Safe Harbor Statement

The following is intended to outline our general product direction. It is intended for information purposes only, and may not be incorporated into any contract. It is not a commitment to deliver any material, code, or functionality, and should not be relied upon in making purchasing decisions. The development, release, and timing of any features or functionality described for Oracle's products remains at the sole discretion of Oracle.
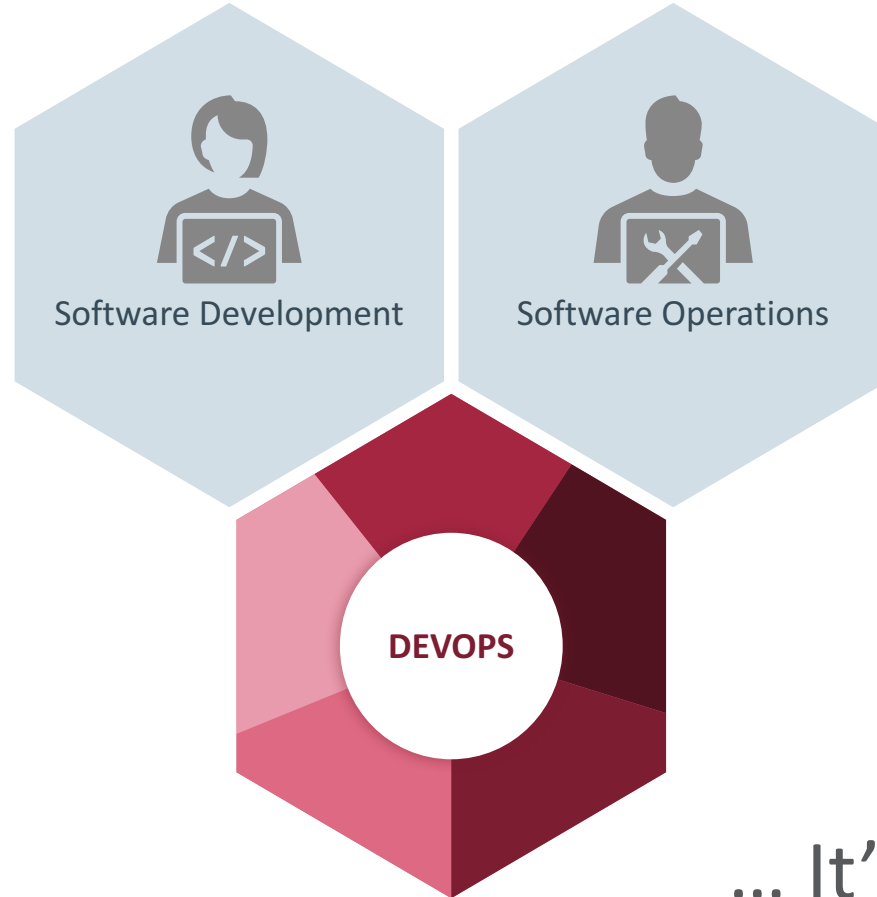
Program Agenda

1 ▸ Introduction to DevOps

2 ▸ MySQL Shell

3 ▸ Live Demo (Dev)

4 ▸ MySQL InnoDB Cluster

5 ▸ Live Demo (Ops)

6 ▸ Summary

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Program Agenda

1 **Introduction to DevOps**

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Introduction - DevOps

Software Development

Software Operations

DEVOPS

... It's all about CAMS[*] !

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Introduction - DevOps

Culture

... people and processes i.e. communication

Automation

... quality, speed, consistency

Measurement

... meaningful monitoring data

Sharing

... information, tools, lessons

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DevOps: Goals

- Continuous, faster development

- Faster time to deliver

- Lower the failure rate

- Reduce dependency of staff that owns all the knowledge by sharing the competences to all the team

DevOps: How?

- Culture
  - Reduce friction between teams
  - Better collaboration between teams
  - Share knowledge and roles
  - Developers, sysadmins and DBAs must share work, decisions and ideas

- Automation
  - Systems and scenarios need to be able to be easily and quickly reproducible
  - Use automation tools for deployment and configuration (puppet, chef, etc)
  - Deploying systems becomes easier to everyone and a standard
  - Lowers the risk

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DevOps: How?

- **Measurement**
  - Monitoring
  - Check the service status
  - Learn the infrastructure
  - Anticipate failures and needs
  - Act fast!

