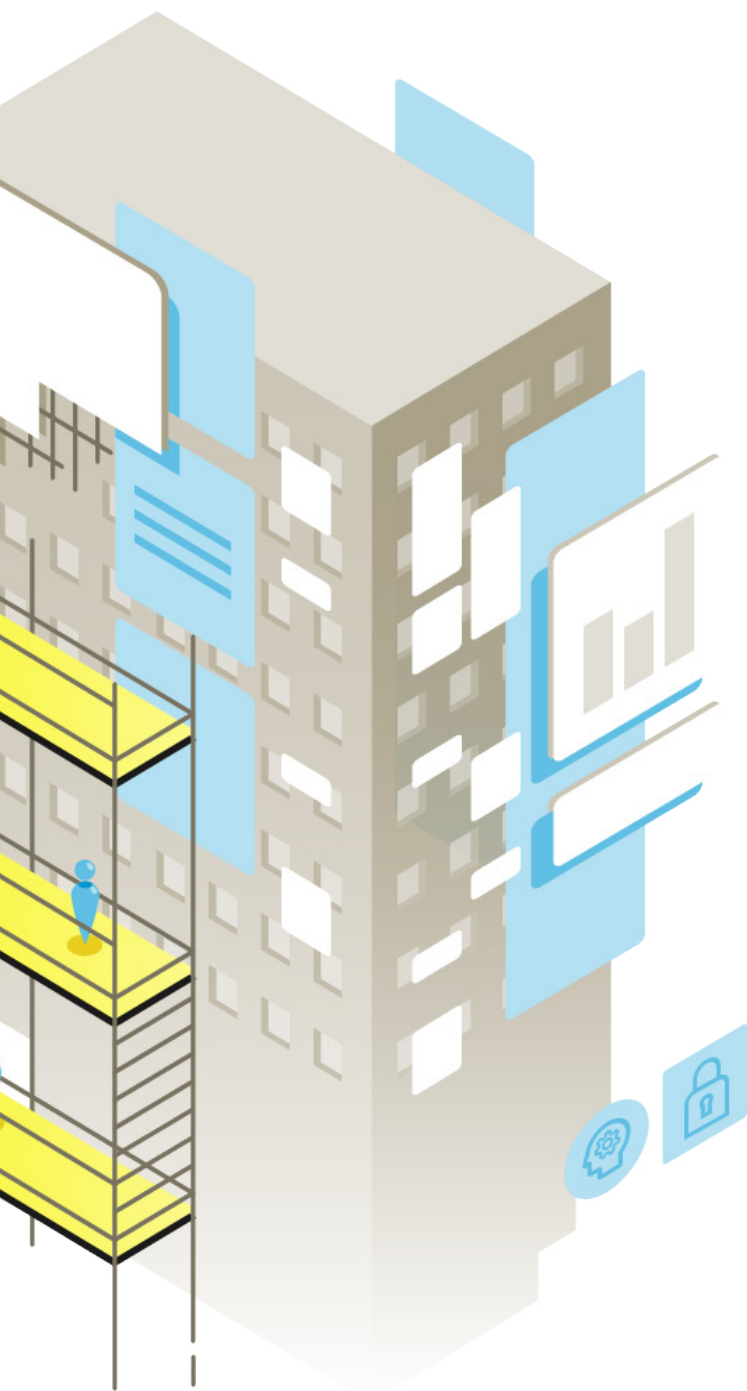SOLUTION BRIEF

# Enhancing AdTech operations

# Introduction

The AdTech landscape is undergoing rapid transformation, characterized by an increasing volume of data and heightened performance demands. AdTech companies face challenges such as handling massive data loads, ensuring scalability, and maintaining cost efficiency while delivering reliable, high-performance solutions. Traditional data infrastructures struggle to meet these requirements, making it imperative for AdTech companies to adopt advanced technologies.

Aerospike offers a robust solution to these challenges, providing the necessary capabilities to handle large-scale data processing, maintain consistent performance, and optimize costs. By leveraging its unique architecture and innovative features, AdTech companies can enhance their operations, stay competitive, and drive growth.

# High throughput and unlimited scale

Aerospike is designed to handle the extreme demands of AdTech environments, where processing millions of ad requests per second is the norm. With an architecture built for unparalleled scalability and throughput, Aerospike ensures that AdTech companies can maintain peak performance even as data volumes grow from gigabytes to petabytes.

### Handling ad requests

Aerospike Database excels at managing millions of ad requests per second with unmatched efficiency, even during peak times. This capability is critical for real-time bidding and ad delivery, where speed and reliability are essential. With support for up to 200 million transactions per second (TPS), Aerospike can manage large-scale operations with ease.

### Predictable performance

Aerospike maintains consistent performance regardless of data volume, ensuring that AdTech systems can handle varying loads without compromising speed or efficiency. Aerospike surpasses uptime targets with sub-millisecond latency, vertical and horizontal scalability, and accelerated feature delivery, preventing SLA penalties.

# Scalability and high availability

In an industry where milliseconds can make or break success and data volumes continue to expand at unprecedented rates, Aerospike offers AdTech companies a robust, scalable solution that ensures high performance and availability under any workload. By delivering predictable performance with ultra-low latency, Aerospike not only meets but exceeds the rigorous demands of AdTech operations, enabling companies to achieve their business objectives without sacrificing efficiency or reliability.

### Horizontal scalability

Unlike traditional databases, which are often limited by single-machine constraints, Aerospike distributes workloads across multiple servers. This design enhances the capability to manage vast data volumes, ensuring high-performance operations without a hitch, even during peak times.

