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MySQL InnoDB Cluster

MySQL HA Made Easy!

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Program Agenda

- 1 ➤ MySQL InnoDB Cluster
- 2 ➤ MySQL Shell / AdminAPI
- 3 ➤ Live Demo – *Setting up a cluster in a snap!*
- 4 ➤ Live Demo – *Automatic fail-over!*
- 5 ➤ Summary

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100%

Virtually all organization require their most critical systems to be **highly available**

MySQL InnoDB Cluster: Background

- High Availability: critical factor
- Replication as a common solution
- MySQL has support for:
 - Classic master-slave replication
 - DRBDS
 - Other OS or VM solutions...

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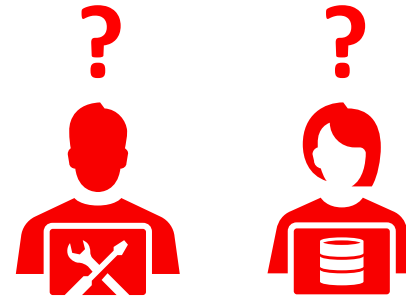
Group Replication !

- Update-everywhere (m-m)
- Virtually synchronous replication
- Automatic server **fail-over**
 - Distributed recovery
 - Group **reconfiguration**
- Powered by a GCS:
 - ✓ Implementation of **Paxos**

MySQL InnoDB Cluster: Background

- **Challenging task**

- Not easy to setup and maintain
- Technical knowledge needed
- How to configure the applications?
- How to integrate all the components?



MySQL InnoDB Cluster: **Vision**

“A single product — MySQL — with high availability and scaling features baked in; providing an integrated end-to-end solution that is easy to use.”

