

Case Study: An Emerging Ad Tech Company



How to scale an application to billions of transactions

OVERVIEW

An emerging demand side platform (DSP) vendor turned to Thumbtack when it had trouble scaling to meet the intense needs of the real-time bidding marketplace. Thumbtack designed an architecture that enabled the organization to meet the intense throughput and latency guarantees for a true enterprise bidding system.

- ◆ Front-line system to run dynamic rule set and return bids in under 10ms
- ◆ Integration with data enrichment providers and ability to degrade gracefully if third parties are not responsive
- ◆ Data analytics pipeline pulls large data volumes off front-line servers for batch as well as real-time analytics
- ◆ Real Time Learning Machine to dynamically optimize over time

THE CHALLENGE

The company had already written a traditional web application, but increasing usage started to cause outages.

- The system was frequently unable to meet the 100ms limits demanded by exchanges, resulting in lost revenue as campaigns went unfulfilled
- The logging and analysis system was not designed for terabytes of data, and the vast majority of data was being discarded
- The system was not fault-tolerant, and in order to support growing traffic needed to be taken down every 15 minutes for maintenance

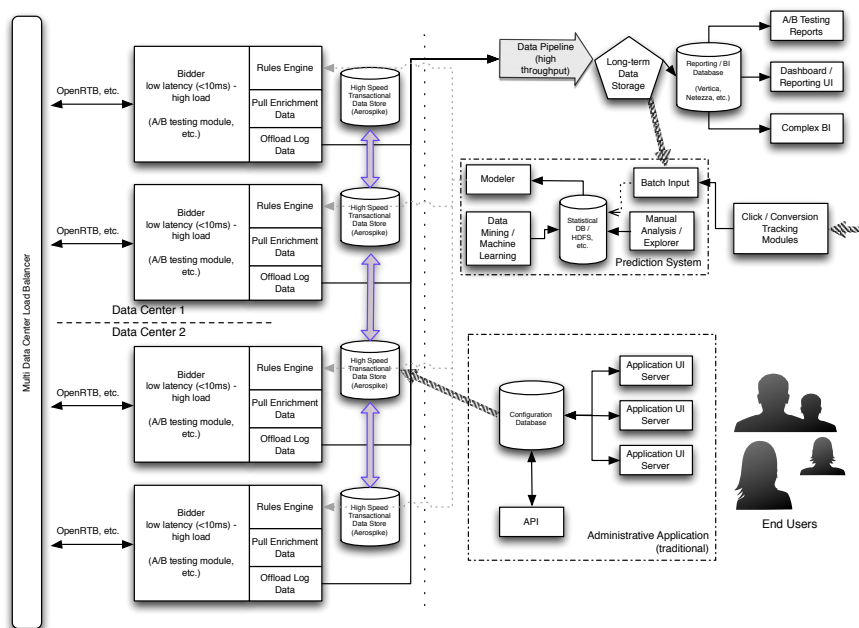
Given the rapidly increasing traffic and the research plans, the company asked Thumbtack to redesign the architecture from front to back. Thumbtack leveraged its High Throughput Architecture to provide guidance and support to bring the application to production scale and provide long-term viability to the platform.

ARCHITECTURE

The Thumbtack High Throughput Architecture is a methodology for designing systems with stringent latency and availability demands. The central principles are:

- Individual components can fail at any time without degrading overall system performance
- Latency and throughput guarantees are embedded as a core part of each system
- Transactional data is a top-tier concern and large volumes cannot block other services.

The diagram illustrates how these principles were used to craft a solution for the DSP market.



MAKE IT WORK FOR YOU

As an engineering and research company dedicated to high scalability and big data, Thumbtack provides a engineers and statisticians that can solve a broad range of problems. Drop us a line and we can suggest a plan forwards.

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