Couchbase at eBay

With over 80+ billion database calls a day and growing, eBay faced major scaling issues with Oracle's relational database technology. As the number of users and items continued to grow in the eBay marketplace, the eBay team needed a backend that was flexible, could provide web-scale read/write performance, and would enable extreme scale at low cost.

They chose Couchbase.

eBay by the Numbers

- 80+ billion database calls a day
- 300K+ reads/sec on 1 server
- 25K writes/sec on 1 server with a low replication queue
- 100K burst writes/sec on 1 server
- Cache 700+ million items with over 150 million user-related rules
- 2+ billion reads/day
- 100+ million tokens written to Couchbase per day

eBay's Scaling Challenge

With a relational backend, eBay faced a bevy of challenges as their marketplace grew. It proved extremely difficult to scale to support the influx of users and items in the marketplace, there was a lack of native sharding and replication, rigid schemas were hard to manage, and maintenance costs were increasing.

After evaluating several database solutions, the team selected Couchbase to power the eBay Marketplace. The advantages of NoSQL were clear: Couchbase was highly scalable at a lower cost, it provided web-scale key value read/write performance, it had a flexible schema, and it offered both open source and enterprise-level licensing models.

Why Couchbase

In addition to all the benefits of NoSQL, Couchbase Server's caching technology allowed for very low latency (<1ms) on reads and writes, 300K+ reads/sec on 1 server, and 25K writes/sec on 1 server. eBay is also capable of 100K write bursts/sec on 1 server. With Oracle's database, such numbers would never have been possible.

Additionally, eBay could now easily and dynamically add capacity without downtime. With Couchbase, there was client support for multiple languages, cross data center replication with multi-master clusters, easy maintenance, and it provided a caching technology.

Couchbase also offered other key capabilities:

- Write buffering for object caching patterns, including session cache/token store, cookies, and complex event processing
- View Item read buffering to enhance the user experience
- Caching of 700+ million items and 150+ million user-related rules

The eBay session and token store needed a strong write buffering solution. Couchbase was used to store authentication tokens and to ensure that sessions continue to be valid. Over 100 million tokens are written into Couchbase per day.

Additionally, eBay uses the cross data-center replication feature of Couchbase Server to allow bi-directional replication between their three global data centers.

Couchbase at eBay today

eBay continues to scale Couchbase Server out as user and item data grows. As they add more data centers, eBay can provide consistency, speed, and session authentication when users login to their profiles.

With its elastic scalability, consistent high performance, and cross data center replication, Couchbase Server was the easy choice for eBay.

You can see the full eBay video presentation at

About eBay

eBay delivers one of the world's largest online marketplaces to customers via any connected device, connecting people with the things they need and love.
With 149 million active buyers globally, eBay is one of the world's largest online marketplaces, where practically anyone can buy and sell practically anything. Founded in 1995, eBay connects a diverse and passionate community of individual buyers and sellers, as well as small businesses. Their collective impact on ecommerce is staggering, and more than 700 million items are listed on eBay.

About Couchbase

Couchbase provides the world's most complete, most scalable and best performing NoSQL database. Couchbase Server is designed from a simple yet bold vision: build the first and best, general-purpose NoSQL database. That goal has resulted in an industry leading solution that includes a shared nothing architecture, a single node-type, a built in caching layer, true auto-sharding and the world's first NoSQL mobile offering: Couchbase Mobile, a complete NoSQL mobile solution comprised of Couchbase Server, Couchbase Sync Gateway and Couchbase Lite. Couchbase Server and all Couchbase Mobile products are open source projects. Couchbase counts many of the worlds biggest brands as its customers, including Amadeus, Bally's, Beats Music, Cisco, Comcast, Concur, Disney, eBay / PayPal, Neiman Marcus, Orbitz, Rakuten / Viber, Sky, Tencent and Verizon, as well as hundreds of other household names worldwide.