MySQL Cluster Powers Rapidly Growing eCommerce Service

eCommerce Service Provider

OS: Debian Linux

Hardware: IBM xSeries Servers

Database: MySQL Cluster

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

Sean Collier
CIO & COO, Shopatron Inc.

Shopatron Overview

Shopatron is one of the world's leading consumer goods eCommerce and order management service providers. Using Shopatron's eCommerce services, orders placed on manufacturers' websites are offered to a managed network of global partners for fulfillment, typically for assignment to local retailers. Local fulfillment translates to faster order delivery and motivated fulfillment partners who stock more inventory. It also facilitates local in-store pickup, a convenience valued by many online shoppers.

In addition, Shopatron offers consumer and retail call center services to support manufacturers' eCommerce supply chains, and have also started to run private order exchanges for large retail chains.

Since their founding in 2000, Shopatron has grown to provide the eCommerce and order management operations for 700+ global and local manufacturers, with over 10,000 retail partners, operating in eight currencies and three languages across North America and Europe.

The Business Challenge

As Shopatron's business began to grow, so did the demands placed on the web and eCommerce infrastructure. Each new manufacturer brand using Shopatron's services added anything from 100 to 1,000 new retailers. All new orders were loaded into the eCommerce system and persisted to a back end database, typically in daily batch runs via XML-based transactions. All new orders were then accessed over a secure web connection once a day by the manufacturer's retail partners, who would then bid to fulfill the order, based on their local stock availability.

The daily cycles of new order entry and then access by retail partners placed enormous peak demands on Shopatron's eCommerce systems, which were amplified by 4x between the Thanksgiving and Christmas Holiday periods.

Shopatron had built their eCommerce infrastructure on a largely open source stack of software components including Debian Linux; the Apache web server and PHP. The back-end database had been deployed on an SMP (Symmetric Multi-Processing) server running a single proprietary database instance.

As the demands to scale the infrastructure grew, so the database became a bottleneck. Shopatron were aware that they needed to employ a scale-out approach to their database layer, distributing the database over smaller, commodity nodes in order to manage costs and to keep pace with the volume of orders and retailers as their business grew.

Shopatron needed a database that could handle very high volumes of concurrent reads being placed on their eCommerce database by the retail partners of their

manufacturer customers. To achieve continuous availability and meet stringent Service Level Agreements (SLAs), they needed to eliminate any single point of failure from their database infrastructure. Shopatron also needed to ensure they selected a database that offered Operating System flexibility, especially one that would run and be supported on Debian Linux.

The MySQL Cluster Solution

In 2006, Shopatron began investigating clustered database solutions that would provide the performance, scale and availability demanded by their growing eCommerce business. Having used the MySQL Server for several internal projects, they were aware of the performance and reliability offered by MySQL technologies. They were also aware that MySQL offered a real-time, high availability implementation of the database called MySQL Cluster, so Shopatron took the decision to download the product and begin evaluations.

To support the evaluation, Shopatron's developers and DBAs (Database Administrators) visited the annual MySQL User Conference where they were able to meet directly with MySQL Cluster engineers and consultants, from whom they captured best practices in configuration, schema and query optimization. Following the User Conference, Shopatron were able to apply these best practices to their evaluation, optimizing all of their queries that resulted in significant performance improvements when compared to their legacy database. Primary key-based look-ups and queries that took three seconds to run with their existing database were executed by MySQL Cluster in just two milliseconds. Through additional testing they discovered that the distributed and parallel architecture of MySQL Cluster was able to handle a much higher load of read and write operations than other clustered databases under evaluation.

Shopatron was also able to take advantage of the wealth of on-line support and resource offered by the MySQL community, often receiving answers to questions much more quickly than the paid-for support they had contracted from their existing database vendor.

As a result of their evaluation, Shopatron selected MySQL Cluster to power their eCommerce services, and deployed the technology into production in 2006. MySQL Cluster provides the back-end database for the entire eCommerce fulfillment engine, from storing all order data, managing retailer stocking lists, tracking order fulfillment status and providing user authentication services.

Shopatron purchased both licenses and support for MySQL Cluster at a fraction of the costs of alternative products.

