How InMobi serves 1.5 billion mobile consumers with a personal touch

Mobile Discovery Takes Hold

Advertising has taken on a whole new life in today's mobile-first world thanks to companies like InMobi. App developers, retailers and brands rely on the InMobi Discovery Platform to captivate mobile consumers, inspiring them to engage, endorse and buy. The database that powers key capabilities of this platform is Aerospike.

As the leading independent mobile ad network, InMobi operates in real time on a global scale. Its discovery platform, known as Miip, takes mobile advertising to a new level, ingesting terabytes of data to enable 12 billion "discovery sessions" per day. Its three-fold purpose is to:

- Help publishers promote and monetize their apps,

- Allow advertisers to precision-target audiences with relevant offers, and

- Create interactive, personalized experiences of brands for mobile consumers.

Aerospike Outperforms Hbase and Cassandra

Early on, InMobi's executive team began evolving the Miip platform to meet changing market demands. Platform innovation brought new requirements for the underlying database technology in terms of performance, scalability, reliability, ease and efficiency. These requirements were beyond the scope of Hbase, which they had originally deployed as their key value store. A decision was made to evaluate other database options, including Cassandra and Aerospike.

According to InMobi's Co-founder and CTO, Mohit Saxena, *"We'd been using HBase to store user profiles that were keyed on user/device IDs. Hbase burdened us with a lot of operational overhead. Cassandra required extensive database tuning in order to get performance and meet our SLA. We had to reduce overhead and risk of errors and downtime or our development efforts would be hindered. And we knew these challenges would worsen as our business grew."*

"Our decision was easy. Aerospike was the best choice across the board," Saxena said. *"Aerospike was **easy to deploy**, with out-of-the-box functionality, and it's been **easy to use** every step of the way. **Operational overhead was nearly zero**, and we shaved three months off our launch schedule as a result."*

Business
The world's leading independent mobile ad network

Challenge
To find a database with the performance, availability and ease of management required to support InMobi's disruptive mobile discovery platform.

Results
– Served 1.5 billion active users with 138 billion ad impressions per month
– Processed 150,000 requests per second (peak loads)
– Achieved 5ms responses (in Aerospike)
– Met 20ms SLA
– Maintained zero downtime

"**Speed** is the lifeblood of our business, and Aerospike has exceeded our expectations. We are in the business of delivering native ads to mobile consumers. Even the slightest delay in response reduces the likelihood that a customer will engage with a brand. When an ad request comes in, our best response will be based on real-time access to everything we currently know about the user. Aerospike gets the job done in less than five milliseconds. This in turn allows us to serve more targeted ads within our 20-millisecond SLA."

"The performance we achieve with Aerospike allows us to make much better ad-serving decisions, much faster, ensuring the user of a better experience, resulting in higher conversion rates for our advertisers. It's what makes us a leader among mobile ad networks."

InMobi in Adtech's Real-time Bidding Ecosystem
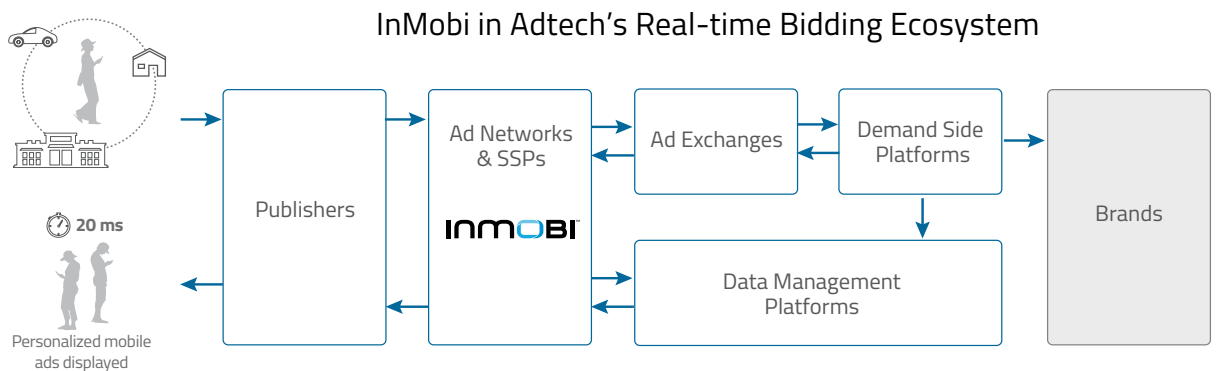
InMobi Goes Global with Aerospike

"As a global ad exchange, our operations span four data centers and business offices in 17 countries to reach users in 100 countries. We operate in a dynamic, real-time environment and need to synchronize user profile data across this distributed infrastructure. Aerospike provides **Cross Datacenter Replication** (XDR) to automate the process while maintaining data consistency."

