

## MercadoLibre Chooses Galera Cluster to Scale Without Limits in OpenStack



Mercado offers a complete technological and commercial solution that addresses the distinctive cultural and geographic challenges of operating an on-line trading platform in South America. MercadoLibre was recognized in recent years as one of the top thirty of the world's hottest brands.

With its success and growth, MercadoLibre's reliance on technology accelerated and its data center was filling rapidly with physical servers, as well as with data. To accelerate things, MercadoLibre's IT staff began to virtualize much of their data center.

Virtualization saved them time in managing physical servers, reduced the data center space and electrical power that was needed, and enabled them to create more quickly new servers. By moving to cloud computing, though, MercadoLibre's IT staff knew there had to be more efficiencies and an improved end-user experience to be gained. They wanted their internal users to be able to create their own servers, virtual machines, storage, and networks. They knew that they could give their users that ability with the right cloud computing platform. Users would be able instantly to provision themselves with what they needed, without having to wait for a system administrator to create an instance.

To achieve those efficiencies and improvements, MercadoLibre chose OpenStack for several reasons, including its flexibility and its ability to scale. Scalability is also what led them to Galera Cluster for its massive increase in data volumes.

### Challenges

Mercado's main challenges in terms of their data & database strategy were of a technical nature. The active-standby schema of MySQL Cluster or DRBD didn't scale properly for them. They needed an actual active-active solution that would scale simply in processing power when adding more nodes without having to deal with failing failovers. They wanted to scale without limits.

Their private OpenStack Cloud is constantly growing with more services being added. They needed a solution that would scale with the same speed and ease as their cloud to support the data growth. They needed to find a solution to replace their existing database that consisted of MySQL with Heartbeat, as well as DRBD (active - backup) solution schema.

### Solution

#### Quick Facts

- Established in 1999
- Retail Industry
- About 5,000 employees
- 1500 Ubuntu Linux servers
- Headquarters in Buenos Aires, Argentina



#### Related Sites

- [MercadoLibre](#)
- [OpenStack](#)
- [Codership](#)

#### About Mercado

MercadoLibre is the largest e-commerce ecosystem in Latin America. It provides an on-line trading platform in which 58 million consumers use to buy and sell a variety of consumer items and much more in South America.

Mercado, the company behind MercadoLibre, offers a wide range of services to its sellers and buyers throughout the region, including marketplace, payments, advertising and e-building solutions. It operates in thirteen countries across South America. Based on unique visitors and page views, it is a market leader in the major countries where it operates.



The Mercado staff knew from the outset that they would want to implement an open source solution for their database strategy. They considered at first PostgreSQL XL, but eventually opted for Galera Cluster. There were several reasons for choosing Galera Cluster, one of them being that their database of choice also needed to be supported by OpenStack. The three most important criteria for their evaluation were scalability, avoidance of dealing with failing fail-overs in a no-go high availability schema, and guaranteed data persistence, consistency and availability.

They decided finally to implement Galera Cluster for the following reasons:

- Active replication;
- Active – active schema;
- Failoverless design;
- Cost (no licence fees); and
- Scalability.

The overall solution is a well thought through combination of technologies: They used Openstack for cloud orchestration and deployment with about 1,200 physical servers and more than 10,000 virtual machines. The Galera clients are mainly the Openstack nodes and their orchestrator for managing API's uses Python and SQLAlchemy to interact with MySQL. The Galera Cluster consists of 9 nodes (8 actives – 1 NOR) balanced by an F5 bigIP load balancer with more than 80 databases across the cluster and over 700 queries per second per node.

Implementing Galera Cluster took little time, mostly because it's very easy to use and to understand. They tested initially the solution for about three months and then went into production, as there was some urgency to replace their existing MySQL solution. Now, if they need to scale they just add nodes without downtime or any similar challenges which they faced previously.

The staff took advantage of Codership's support, training and consulting services, which proved very beneficial. This contributed to significant performance improvements and helped them significantly throughout the course of the project.



## Results

Now that their new database solution is deployed, MercadoLibre reports great cost savings, scalability that will lead to further cost savings and an ease of deployment that wasn't possible before. Just as crucially, they now enjoy real availability.

"No downtime leads to revenue and the best user experience; and for an e-commerce site that means everything.", their staff noted. Their new solution provides them with many advantages they didn't have before: dynamic scaling with no downtime; 100% availability, all year long; and active / active query handling.

MercadoLibre expects its business to grow even faster, but the IT staff no longer will have to spend so much time



## About Codership

Codership Oy provides high availability, no-data-loss and scalable data replication and clustering solutions for open source databases. Codership's flagship product is Galera Cluster™ for MySQL, a True Multimaster Cluster based on synchronous replication. Galera Cluster is an easy-to-use, high-availability solution which provides high system uptime, no data loss and scalability for future growth. For more information about Galera Cluster, please contact [info@galeracluster.com](mailto:info@galeracluster.com)

deploying and managing their infrastructure. Their developers will be able to provision automatically with the resources they need. “We’re opening two more data centers in the U.S. and our cloud solutions are going to be hosted there. Naturally, the data is going to be handled by MySQL Galera clusters.”

They staff at MercadoLibre added that “[they] could not be happier with the product and the support provided by the Codership staff. It’s just great and we encourage everyone to try it and use it. Of course, one needs to consider things such as locking in a shared active-active schema in the application or abstraction layer, but we don’t see that as a downside to the solution, it’s simply the nature of it. We love Galera Cluster and we invite anyone who is interested to check out our implementation.”

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