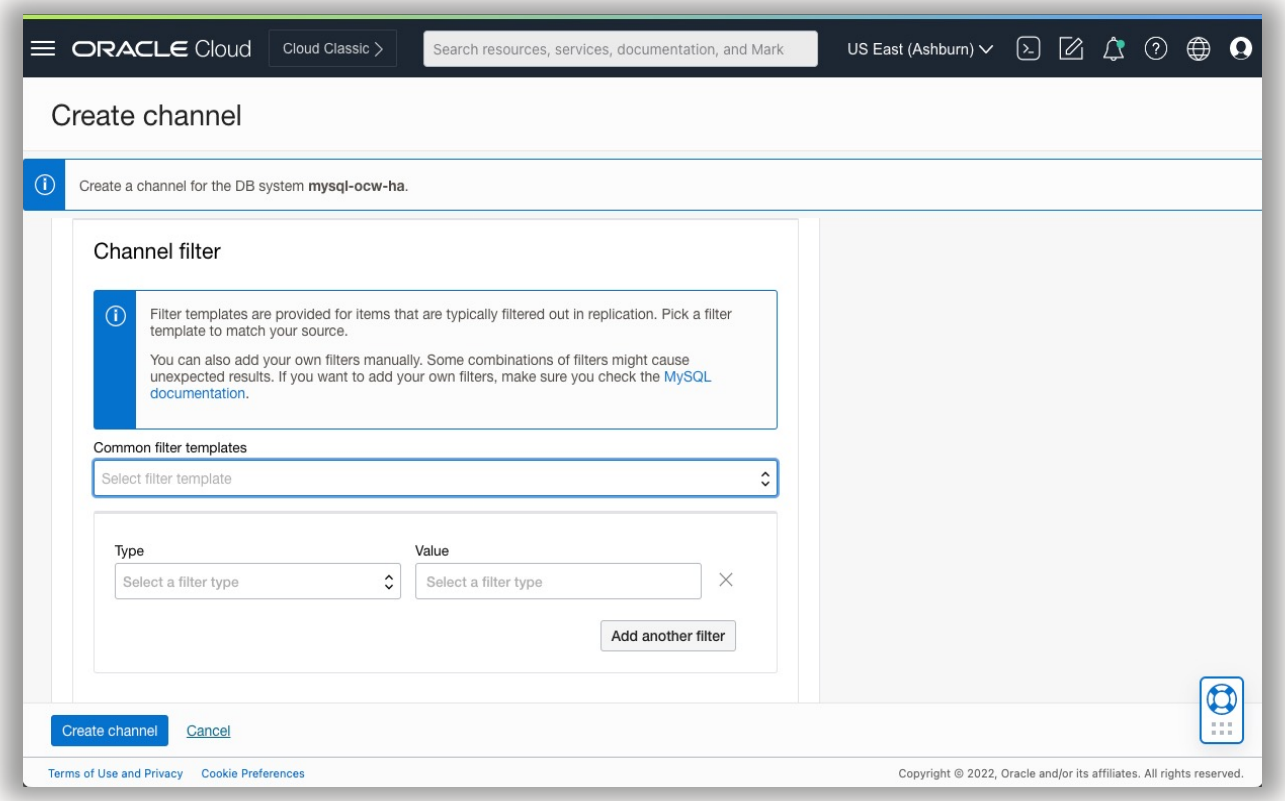
- On-premise and multi-cloud
- OCI as your main site
- OCI as your Disaster Recovery site
- OCI for capacity bursting
- HeatWave for Analytics

