

# Case study: World-class scalable eCommerce

Critical infrastructure for one of the fastest-growing eCommerce services in Latin America

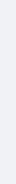


## About Tiendamia

Online store based in Miami, USA, with more than 1,000 million new and original products from the best brands in the United States and around the world. Tiendamia is a logistics technology company that disrupts and solves crossborder ecommerce for developing countries.

## About Netlabs

Open Source Boutique Company with more than 20 years of experience, specialized In DevOps, Big Data/AI, SRE/Cloud and High Performance Scalable Systems for e-government, telco and tech startups.



## Critical infrastructure for one of the fastest-growing eCommerce services in Latin America

In the last years, Tiendamia has changed crossbordering ecommerce in Uruguay, Argentina, Brazil, Costa Rica, Ecuador and Perú by providing a unified platform for buying in some of the world's biggest online retail stores, like Amazon, eBay and Walmart.

In their growth process, Tiendamia chose Netlabs as their reliability engineering partner, for facing the challenges of receiving every year more customers from different countries, balancing innovation and stability even in orders-of-magnitude traffic peaks, like yearly Black Friday's promotions.



## Challenges

- Accompany Tiendamia's **infrastructure growth** with a long-term view.
- Make sure their systems are **available** 24/7, minimizing outages even during AWS service issues.
- Be able to quickly **scale** orders of magnitude the amount of supported users for promos like yearly Black Friday.



## Keys to success

- Systematic application of **AWS** Well-Architected Framework good practices.
- **Collaborative work** of Netlabs and Tiendamia for pushing forward necessary infrastructure improvements.



## Results

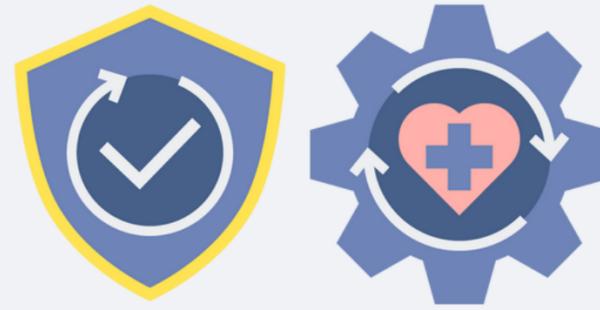
- High eCommerce site **availability** and **reliability**.
- **Capacities generation** for permanent infrastructure maintenance at low costs.



## The challenge

Tiendamia had a database started by them in AWS in 2014, which had been growing steadily together with their eCommerce solution and other software pieces, but in some cases processes depended on sysadmins inspiration and database safety was not guaranteed in many scenarios.

In August 2020 Netlabs teamed up with the Tiendamia infrastructure team with the goal of structuring the network topology properly while stating policies and working processes that secure and robustify the database as well as all related software pieces.



## A safer and more robust database

In a structural review, we had to tune up the subnets and tighten the Security Groups to avoid any possible insecure access to the databases. We also set up and secured a replica for the main database, to be used for management and marketing queries (using a bridged Tableau, among other tools) without impacting production performance, as well as for having a failover system in case of an Availability Zone outage.

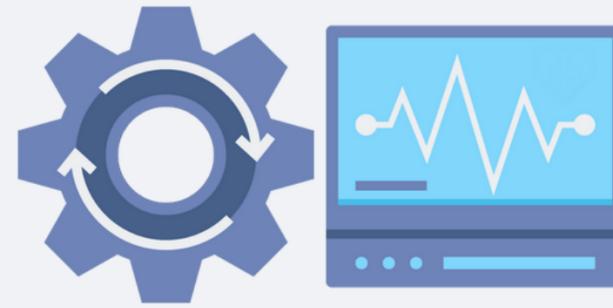
In addition to the topology review, we used KMS to have all data encrypted at rest, also making sure that all data that travels out of the VPC goes encrypted. We also set up a least privileges policy for databases and AWS accounts. Additionally, to protect sensitive data, we restricted bulk data access even to the development team, by creating deployment scripts that automatically set up the database application access password through Secrets Manager.



## Availability & scale

Regarding database availability, in addition to setting up a replica in a different AZ and automating backups in a different region, **failover scripts and procedures** were implemented so that **the system can be recovered** even in the case of AWS services outages that involve more than one AZ or region, in compliance with stated availability guidelines.

Scaling up processes were stated to be prepared for unexpected peaks as well as marketing pushes and high-traffic events like Black Friday.



## Automation & monitoring

All the infrastructure well-functioning was complemented with automation tools for the rest of the infrastructure, like autoscaling groups for the application servers and Ansible playbooks for all business-critical server instances.

The system well-functioning is now monitored through a set of health indicators integrated to CloudWatch, capturing information not only from inside the VPC but from external sources like Google Analytics, permitting for example knowing the per visitor efficiency of the whole architecture, having alarms set up and a fluent permanent support scheme. Complementary, we proceduralized periodical database performance optimization, taking the most out of AWS Performance Insights tools.

## Conclusion

We went through an in-depth infrastructure review, having as guidelines the AWS Well-Architected Framework, which led to a safer, more robust and available infrastructure that takes the most out of RDS and a broad set of AWS services without incurring in infrastructure cost increases.