- **Sharing**
  - Share all monitoring info
  - Share test results and builds
  - Allows being able to plan ahead!

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MySQL Shell: Intro

- Interactive multi-language interface that supports development and administration for the MySQL Server

- Integrating part of the Server, as a component

- Can be used to perform data queries or updates, and administration operations

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MySQL Shell: Goal

- One tool for MySQL development and administrative tasks

- Natural interface for all MySQL related "DevOps"!

  - Unified Interface for Developers and DBAs

- Intuitive, flexible and powerful

- Provides scripting with development and administrative APIs

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MySQL Shell: Features (Dev)

- **Interactive 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
  - Supports the traditional Table results, as well as JSON or Tab separated output

MySQL
Development

MySQL Shell

**Development
Live Demo!**

MySQL Shell: Features (Ops)

- **Administration API: AdminAPI**
  - 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

MySQL
Administration

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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
    - DRDB
    - Other OS or VM solutions …

MySQL InnoDB Cluster: Background

- **High Availability**
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  - MySQL has support for:
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   - DRDB
    - Other OS or VM solutions …

- **Group Replication**
  - Virtually synchronous replication
  - Update-everywhere
  - Automatic server fail-over
    - Distributed recovery
  - Group reconfiguration

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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?
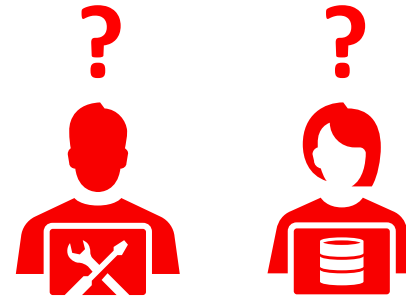
MySQL InnoDB Cluster: Vision

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

— MySQL Engineering Team
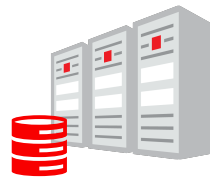
Ease-of-Use
Built-in HA

MySQL
InnoDB
cluster

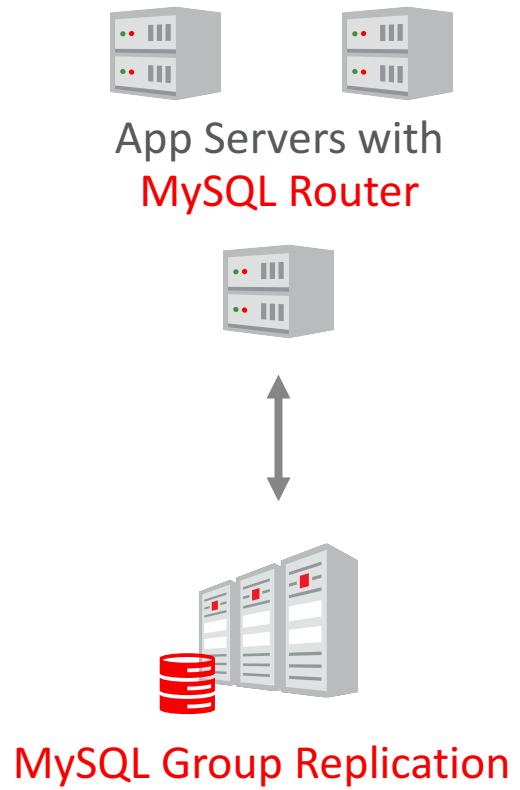Out-of-Box Solution
Everything Integrated
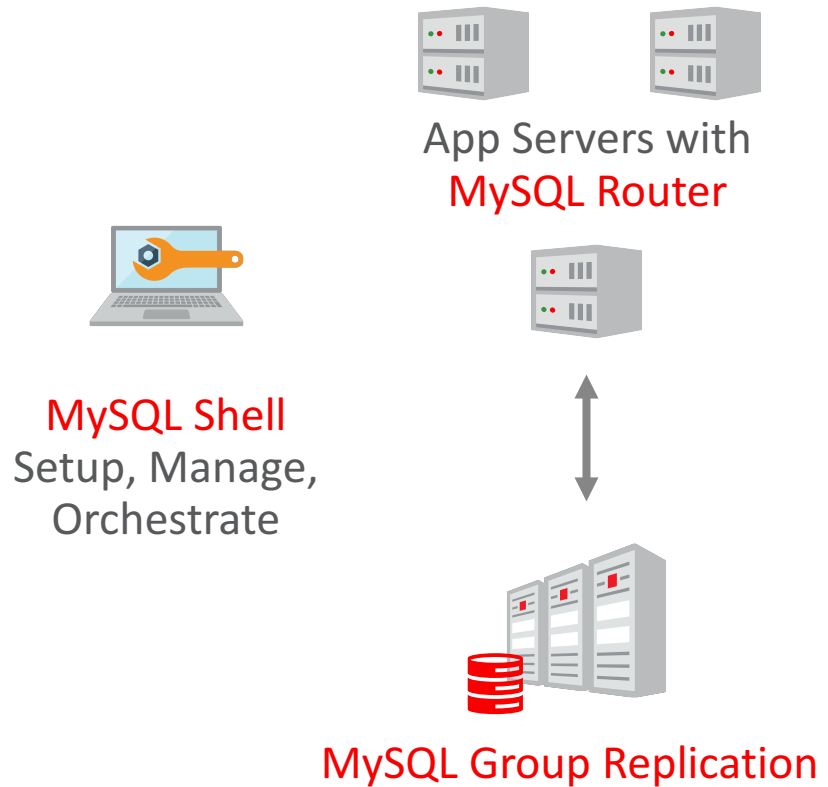
Scale-Out
High Performance