—  Engineering Team

Ease-of-Use

Built-in HA

MySQL
InnoDB
cluster

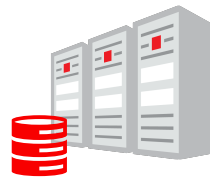
Out-of-Box Solution

Everything Integrated

Scale-Out

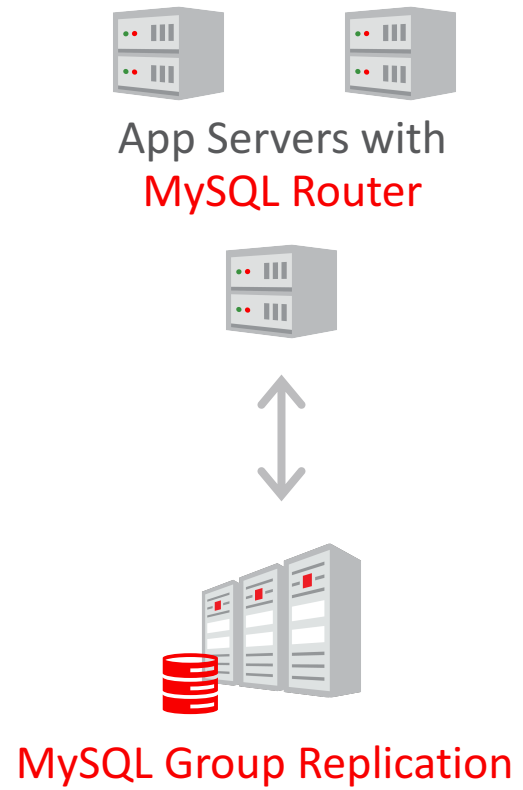
High Performance

MySQL InnoDB Cluster