Live Migrations

- Minimize downtime

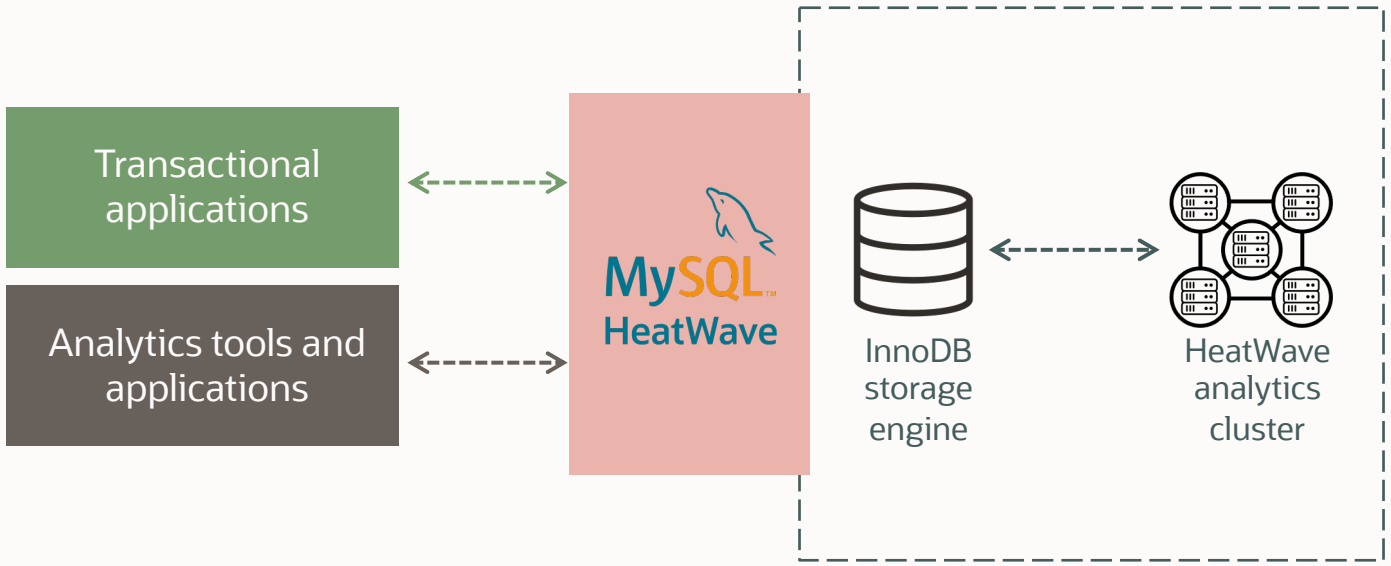
Cross-region replication

- DB System to DB System



OLTP and OLAP Together: MySQL HeatWave

One database is better than two



- One service for OTLP & OLAP
- No ETL duplication
- Unmatched performance, at a fraction of the cost
- Real-time analytics
- Improved security
- Applications work without changes

1>2 with MySQL HeatWave

What is New?

