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case study

Redis Labs Provides Zero-hassle Redis and Streamlined Operations at Twitter

"Redis Labs' Redis Cloud is the most cost-effective and least operational overhead way to deploy Redis."

- Mohammad Almalkawi
Twitter Staff Engineer

Periscope Requirements

- Need extremely high throughput, low latency persistent data store for frequently accessed data
- Need this data store to be simple to use, low maintenance, and always on

Redis Cloud Benefits

- Zero operational hassle, no maintenance worries
- True high availability—no outages, no latency issues
- Faster and more up to date with latest Redis functionality

Executive Summary

Twitter's live-streaming platform Periscope runs extensively on AWS and uses Redis as an indispensable part of its API infrastructure. Seamless operation and high availability of Redis are essential to their operation, as every API touches Redis. Redis Labs' Redis Cloud delivers true high availability for Redis, with minimal engineering effort and with all the latest features.

Twitter's Periscope

Periscope is a live video streaming application. It is well-integrated into the Twitter platform and is used by millions of users. Its backend infrastructure runs on AWS. Redis is used at multiple layers in their backend – particularly to handle the team's high throughput and low latency goals needed to meet the scale of usage.

Redis was chosen because of its performance and blazing fast data structures which make key functionality really easy to implement. Redis is used both for caching and as a persistent datastore. Caching is implemented at several layers inside Periscope's backend and every API touches Redis in some way. Periscope stores hundreds of GBs of data in Redis.

Redis is used alongside other databases and other commercial and homegrown solutions. Redis usage is determined by data access patterns. Data that is needed very frequently is stored in Redis, data needing slower/infrequent access is stored in other databases. Periscope's stack is based on Go, uses Docker for deployment and uses many AWS services.

Mohammad Almalkawi and his team are responsible for API and backend database design for the Periscope service at Twitter. With scalability and reliability of the API as their primary concern, Mohammad's team had set out to ensure low latency, high availability and reliability for their Redis deployment.

Solving for High Reliability with Minimal Operational Overhead

The team wanted high reliability for their Redis layer, but at the same time they wanted to minimize any operational overhead of running Redis. They did not want to spend in-house resources on operating and managing Redis.

While evaluating different options, the team found that, in most cases, they would have had to build substantial Redis operational expertise themselves to ensure a reliable deployment. With Redis Cloud, they found the solution that provided them with the zero-touch, zero-hassle service they needed.

High availability was another issue with other options evaluated—detecting and recovering from failures took too long and would have had too serious of an impact to availability. Redis Cloud, on the other hand offered seamless scaling without any downtime, in-memory replication with instant failure detection and automatic failover within seconds.

“Redis Labs’ service requires the least amount of operational effort and delivers true high availability to our Redis deployment,” says Mohammad Almalkawi, Staff Engineer at Twitter. “It also delivers new Redis functionality with fewer delays than other services.”

Results with RLEC

Redis Labs’ Redis Cloud delivers the stable high performance needed for Twitter’s extensive infrastructure with almost zero engineering effort. It doesn’t suffer from outages or latency issues and doesn’t require specialized Redis expertise to manage it. On comparing other alternatives to Redis Labs, Mohammad found his choice was justified—other options would require too high an investment in building operational Redis expertise and too much worrying about availability or maintenance. Redis Labs’ Redis Cloud turned out to be the most cost-effective way to deploy Redis.