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MySQL InnoDB Cluster

MySQL Group Replication
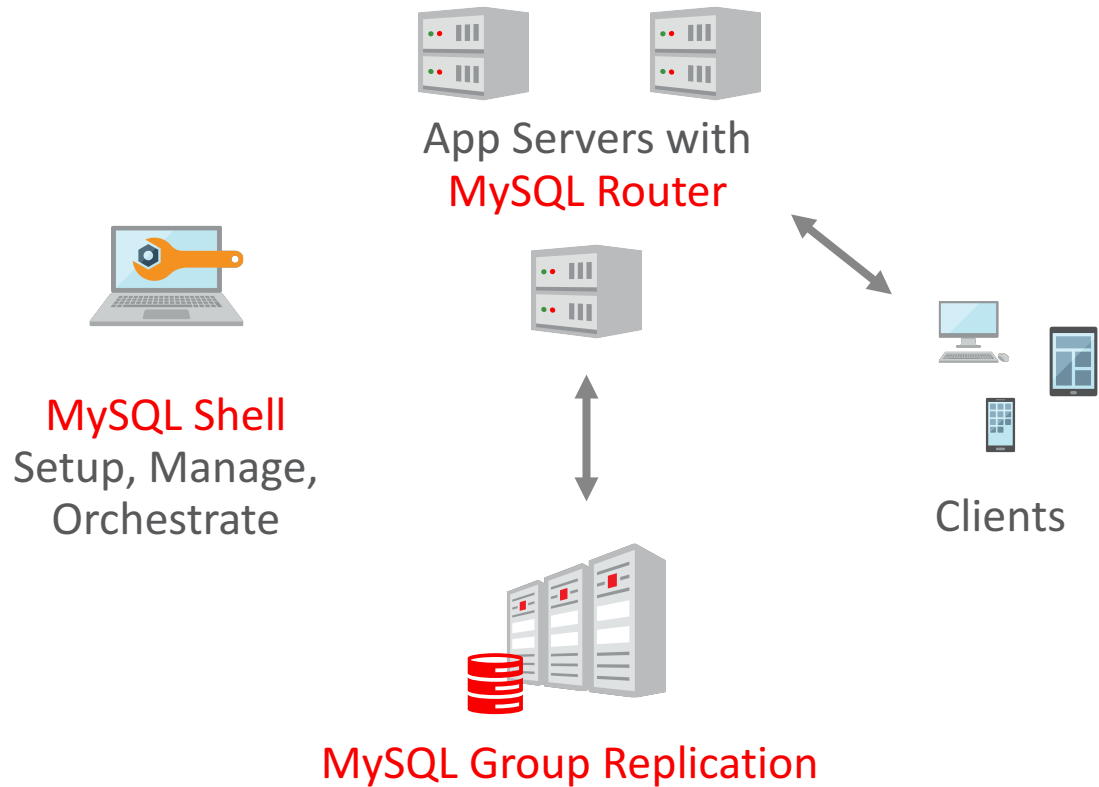
MySQL InnoDB Cluster

