MYSQL CLUSTER

HIGHLIGHTS

- Five 9s availability
- Subsecond failover
- Self-healing recovery
- High throughput, real-time read and write performance
- Dynamic, online scalability
- Automatic load balancing
- Flexible data access
- Low TCO

"MySQL Cluster Carrier Grade Edition is a product of high quality, extremely robust and meets our demands in terms of performance and high availability. We evaluated shared-disk clustered databases but the cost would have been at least 10 times more."

—Alain Chastagner,
Systems Manager,
Alcatel-Lucent

Whether you're racing to introduce a new service or trying to manage an avalanche of data in real time, your database has to be scalable, fast, and highly available to meet ever-changing market conditions and stringent service-level agreements (SLAs).

MySQL Cluster is the industry's only true real-time database that combines the flexibility of a high-availability relational database with the low total cost of ownership (TCO) of open source. It features a shared-nothing distributed architecture with no single point of failure to ensure five 9s availability, allowing you to meet your most demanding mission-critical application requirements. Its real-time design delivers consistent millisecond response latency with the ability to service tens of thousands of transactions per second. Support for in-memory and disk-based data, automatic data partitioning with load balancing, and the ability to add nodes to a running cluster with zero downtime enables almost unlimited database scalability to handle your most unpredictable workloads.

Low Total Cost of Ownership

MySQL Cluster requires no additional infrastructure, such as shared storage, and runs on a range of commodity hardware and operating system (OS) platforms, making it the most open and cost-effective database solution for mission-critical applications anywhere.

Proven Deployments

The benefits of MySQL Cluster have been realized in the most demanding data management environments in the finance, telecommunications, Web, and government sectors, for companies and organizations such as Alcatel-Lucent, Cisco, Ericsson, Juniper, Shopatron, Telenor, UTStarcom, and the United States Navy.

Together with Oracle's global training, consulting, and technical support services, MySQL Cluster can help ensure the success of your next mission-critical service with greater speed, lower cost, and less risk.
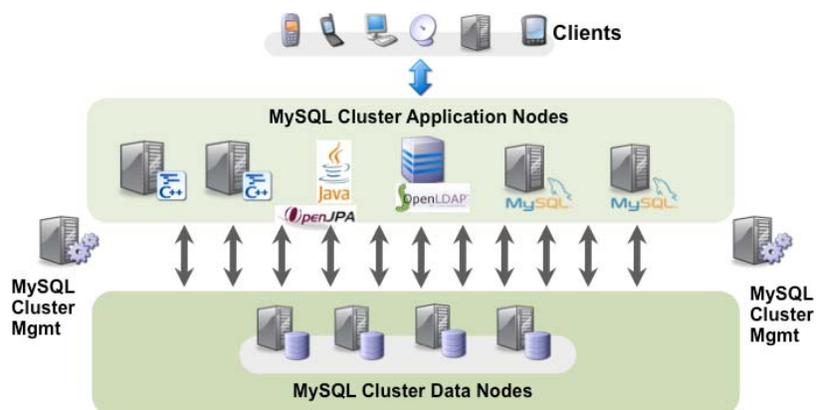

Figure 1. The MySQL Cluster architecture has been designed for five 9s availability and delivers massive read/write scalability.

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Five 9s Availability

The architecture of MySQL Cluster is designed for five 9s availability, eliminating both planned and unplanned downtime. It achieves this via a distributed, shared-nothing architecture and synchronous replication of data that automatically propagates transaction information to all appropriate database nodes and replicas.

Subsecond Failover and Recovery

Any failures are detected instantly and control is automatically failed over to other nodes in the cluster, without interrupting service to the clients. Plus, MySQL Cluster database nodes can automatically restart, recover, and dynamically reconfigure themselves in case of failures. The MySQL Cluster self-healing features are completely transparent to all applications.

To further support continuous operation, MySQL Cluster enables the dynamic addition of nodes to running clusters, online updates to live database schema, and upgrades and maintenance of the cluster's underlying hardware and software infrastructure.