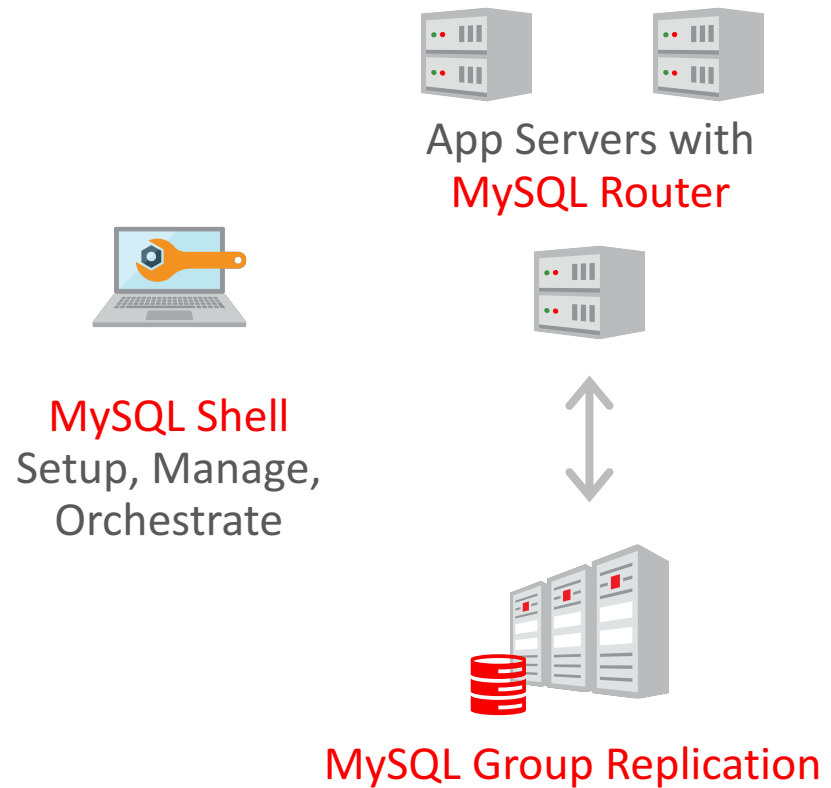


MySQL Group Replication

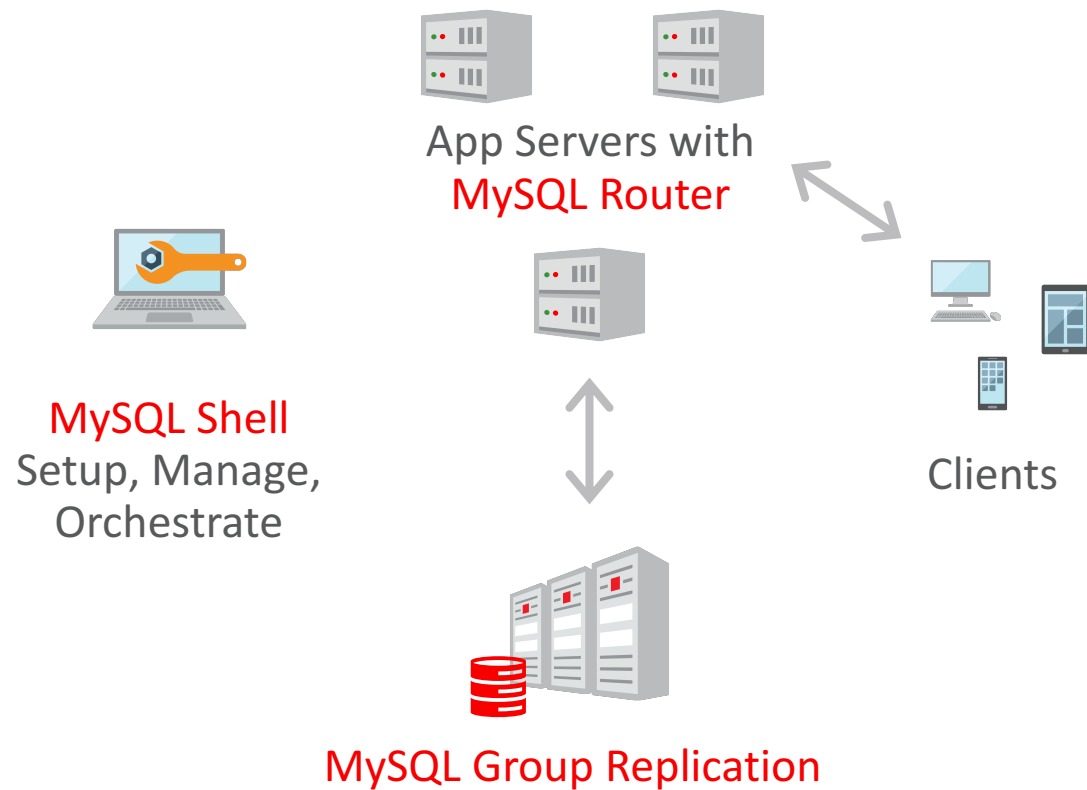
MySQL InnoDB Cluster



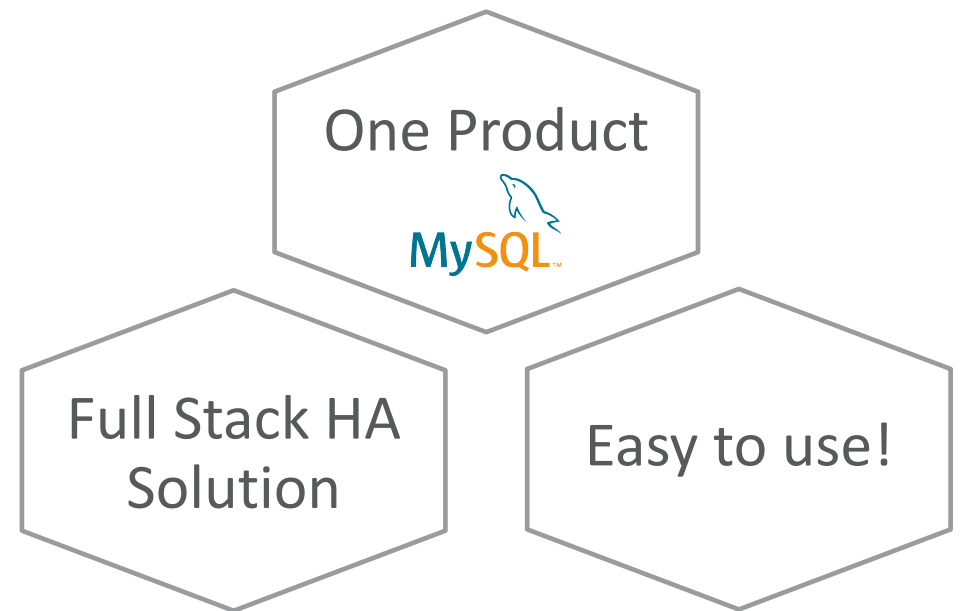
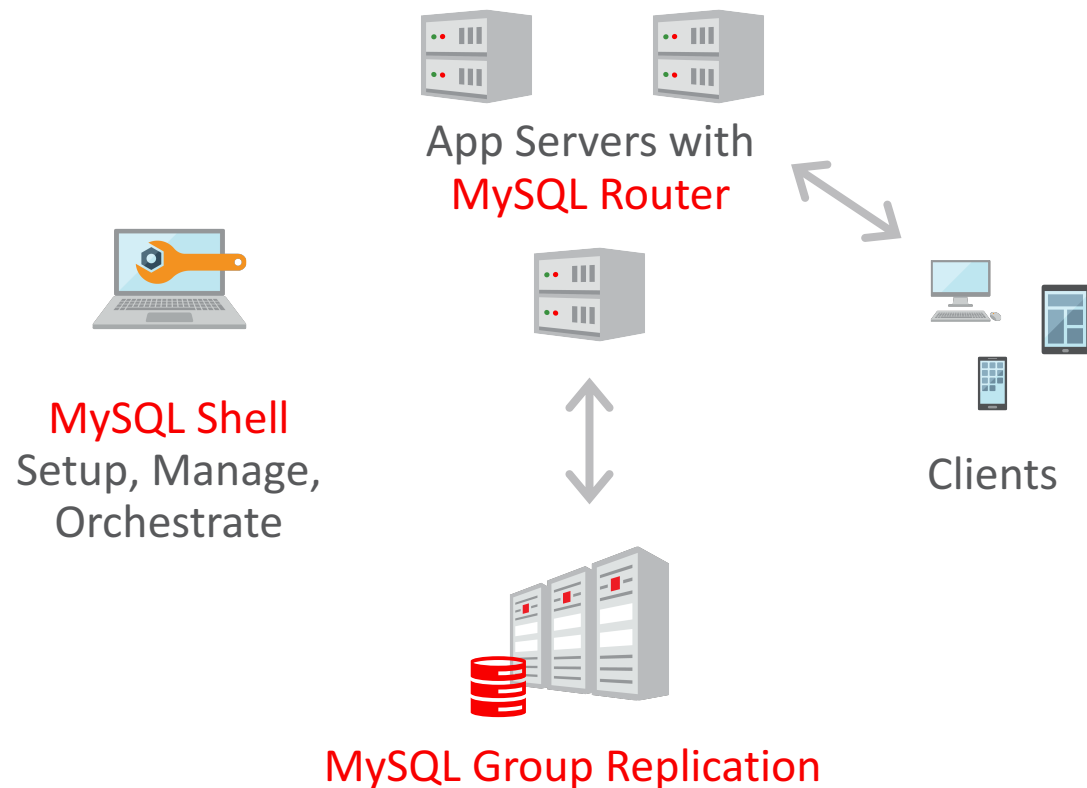
MySQL InnoDB Cluster