### High availability

Uninterrupted service is crucial for AdTech companies. Aerospike is engineered to deliver 99.9999% uptime, minimizing the risk of downtime that can lead to revenue loss. Features like automatic failover, and replication safeguard operations against hardware failures or network issues.

# Cost efficiency

Managing costs while maintaining high performance is a balancing act many struggle to achieve. Aerospike combines cutting-edge technology with smart resource management to redefine efficiency. By leveraging this cost-effective infrastructure, AdTech companies can significantly reduce operational expenses without sacrificing performance, ensuring investments drive maximum value and support sustainable growth.

## Hybrid Memory Architecture™ (HMA)

Aerospike's Hybrid Memory Architecture™ (HMA) combines DRAM and Flash storage to optimize cost and performance. This design ensures companies can manage extensive data sets without incurring the high costs typically associated with large-scale DRAM usage, leading to substantial savings.

## Server compression

Through advanced data management techniques, Aerospike effectively compresses server usage, minimizing the infrastructure required to handle large volumes of data. This results in reduced energy consumption, contributing to a more sustainable operation aligned with global green initiatives.

## Reduced infrastructure costs

Aerospike's high-performance data processing, optimized server utilization, and lower energy consumption can reduce infrastructure costs by up to 80%. This enables companies to allocate more resources towards innovation and growth, ensuring they remain competitive in a rapidly evolving market.

## Alignment with Net Zero 2030 initiative

The commitment to energy efficiency also supports broader environmental goals. By optimizing power usage and reducing the overall number of servers needed, Aerospike helps companies align with the Net Zero 2030 initiative, contributing to a more sustainable future while maintaining top-tier performance and scalability.

# Case study highlight

**Background:** Criteo is a leading global technology company that handles over 18,000 customers and serves five billion ads daily. Criteo needed a robust infrastructure to manage its substantial data and performance demands.

**Challenges:** Criteo's existing infrastructure, using Memcached and Couchbase, struggled with:

- Meeting increasing data demands
- Reducing server count
- Performance, scale, and speed limitations

**Solution:** Criteo chose Aerospike to modernize its data infrastructure. Aerospike provided:

- **Up-to-date technology:** Transition from outdated version of Couchbase to Aerospike Database Enterprise Edition
- **Simplified infrastructure:** Replacing both Memcached and Couchbase with Aerospike to reduce the number of servers from 3,000 to 600.



**CRITEO**

75% fewer nodes with Aerospike

3200 → 800

Couchbase / MEMCACHED → Aerospike
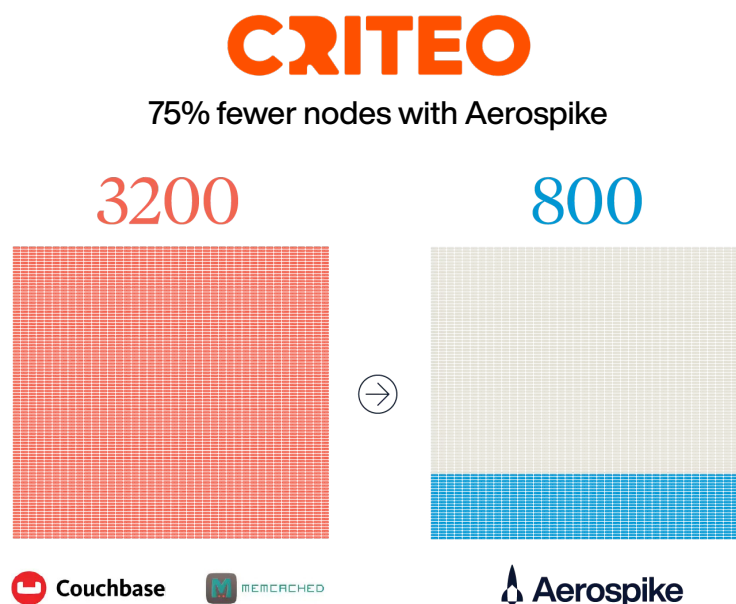
- **Better performance:** Fast, stable, low-latency reads at the 99th percentile, handling 950 billion requests daily
- **Optimized server utilization:** Combining high and low throughput workloads on the same Aerospike cluster to reduce server footprint

**Results:** Criteo's three-year migration to Aerospike resulted in:

- An 80% reduction in carbon footprint
- Achieved sub-millisecond access times with NVMe disks, optimizing data handling for massive ad loads.
- Enhanced reliability and responsiveness, fulfilling customer demands for rapid response times

## Key takeaways:

Staying ahead in the AdTech industry requires scalability, reliability, and cost efficiency to thrive in a competitive landscape. Aerospike Database stands out for handling vast amounts of data and ensuring high uptime.

- **Unmatched latency and throughput:** Aerospike enables AdTech companies to process and analyze vast amounts of data at unparalleled speeds, driving increased revenue and margins through optimized operations.
- **Predictable performance:** Aerospike's robust architecture guarantees consistent performance with over 99.9999% uptime, helping companies exceed SLAs and maintain customer satisfaction without risk of downtime.

> " Our data demands are growing exponentially, and we need a real-time data platform that can handle our current requirements but ensure that we can adapt and scale for what lies ahead.
>
> —Diarmuid Gill | CTO, Criteo

- **Maximized efficiency:** Aerospike reduces infrastructure costs by up to 80% through optimized server usage and supports sustainability goals, ensuring scalable and cost-effective growth.

Choose Aerospike to enhance your AdTech operations with proven success in managing massive data volumes and reducing operational costs. Visit our website or contact our sales team to discover how Aerospike can transform your AdTech infrastructure.

## Aerospike