Geographic Replication

The ability to withstand site failures by replicating clusters across multiple remote locations is an important capability for many deployments. Geographic replication is available as part of MySQL Cluster Carrier Grade Edition and is ideally suited to those organizations with multiple datacenters.
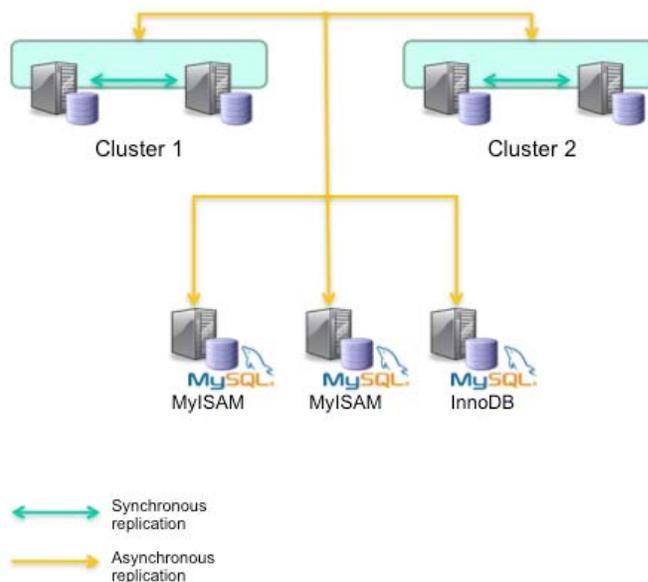

Figure 2. Geographic replication delivers five 9s cluster availability across remote locations and can be used to replicate data to in real time to other MySQL storage engines for reporting applications.

Real-Time, High-Throughput Performance

With its real-time design, MySQL Cluster provides the response time needed to meet the needs of demanding applications. MySQL Cluster limits I/O bottlenecks by asynchronously writing transaction logs to disk, thereby achieving predictable response times in just a few milliseconds. As a multi-master database with a parallel architecture, MySQL Cluster ensures write requests are distributed across all data nodes—delivering the very high levels of write throughput and scalability demanded by transactional workloads. In addition, MySQL Cluster can leverage many MySQL or Application nodes running in parallel, with each node handling multiple connections, thus providing support for high-concurrency transactional applications.

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"Since deploying MySQL Cluster as our e-commerce database, we have had continuous uptime with linear scalability, enabling us to exceed our most stringent SLAs."

—Sean Collier,
CIO and COO,
Shopatron

Dynamic, Linear Scalability

To support growth in the number of users, data, and transactions, MySQL Cluster provides a cost-effective way to scale both processing and data storage. With support for up to 255 nodes, MySQL Cluster users can start small and make incremental investments as services scale up and requirements increase.

Simply add cluster nodes online to support increases in concurrent users and transactions, or to expand data capacity. Plus, MySQL Cluster enhances flexibility by supporting disk-based data for space-intensive objects such as BLOBs.

To further enhance scalability, MySQL Cluster lets developers and DBAs refine access through user-defined partitioning, thus enabling data to be efficiently accessed on a single node, without the need for communication within the cluster to perform either a transaction or a lookup.

Flexible Data Access

Application developers can easily integrate new and legacy applications using their preferred database-independent method. MySQL Cluster Carrier Grade Edition provides multiple data access methods that work together. In addition to SQL, data can also be directly managed via native C++, Java, OpenJPA, Lightweight Directory Access Protocol (LDAP), and HTTP interfaces, delivering higher performance and faster development cycles for a diverse range of applications and skill sets.

This allows developers to select the data access method that best fits their development and application requirements. It also enables a single instance of MySQL Cluster to service a range of applications that previously would have required their own local database.

Open Source Economics

MySQL Cluster is an open source, high-availability database solution that allows developers to immediately download, build and then deploy their next-generation services. Consulting services, 24/7 technical support and affordable licensing for MySQLCluster are all available at a fraction of the cost of traditional solutions.

Cluster Manager Feature

The manager feature in MySQL Cluster simplifies the creation and management of the MySQL Cluster database by automating common management tasks. As a result, DBAs and system administrators are more productive and able to focus on strategic IT initiatives. At the same time, risks of database downtime, which previously resulted from manual configuration errors, are significantly reduced. The manager feature is a part of the commercial MySQL Cluster Carrier Grade Edition database.

Services and Support

MySQL provides extensive consulting, training, and technical support services to ensure the success of any mission-critical database project. Through millions of successful customer deployments, MySQL has established a proven track record of supporting its customers, lowering risks, and maximizing ROI. Support teams are ready to assist in the development, deployment, and management of your MySQL applications.

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Learn More

For additional resources, including white papers, on-demand Webinars, and customer case studies, visit mysql.com/cluster.

To learn more about MySQL Cluster's manager feature, visit mysql.com/cluster/mcm.

For more information about MySQL Cluster licenses and services, visit mysql.com/about/contact/sales.html?s=cluster.

To contact MySQL online or via telephone, visit mysql.com/contact.

About MySQL

MySQL is the world's most popular open source database software. Many of the world's largest and fastest-growing organizations use MySQL to save time and money powering their high-volume Websites, critical business systems, communication networks, and commercial software.

SOFTWARE. HARDWARE. COMPLETE.

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