MySQL InnoDB Cluster



MySQL InnoDB Cluster



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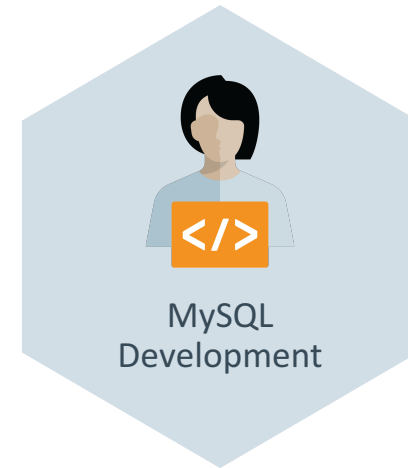
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MySQL Shell: Intro / Features

- Interactive multi-language interface that supports development and administration for the MySQL Server
- Can be used to perform data queries or updates, and administration operations:
 - ✓ Scriptable “DevOps” APIs
 - ✓ Unified Interface for MySQL Developers and DBAs: one tool!
- Intuitive and easy to use

MySQL Shell: **Features**

- **Multi-language support**
 - JavaScript, Python and SQL
 - Both interactive and batch operations
- **Document and Relational models**
 - Supports the classic relational model
 - Modern fluent API for the MySQL Document Store
 - CRUD and Relational



MySQL Shell: AdminAPI

- **Administration API**
 - Creation and Management of InnoDB Clusters
 - Hides the complexity of:
 - Configuration
 - Provisioning
 - Orchestration
 - Simple and straight-forward
 - Doesn't require MySQL expertise
 - Flexible, powerful and secure
 - Available in both JavaScript and Python



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*Setting up a cluster
in a snap!*

**AdminAPI
Live Demo!**



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Automatic Failover!

AdminAPI
Live Demo!



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Summary

- MySQL InnoDB Cluster is **THE** built-in **HA** solution for MySQL:
 - Full-stack: **H**igh **A**vailability **out-of-the-box**
 - Easy to use: **usability** as a top concern
- MySQL Shell with **AdminAPI**
 - Brings together developers and DBAs
 - Easily configure and administer InnoDB clusters
 - Powerful, flexible and secure

Resources

- MySQL InnoDB Cluster Userguide:
 - <http://dev.mysql.com/doc/refman/en/mysql-innodb-cluster-userguide.html>
- MySQL Shell Userguide:
 - <https://dev.mysql.com/doc/refman/en/mysql-shell.html>
- APIs Reference manuals
 - JavaScript: <https://dev.mysql.com/doc/dev/mysqlsh-api-javascript/>
 - Python: <https://dev.mysql.com/doc/dev/mysqlsh-api-python/>
- Blogging
 - <http://mysqlservertimeam.com/category/high-availability>

Thank you!

Q/A

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