



HOW WE HELPED A MEGA MESSAGING PLATFORM TO SUSTAIN AND OPTIMIZE PERFORMANCE FOR UP TO 5 TIMES LOAD

About the client

The client is the leading cross-platform instant messaging service provider in India, enabling two-way communication powered by the internet. In addition to text messaging, users can send each other graphical stickers, emoticons, images, videos, audio files, voice messages, contacts and user locations. Since its launch in 2012, they were able to acquire **15 million users within the first 2 years**, and the number of downloads have been on the rise, ever since. With a **current user-base of over 100 million**, it surely is a benchmark for all startup applications.

Company
Instant Messaging App

Location

India

Segment

Communication

Solutions

Migration

**15 million
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the first
2 years**

**Current
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Business Problem

This smartphone messaging app was not able to keep up with the exponential increase in the traffic and downloads and database scalability was major bottleneck. App was expected to serve incoming and outgoing messages up to **3-4 thousand per second** and tuning MongoDB to perform for the scale was issue. Also the increasing traffic led to sharding in MongoDB, and balancing MongoDB repeatedly was difficult to manage, it required downtime and needed manual intervention.

BluePi's Solution

1. Migrate current system from MongoDB to DynamoDB.
2. Tune DynamoDB to improve its scalability and performance, to ensure it can handle a load up to 5 times of current traffic i.e. **10 thousand read/write per second**.



DynamoDB is a managed NoSQL service provided by AWS. Managed service means it scales as the load increases and does not need to be sharded manually like other NoSQL databases. As load increases, throughput can be adjusted on the go by simply changing table's request capacity. DynamoDB scales the platform behind the scenes while delivering the capacity already procured.

This is also cost effective compared to other databases as the client is charged only for the capacity used.

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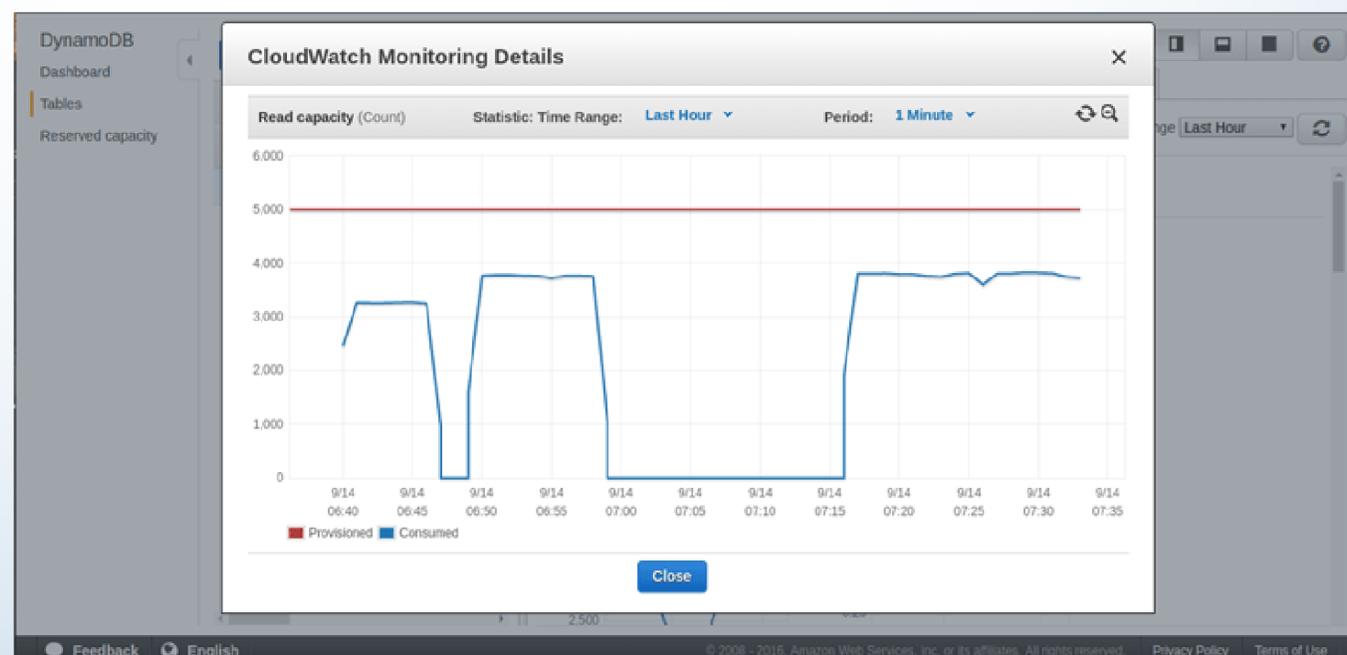
Technologies Used

AWS EC2, JMeter, DynamoDB, Java

Process

1. JMeter installation and configuration in AWS environment on multiple instances
2. Load generation on DynamoDB from local to AWS environment
3. Once load was successfully generated, testing for performance optimization
4. Test included running load with **2.23 TB data and 11 billion records** in DynamoDB. The load test was run with 6000 writes/second and 3000 reads/second, with each read returning 5 rows of data
5. Aggregated report for 10 thread run was captured, confirming that the 90th percentile response is < 10 ms, as in screenshot below:

CloudWatch Report



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Value Additions

1. Single digit latency achieved, for DynamoDB read / write (90th percentile)
2. Scalability improved drastically, DynamoDB could handle load up to 5 times more than what it could originally on MongoDB
3. Cost optimization was another governing factor, with DynamoDB's flexibility of changing provisioned throughput multiple times, the cost could be controlled
4. The shift from MongoDB to DynamoDB on AWS environment meant no management which enhanced the overall work efficiency

Call To Action

If you are looking for a performant and hassle free way to scale your application, reach out to BluePI team at info@bluepi.in