"Aerospike gives us **scalability with high availability**, allowing us to scale to terabytes of data efficiently. It's simple to add, remove or resize nodes as needed."

"Unlike the other **open source** technologies we evaluated, Aerospike provides knowledgeable **24/7 support** so our developers get questions answered fast without having to drop everything and take a deep dive into documentation."

"We shaved more than three months off the launch schedule for our audience targeting platform. This is due to the fact that we were able to roll out Aerospike so quickly and have it perform optimally in production without weeks of manual database tuning and configuration hassles."

— Mohit Saxena, Co-founder & CTO, InMobi

InMobi's CTO: "Five Ways We Win with Aerospike"

1   In the **ad serving path**. Aerospike enables fast look-ups to enrich our ad request with information about the mobile consumer.

2   On our **audience targeting** platform. Aerospike is our key value store, storing rich user profiles we can leverage to build context when serving ads to them. Aerospike provides the speed and low latency we need.

3   To **enrich streaming data** in the pipeline. Aerospike enables very fast look-ups in the real-time bidding environment.

4   In our **metadata applications**. Aerospike provides look-ups for metadata tasks to support our analytics tools.

5   To **synchronize data**. Aerospike provides consistent data across our data centers on four continents, so we can serve users in more than one hundred countries. Aerospike's Cross Datacenter Replication is an out-of-the-box capability, which freed us from having to build these systems ourselves.

Aerospike Supports Business Growth

"We have 1.5 billion active users on our network and terabytes of user profile data. On a typical day we consume about 12 billion events, and receive about 150,000 requests per second at peak load times. It's all handled in Aerospike. We've been doubling the volume of data annually, and Aerospike has consistently delivered 5-millisecond responses within our 20-millisecond SLA, with no downtime. I am very confident that Aerospike will continue to deliver the speed at scale we need to support this growth."

Leading in the Future

"In the last five years, mobile usage has climbed to an average of more than five hours a day. Tasks that used to take weeks, people can now accomplish in seconds or minutes while they're on the go – like travel planning, applying for a loan, car shopping, tracking investments, even monitoring personal health stats. Mobile users have an expectation of immediacy and five-star service with every mobile interaction. They share more about their activities on social media, rate their experiences, and recommend brands to others."

"At InMobi, we're constantly evaluating mobile user trends like these to understand how people interact with their devices and apps. Aerospike has helped in this regard because we can look at all of our user information, all the time, and make better decisions. It eases data management and works consistently, too, so we can focus on developing our platform rather than troubleshooting our data infrastructure."

"The technology behind all of our services has to be fast, and it has to support personalization. To know and respond to the customer's needs in the moment has been a game-changer for InMobi. With Aerospike supporting the Miip platform, we're in an excellent position to pursue new use cases."

InMobi Discovery Platform (powered by Aerospike)

App Developers	Retailers	Brands
Monetize mobile apps by delivering a rich discovery experience for users, that blends seamlessly with the app.	Convert stores into stories and catalogs into conversations with consumers across apps.	Reach premium mobile audiences programmatically, during moments that matter most, with the InMobi Exchange.

Together, InMobi and Aerospike continue to push the envelope on what's possible in the mobile ad space.

Aerospike is the high-performance NoSQL database that delivers Speed at Scale. Aerospike is purpose-built for the real-time transactional workloads that support mission-critical applications. These workloads have the mandate to deliver informed and immediate decisions for verticals like Financial Services, AdTech, and eCommerce. The unique combination of speed, scale, and reliability can deliver up to 10x performance or 1/10th the cost compared to most other databases.