

REPORT REPRINT

Aerospike embraces digital-transformation trend with hybrid memory NoSQL database

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The NoSQL database firm with an SSD-based and DRAM-based architecture reports healthy year-over-year growth. With an eye on enterprise clientele, Aerospike is looking to ride the digital transformation wave as a means to drive future growth.

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With its differentiated architecture – often referred to as a hybrid memory architecture – that leverages solid-state memory (SSD) as well as DRAM, Aerospike has reported healthy growth numbers. Having established itself with ad-tech firms, the company is seeing increasing adoption for its NoSQL database among enterprise clients such as financial services, gaming, telecommunications and the like. With momentum rising, the company is looking at the digital transformation movement as its path forward.

THE 451 TAKE

While other NoSQL vendors are pushing multiple data models, Aerospike is doubling down on its singular key-value database model powered by the company's hybrid memory architecture of DRAM and flash-based memory. That formula is serving the company well - it reports solid growth numbers, low churn rates and broader adoption beyond its core user base of ad-tech. The pickup of several well-known enterprise clients is particularly encouraging. The trend to digitize is certainly real, but Aerospike is not the only NoSQL firm looking to capitalize on this trend. In competitive situations, however, it helps to have some differentiation, and Aerospike certainly has that.

CONTEXT

Looking back at our previous coverage of Aerospike, we find a company that has weathered some changes that, for the most part, have benefited it. Aerospike was founded in 2009, and in 2014, it launched a community edition open source offering to complement its enterprise offering.

That was significant in driving developer street cred and community-driven efforts, as well as broader adoption, with Aerospike reporting increased customer numbers. In early 2015, the company brought in John Dillon as CEO; he helped drive efforts to expand beyond ad-tech.

Today, the company reports positive traction with enterprise accounts, which constitute approximately 80% of its current pipeline. While ad-tech continues to remain a strong customer segment for Aerospike, the company is seeing growth in other areas, such as financial services, gaming/betting, telecommunications, e-commerce and technology.

Overall, customer count is sitting at approximately 150 global customers, where the company previously reported 140. While the goal is to continue attracting enterprise clientele, Aerospike also employs a land-and-expand strategy, and management reports that year-over-year growth is sitting at 80%.

The company is based in Mountain View, California, with an additional office in Bangalore, India. There are 70 employees, and it has taken in \$38m in funding.

STRATEGY

Looking forward, Aerospike plans to focus on the digital transformation trend that is affecting many organizations. The term digital transformation suggests that enterprises, as a means to stay competitive and cut costs, invest in digital technologies and processes, which generally involve leveraging 'digitized' data.

As such, Aerospike views 'systems of engagements' as playing a key role in this trend, and identifies its NoSQL database as one of these systems, particularly with its differentiated architecture.

TECHNOLOGY

At a high level, Aerospike is a NoSQL key-value database. The differentiated architecture lies in the company's use of SSDs or flash memory combined with DRAM – what the company calls its hybrid memory architecture. Compared to other systems, Aerospike would be the equivalent to the caching and operational database layer in those other environments, which illustrates that the company positions itself as a type of transactional system.

Aerospike notes that the hybrid architecture approach can be new to many organizations, and a potential hurdle in some sales situations. However, the company often claims numerous benefits of its differentiated architecture. One is a favorable total cost of ownership (TCO).

It says, for instance, that in comparable systems with close to 170 servers leveraging DRAM and HDDs (hard disk drives), the difference could be as much as a 10x performance uptick and 10x fewer servers. The performance boost, says Aerospike, comes from its patented optimizations, which allow it to write directly to the SDDs, bypassing the OS for certain processes.

Other noted capabilities are cluster management, which includes what the company calls its Cross Datacenter Replication, driving high availability as well as providing dynamic (as opposed to manual) sharding, along with self-healing servers in case of a failure.

USE CASES

Ad-tech is still, and will continue to be, a good fit for Aerospike; however, the company is working hard to broaden its adoption in other verticals. A few use cases are worth mentioning.

Ad-tech company Inmobi was already using Aerospike for real-time ad serving, but expanded with the addition of an Aerospike instance to handle 'actionable insights.' A Fortune 500 financial services firm is using Aerospike as a system of record for trading. It replaced a relational mainframe system that also leveraged a front-end cache.

In the telecommunications space, Nokia and a global telecommunications company use Aerospike at the edge to regulate and manage traffic related to customer account information and billing. A Fortune 500 global payments company leverages Aerospike for fraud prevention regarding credit cards, which was previously handled by a relational system with a caching front end.

COMPETITION

As a key-value NoSQL database, one that Aerospike promotes as a transactional system, the competitive field consists largely of other NoSQL vendors, traditional relational databases paired with caching systems, as well as in-memory databases. Management notes that in the majority of competitive situations, Aerospike is targeted to replace another database.

On the relational database front, there is Oracle Database, IBM DB2, PostgreSQL, SAP and Microsoft SQL Server. Oracle Database could easily be paired with Oracle TimesTen or Oracle Coherence. Other cache-based systems include Pivotal's GemFire (Apache Geode) and Software AG's Terracotta.

On the NoSQL front, Aerospike notes seeing Apache Cassandra and DataStax regularly. Couchbase and Redis Labs are other close competitors. Couchbase, a key-value and document model database, likewise positions as a system of engagement, or what the company refers to as an 'engagement database.' Couchbase can also function as a cache and SDDs can be leveraged.

Redis Labs, a key-value NoSQL database, maintains a reputation as an in-memory cache, although it can also persist to disk and function as a stand-alone database. Redis Labs can leverage flash memory as a type of RAM extender. Other potential NoSQL competitors include MongoDB, MarkLogic, MapR-DB, FairCom, Oracle NoSQL Database and Basho's Riak.

On the in-memory front, all of the larger vendors will have some sort of in-memory capability. However, there is a slew of other in-memory vendors that include SAP HANA, MemSQL, VoltDB, Altibase, GridGain Systems, Hazelcast and ScaleOut Software.

SWOT ANALYSIS

STRENGTHS

The company's differentiated hybrid architecture, leveraging both DRAM and flash memory, drives a low-TCO, performance and scalability strategy.

WEAKNESSES

Aerospike's reputation has been largely confined to the ad-tech space. But that has been changing with the pickup of more enterprise accounts, increasing the company's profile overall, which is somewhat lower than other players in the space.

OPPORTUNITIES

While enterprise accounts continue to be the focus for Aerospike, the company can also appeal to midmarket firms that are often cost conscience and will likely grow over time, which bodes well for its land-and-expand strategy.

THREATS

There are a particularly high number of NoSQL vendors, including those that offer the popular key-value data model as part of their database offering. While not all key-value data stores are created equal, Aerospike's hybrid architecture is different enough that at times it can be a sales hurdle as the company educates prospective customers on the benefits.