Read Scale-Out

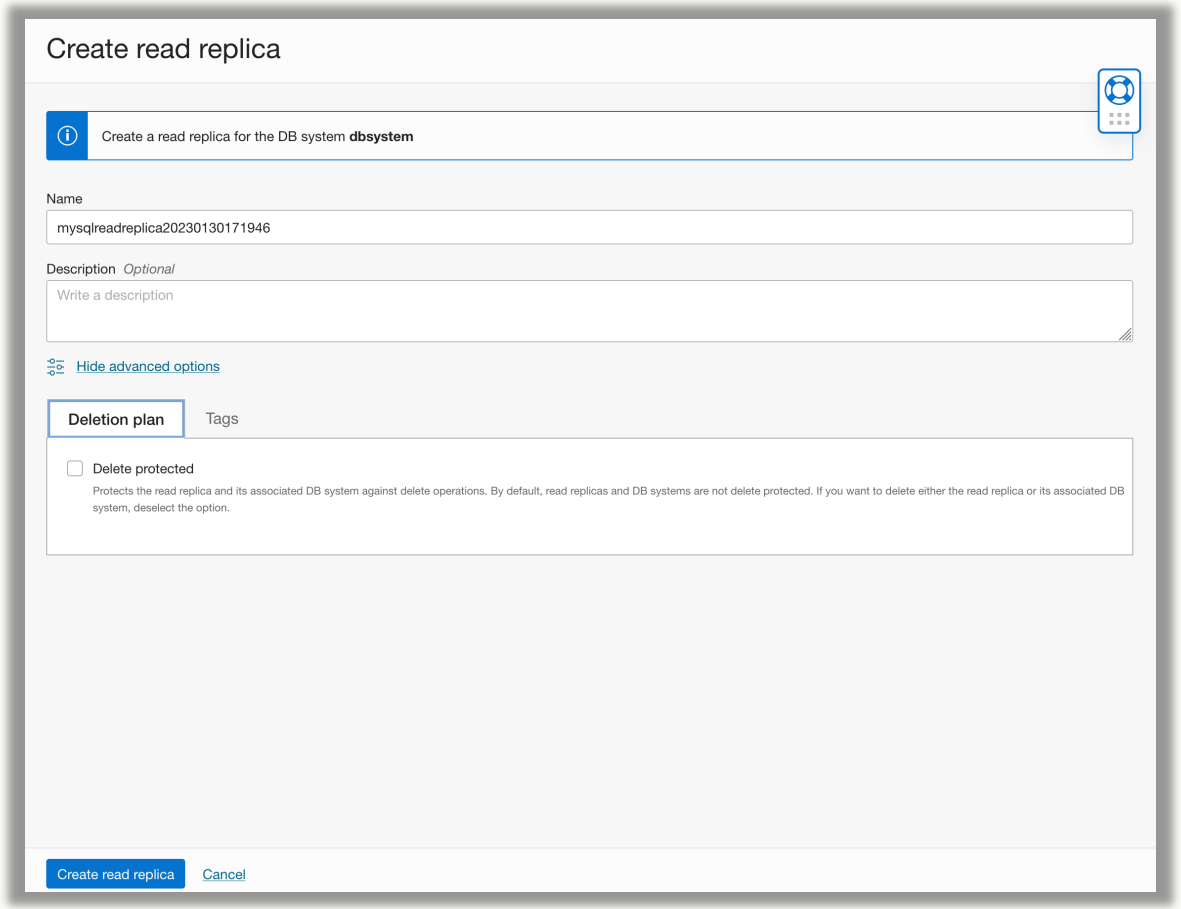
Managed Read Replicas

Grow and Shrink Read Capacity Seamlessly

High performance by scaling your reads.

- A single click creates a Read Replica
  - Provision
  - Launch
  - Setup Replication
  - Monitor and Manage

- Read Replicas are associated with a DB System
  - RO endpoints in the DB System
  - Up to 18 max per DB System
  - Requires a shape of 4 OCPUs or larger
  - CLI, SDK and Terraform support

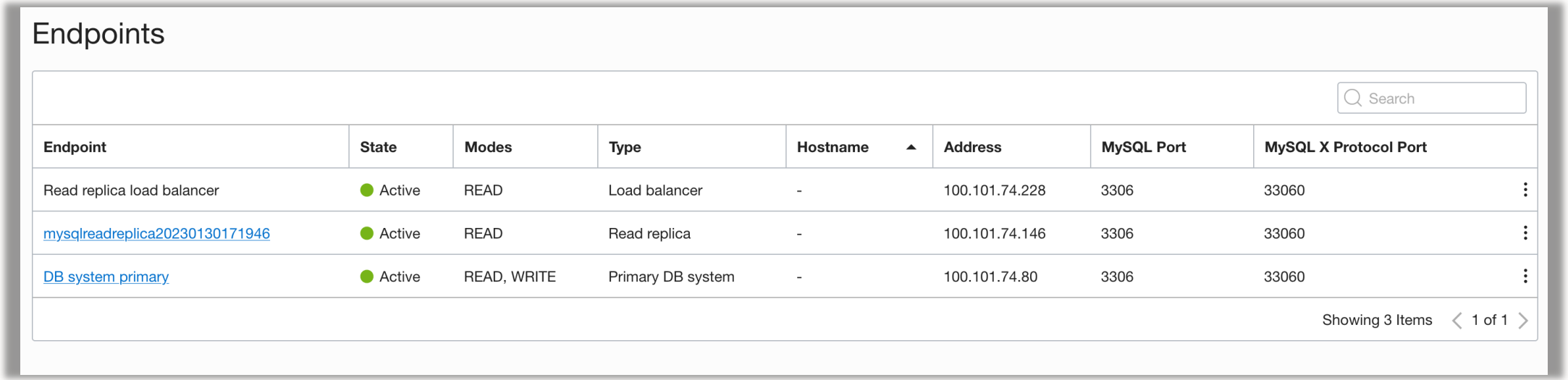


Load Balancer

Use Your Replicas Efficiently

When using Read Replicas a Load Balancer Endpoint is automatically provisioned in your DB System.

- Managed by the service
- Materializes as a Read-Only endpoint
- Round robins traffic across Read Replicas
- Manages Read Replica backends automatically