App Servers with
MySQL Router

MySQL Group Replication

MySQL InnoDB Cluster

App Servers with
MySQL Router

MySQL Shell
Setup, Manage,
Orchestrate

MySQL Group Replication

MySQL InnoDB Cluster

App Servers with
MySQL Router

MySQL Shell
Setup, Manage,
Orchestrate

Clients

MySQL Group Replication

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MySQL InnoDB Cluster

App Servers with
MySQL Router

Clients

MySQL Shell
Setup, Manage,
Orchestrate

MySQL Group Replication

One Product

MySQL

Full Stack HA
Solution

Easy to use!

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MySQL Shell

Ops (administration)
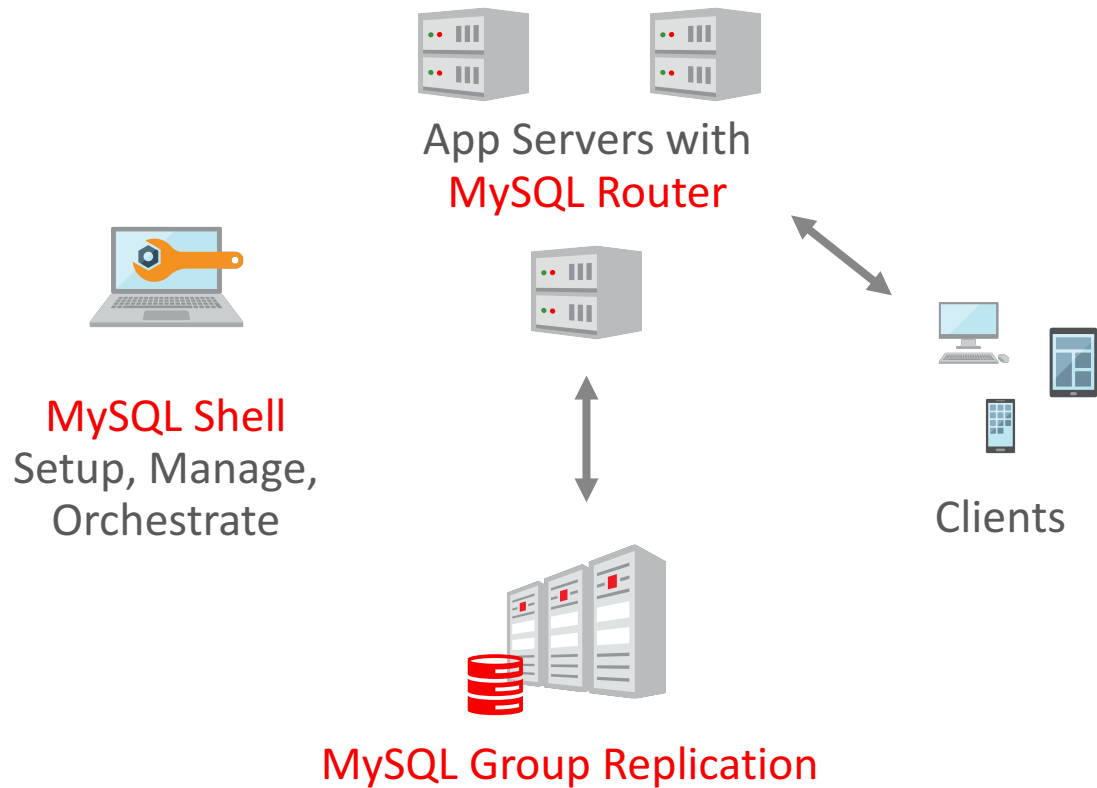**InnoDB Cluster**
Live Demo!

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Summary

- MySQL Shell brings together developers and DBAs

  - Unified interface: one tool!

  - Development and Administration APIs

- MySQL InnoDB Cluster is THE MySQL Native HA out-of-box solution:

  - Easy to use: usability as a top concern

  - Powerful and flexible

  - MySQL Shell with AdminAPI

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Resources

- MySQL Shell Userguide:

  - https://dev.mysql.com/doc/refman/en/mysql-shell.html

- InnoDB Cluster Userguide:

  - http://dev.mysql.com/doc/refman/en/mysql-innodb-cluster-userguide.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://mysqlserverteam.com/category/high-availability

Thank you!

Q/A