Shopatron and MySQL Cluster Solution Overview

- MySQL Cluster powers the database for one of the world's largest eCommerce Service Providers
- Shopatron delivers eCommerce services for 700+ manufacturers, with over 10,000 retail partners, operating in eight currencies and three languages
- Shopatron selected MySQL Cluster on the basis of low cost scalability, high performance and extreme levels of reliability
- MySQL Cluster supports several thousand queries per second, managing order information, tracking status, stock levels and user authentication
- MySQL's distributed, shared nothing architecture has been key to supporting Shopatron's performance and availability requirements

"We have experienced two instances of hardware failure over the past couple of years. MySQL Cluster was able to instantly failover, avoiding any service interruption to our users. When we added replacement hardware, MySQL automatically re-synchronized it with the rest of the cluster, with no intervention from my team. It is an awesome technology"

David Dalrymple
VP Engineering, Shopatron Inc.

Due to the reliability and stability of MySQL Cluster, Shopatron were also able to eliminate the costs they incurred from a 3rd party vendor who had been monitoring and supporting their existing legacy database. Shopatron annually renews their support contract for MySQL Cluster, providing additional expertise when needed.

The Future with MySQL

Shopatron rely on MySQL Cluster to support the high performance, scalability and availability demands of their eCommerce application. Shopatron are now exploring advanced replication technologies to load data from MySQL Cluster tables into database engines optimized for complex query analysis and business reporting.

MySQL Cluster

The Leading Open Source, High Availability Database for Real-Time, Mission Critical Applications

MySQL Cluster is the industry's only true real-time database that combines the flexibility of a high availability relational database with the low TCO of open source.

Carrier Grade Availability

MySQL Cluster features a "shared-nothing" distributed architecture with no single point of failure to assure 99.999% availability, allowing you to meet your most demanding mission-critical application requirements.

High Throughtput and Low Latency

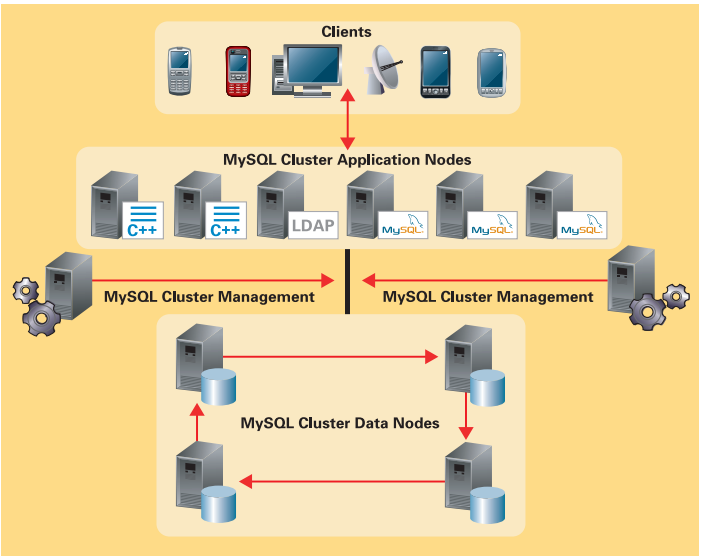
MySQL Cluster's real time design delivers consistent, millisecond response times with the ability to service tens of thousands of transactions per second.

Linear Scalability

Support for disk based data, automatic data partitioning with load balancing and the ability to add nodes to a running cluster with zero downtime allows almost unlimited database scalability to handle the most unpredictable web-based workloads.

MySQL Cluster Target Applications:

- AAA / RADIUS / Diameter Data Stores
- Application Servers
- Data Store for LDAP Directories
- DNS/DHCP for Broadband
- eCommerce
- Mobile Content Delivery
- On-Line application stores and portals
- Payment Gateways
- Service Delivery Platforms
- Subscriber Databases
- VoIP, IPTV & Video on Demand
- Web Session Stores



The MySQL Cluster architecture has been designed for 99.999% availability and delivers massive read/write scalability

About MySQL

MySQL is the most popular open source database software in the world. Many of the world's largest and fastest-growing organizations use MySQL to save time and money powering their high-volume Web sites, critical business systems, communications networks, and commercial software. At **www.mysql.com**, Sun provides corporate users with premium subscriptions and services, and actively supports the large MySQL open source developer community.

For more information, go to **www.mysql.com/cluster**

To learn more about MySQL in the Telecommunications industry, go to **www.mysql.com/communications**

MySQL Sun microsystems

The World's Most Popular Open Source Database