Inbound Replication Filters

Inbound Replication Filters

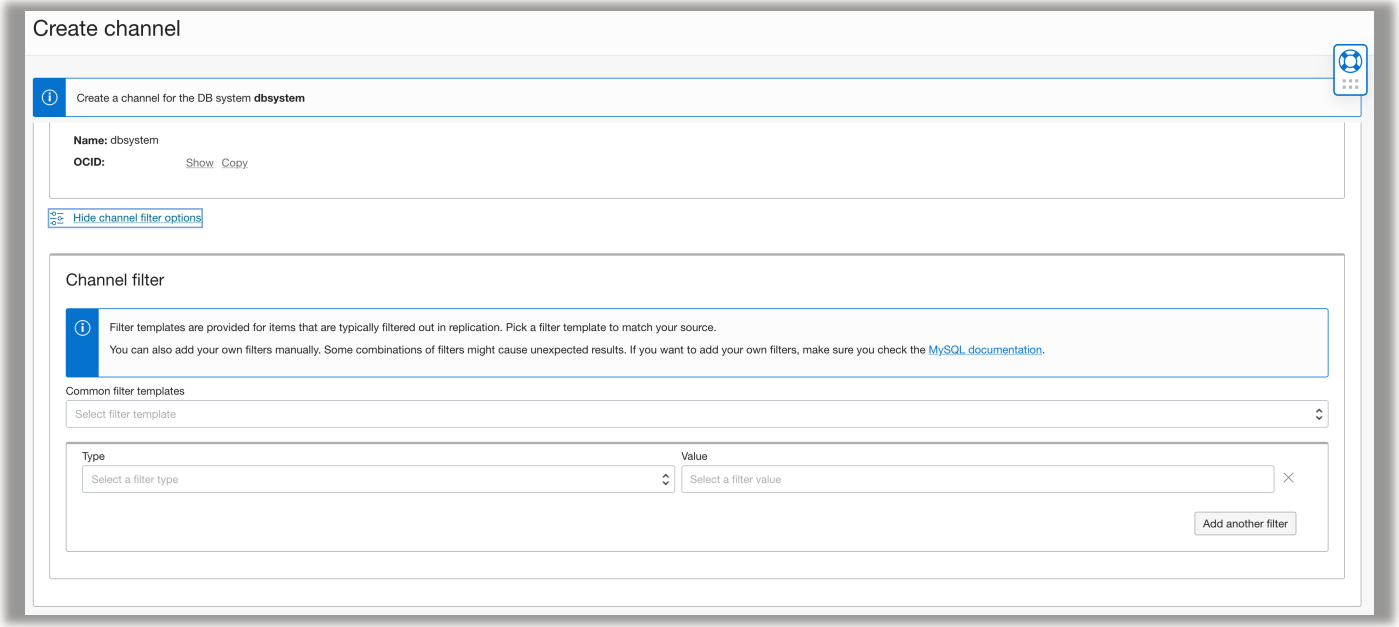
Ignore Some of the Changes But Not Others

While migrating one may need to filter some traffic out from the replication stream.

- Ignoring a schema that will remain on premise
- Ignoring custom system objects from other cloud providers

Noteworthy:

- Supports MySQL replication filters
- Console contains handy filter templates
- CLI, SDK and Terraform support



Inbound Replication and Sources without GTIDs

Sources Without Global Transaction Identifiers

Global Transaction Identifiers (GTIDs)

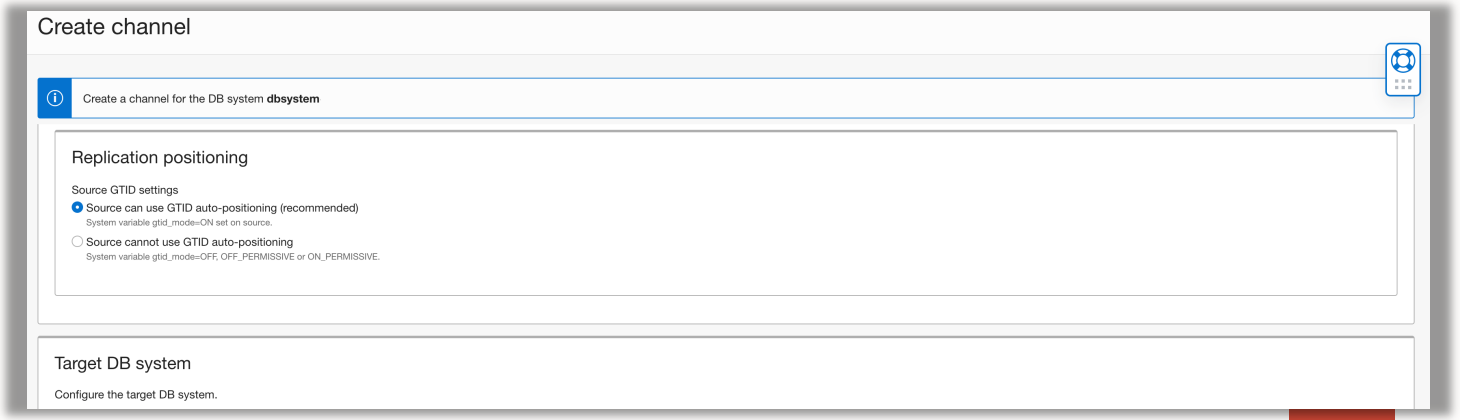
- Powerful framework for handling and managing one or more replication streams

Old deployments or MySQL forks do not have or use GTIDs

- Hard and cumbersome to migrate

The MySQL Database Service at OCI provides migration support in those cases too:

- Automatic generation of transaction identifiers
- No need for intermediate steps/infrastructure
- Connects to the source and pulls changes, nothing else.



Conclusion

Conclusions

MySQL Database Service offers:

- The most up to date MySQL, delivered by the MySQL team
- OLTP and OLAP in one database
- The technology you know, feels right at home for a traditional MySQL user
- Straightforward and simple for a new adopters
- Integrated with other Oracle services
- Powerful and secure infrastructure – The Oracle Cloud Infrastructure

Thank You!

Feedback?