CASE STUDY

Solving User Experience with Precision Online Advertising

How Aerospike helps AdTalos Precisely Target Users in Online Advertising Scenarios

About AdTalos

AdTalos (www.adtalos.com) is an online advertising company that focuses on mobile advertising intelligent placement and mobile media monetization services, supporting full-scenario ad placement and monetization.

BENEFITS WITH AEROSPIKE

- Reduced Memory Usage from 750GB on their Redis Cloud Cluster to 290GB with Aerospike Enterprise Edition (EE)
- 5x times faster than Cloud Redis Cluster while reducing cost 50%
- EE Deployment Time of 1-2 days
- 24/7/365 Technical Support and Aerospike Partnership in Deployment

CHALLENGES WITH REDIS CLUSTER IN THE CLOUD

AdTalos had struggled with the deployment of their Redis cluster in the cloud because the cost was beyond their budget and support of flash and SSD memory proved challenging for the AdTalos implementation teams.

Challenges with Support and the Price of Latency

While AdTalos had begun to deploy the Redis cloud cluster they realized that they would not be receiving 24/7/365 support and would have to factor such support into their budget. The main fiscal discussions were about the amounts of data only without any consideration of the support and deployment assistance they would want from their data platform vendor.

Aerospike, by contrast, provided full support that allowed AdTalos to communicate directly with the Aerospike support staff and engineers. Aerospike provided AdTalos business guidance to help them implement and manage their clusters more efficiently. Plus, they continued to receive ongoing support to help solve future issues making Aerospike a data partner and not just as a data platform.

AdTalos' data platform needed to support quick restarts. Simply put, their Redis cloud cluster was not able to accomplish this as efficiently as Aerospike. Specifically, the Aerospike Enterprise Edition enables quick restarts in tens of seconds using shared memory. Before having Enterprise Edition, it could take several hours to restart hundreds of gigabytes of data at a time, which is hardly acceptable and has a significant impact on the AdTalos business.

BUSINESS REQUIREMENTS

AdTalos needed a low latency data platform that could power their mobile advertising intelligent placement, mobile media monetization services and support full-scenario ad placement and monetization. Their business needs were:

- Managing and identifying 2 billion device IDs (IMEI and Android ID), mainly on the Android platform.
- Executing plaintext mapping from Md5 for the 2 billion IMEI/Android IDs.
- 24x7x365 support, consultation and guidance on clusters and business objectives.

AdTalos' Operational Requirements

- Read latency less than 5 milliseconds
- Reduction of memory usage
- Reduction in total cost of ownership (TCO)
- Ability for quick restarts in just tens of seconds using shared memory

> *"Aerospike also stores all data on disk, which can reduce costs. For many users, Aerospike is very simple, with an exquisite architecture, which is certainly attributed to the great support of Aerospike technology. They increase the complexity and solve all the complicated technical issues internally, but offer a simple interface to users, which is not easy."*
>
> Cui Yingjie
> CTO, AdTalos

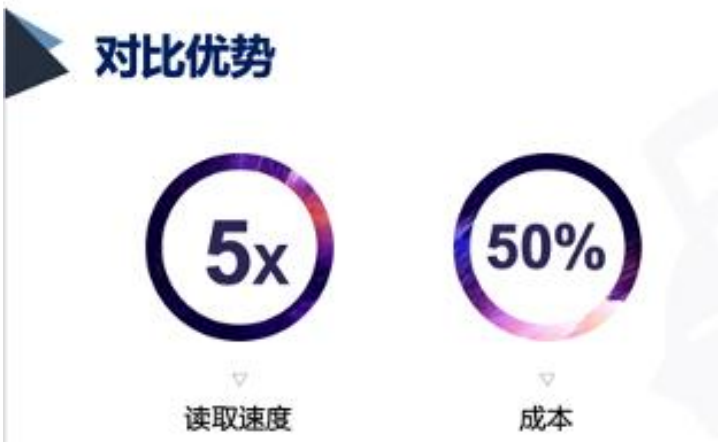
WHY AEROSPIKE

Compared to the other solutions that were being evaluated, the main drivers that made Aerospike so attractive to AdTalos was its low total cost of ownership, high performance at scale, and ease of scaling overall. The Aerospike engineering team has become partners with AdTalos, to solve the company's cluster management issue and give guidance on how to best scale their solution as their data is growing exponentially. This gave AdTalos a tremendous level of confidence with Aerospike.

BENEFITS WITH AEROSPIKE

During the initial deployment with Aerospike, AdTalos utilized a shared-nothing architecture (SNA), the Gossip algorithm to configure a cluster and then select the node (primary or replica) so that the data was uniformly and randomly distributed to all of the nodes in an accessible and simple deployment that would be easily maintained.

When AdTalos switched completely to using Aerospike from the Redis cloud cluster, they saw immediate improvements on a number of axes:



- 5x Performance. According to AdTalos' performance benchmarking in the validation stages they found that Aerospike was 5 times faster than the Redis cloud cluster. They have tested that with similar mapping and the scale of their growth that they can achieve 10x performance.
- 50% Cost of Storage. Aerospike stores twice as much data as Redis at the same price, or even more. As the AdTalos business volume grows, the cost will continue to be forecasted at most half, if not less than half that of what Redis in the cloud could provide.

- 100% Stable after Deployment. Since the AdTalos team has deployed Aerospike instead of the Redis cloud cluster, there has been no maintenance necessary. They instead have found that they are able to focus on working with the engineering team to strategically plan their scaling priorities rather than ongoing maintenance.

> *"In brief, Aerospike is very fast, 5 times faster than Cloud Redis cluster, which has greatly exceeded our expectations. If we have similar mapping requirements in the future, we can query a few more times, at least 10 times without a problem."*
>
> **Cui Yingjie**
> CTO, AdTalos

TOTAL COST OF LATENCY: AEROSPIKE VS. REDIS CLUSTER IN THE CLOUD

In the verification of the production environment, the AdTalos technical team was not large, and they had chosen Redis as a cluster in the cloud. They used two 256GB clusters, and the cost was 38,400 yuan per month which met their basic requirements. The read latency was only 2.5 ms, but the price and cost were average. But after they tested Aerospike, they immediately gave up the Redis cloud cluster, because the read latency of Aerospike was incredibly low, only 500 µs (i.e., 0.5 ms). In addition, Redis in the cloud used 360GB memory to store each copy of data. Memory usage was averaging 700GB in addition to below-average monitoring it was unclear to their team just how much storage and disk usage was being charged and used.

When AdTalos deployed Aerospike, the replication factor was set to 2, so the data was stored in just 2 copies. But the memory used in Aerospike was only 290GB, much lower than Redis. Memory usage is very important as it relates directly to cost. Furthermore, Aerospike charges based on native data volume - not replicas. As of today, the AdTalos data volume is 450GB. The total volume, including other business data, has reached 700GB and is still growing but is able to scale easily with Aerospike's data model.